

Strengthening Education Management Information Systems (EMIS) and Data for Increased Resilience to Crisis

COUNTRY CASE STUDY: SOUTH SUDAN

Background document

The ‘Strengthening Education Management and Information Systems (EMIS) and Data for Increased Resilience to Crises’ initiative responds to the need for accurate and relevant education data and evidence in crisis contexts. UNESCO, in partnership with NORCAP and supported by Education Cannot Wait and SIDA, has conducted country case studies in Chad, Ethiopia, Uganda, Palestine, South Sudan and Syria to analyse recurring data challenges in crisis situations in the framework of the initiative.

This document was commissioned by UNESCO and is part of the collection of six country case studies carried out. The views and opinions expressed in this paper are those of the author and should not be attributed to UNESCO.

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Acronyms

5Ws	Who, What, Where, When, for Whom
AEC	Annual Education Census
AES	Annual Education Statistics
CED	County Education Director
CGA	Charlie Goldsmith Associates
DTM	Displacement Tracking Matrix
ECE	Early Childhood Education
EiE	Education in Emergencies
EMIS	Education Management Information System
GESP	General Education Strategic Plan
GESS	Girls' Education South Sudan
GPE	Global Partnership for Education
HNO	Humanitarian Needs Overview
IDP	Internally Displaced Person
IOM	International Organization for Migration
MoGEI	Ministry of General Education and Instruction
NDS	National Development Strategy
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
R-ARCSS	Revitalized Agreement on Resolution of the Conflict in South Sudan
SAMS	Schools' Attendance Monitoring System
SGBV	Sexual and Gender-based Violence
SMS	Short Message Service
SSEC	South Sudan Education Cluster
TVET	Technical and Vocational Education and Training
UNHCR	United Nations High Commissioner for Refugees

Background

The effects of the prolonged conflict, economic factors, natural hazards and years of underinvestment in education have converged to put stress on the delivery of quality education for South Sudanese children and youth, while also denying many adults an opportunity to acquire critical literacy skills. Approximately 2.2 million children and youth are estimated to be out of school; and this number is likely to grow without adequate support (UNESCO, 2018). In 2020 alone, an estimated 3.1 million children, both boys and girls, will need targeted interventions to access education (OCHA, 2019). This includes IDPs, refugees, returning populations and host communities – who comprise the largest proportion of out-of-school children.

The role of data in supporting effective education planning has been highlighted. However, the collection of data in countries affected by conflict, like South Sudan, presents significant challenges. Without accurate data, achieving universal access to quality education for all children and youth, including those already marginalized by lack of education opportunities, is significantly constrained.

This case study, which is part of a multi-country project,¹ analyses main data collection systems in South Sudan. It identifies key challenges in the way data are collected, managed and used, especially with regard to education in emergencies (EiE).

Overall aim of the case study

The case study aims to analyse the current EMIS and recurring challenges related to the use and management of education data and information in times of emergencies in South Sudan.

Objective of the case study

To highlight gaps between the information generated through EMIS and data and information used by humanitarian/development actors in South Sudan. Based on the findings from this analysis, to outline potential remedial actions to address the identified gaps.

Methodology

The study was undertaken over a period of approximately four months in South Sudan. It included a desk review of key documents provided by various actors and interviews with representatives from UN agencies involved in issues directly relevant to education, as well as selected education officers from national and international NGOs (based on a list provided by the South Sudan Education Cluster).² Officials from the Ministry of General Education and Instruction (MoGEI), Directorate of Budgeting and Planning – mostly from the EMIS unit – were interviewed over several sessions. Participation in working group meetings, Education Cluster meetings as well as MoGEI-organized meetings served as an additional opportunity to strengthen understanding of the education context and relevant issues around data. Organizations' websites were also consulted to gather additional information.

¹ Similar case studies were conducted around the same period in Chad, Palestine, Ethiopia, Syria and Uganda.

² Efforts were made to interview as many organizations as possible from the list and to include a mix of national and international organizations. An email was sent out using contacts from the Education Cluster list. All the organizations that responded were consulted.

I. Context

A. General country context

Figure 1. Map of South Sudan



Source: OCHA/ReliefWeb

South Sudan attained independence from Sudan in 2011 after a prolonged period of armed struggle for self-rule. South Sudan covers 640,000 km² of land served by severely underdeveloped infrastructure, including roads and other basic infrastructure, which complicates service delivery. According to the National Development Strategy (NDS), South Sudan is characterized by conflict, economic downturn and a humanitarian crisis (Republic of South Sudan, 2018). This is all the more pronounced considering the huge potential of its people and a wealth of other natural resources.

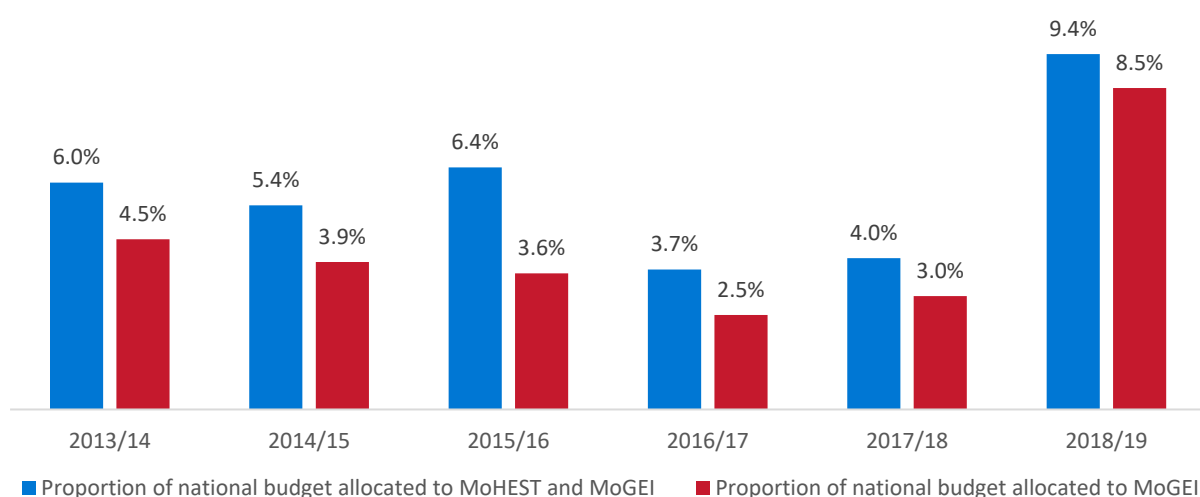
According to estimates, the population of South Sudan is expected to reach 13.2 million people by 2020; the demographic structure indicates a relatively young and rapidly growing population, with an estimated average growth rate of 3.8 per cent by 2020 (MoGEI & IIEP-UNESCO, 2017). The school-aged population (3-17 years) is projected to reach a high of 4.9 million by 2020, according to conservative estimates (MoGEI & IIEP-UNESCO, 2017). The society is largely rural with a low population density, estimated at 17 inhabitants per square kilometre in 2015. Fifty-one per cent of the population lived below the poverty line according to the 2008 household survey, with this proportion projected to have increased as a result of the different episodes of conflict since 2013. In addition, over 70 per cent of the South Sudanese population is considered illiterate (MoGEI & IIEP-UNESCO, 2017, p. 37).

South Sudan has among the most underdeveloped infrastructure in the world. The major road network connecting different parts of the country comprises badly or non-maintained dirt road. This affects movement of people and goods, especially during the rainy season when approximately 60 per cent of the already limited road network becomes inaccessible (OCHA, 2019). Moreover, access to mobile networks and or use of mobile phones also remains limited, with only one-third of the population having access (World Bank, 2018a); while only 28.2 per cent of the country has access to electricity (World Bank, 2018b).

The protracted conflict has badly impacted the economy and has left the country largely dependent on donor support to provide essential basic services for an ever-increasing population affected by the humanitarian crisis. The economy has been in a recession, contracting since 2015 (Republic of South Sudan, 2018). More specifically, the World Bank (2019) estimates that the economy contracted by 3.5 per cent in the 2017/18 financial year, with the most optimistic projections of growth in 2019 dependent on the implementation of the revitalized peace agreement (some aspects of which have been further delayed to 2020). South Sudan is largely dependent on oil exports for its national revenue; the 2019/20 budget proposal projects that oil revenue will contribute 84 per cent of the total revenue of 208 billion South Sudanese Pounds (SSP). With fluctuating prices of oil in the international market in the previous years, this has generally affected government revenue and, consequently, its capacity to provide quality basic services.

The impact of the fall in the real gross domestic product (GDP) on the education sector is reflected in declining actual spending on the budget for education from a high of 5 per cent in 2013/14 to 3 per cent in 2016/17; this is despite a slightly higher total allocation to the education sector of between 4-6 per cent during the same period (MoGEI & UNICEF, 2019). Despite increasing the allocation to the sector in 2019 to 9.4 per cent of the overall government budget, this is below the figure recommended in the South Sudan General Education Act 2012 and far below the global benchmark of 20 per cent; it represents the lowest investment in education in the neighbouring region (MoGEI & UNICEF, 2019).

Figure 2. Trends in proportion of national budget allocated to the education sector



Source: UNICEF and Ministry of General Education and Instruction, Republic of South Sudan, 2019

The allocation to the sector is inadequate to address the immense investment gap needing to be filled to guarantee quality education; and the challenge becomes more pronounced when the composition of education spending is considered. An analysis of the expenditure by the two education ministries (General Education and Instruction, and Higher Education, Science and Technology) for the period from 2013 to 2018 indicates that the bulk of funding went to recurrent costs with capital development expenditure ‘virtually non-existent’ (MoGEI & UNICEF, 2019, p. 14). Between 2013 and 2018, about 90 per cent of the MoGEI budget went to wages/salaries and transfers to national structures and schools (MoGEI & UNICEF, 2019).

B. Crisis context

A complex interrelationship among political, economic, social and environmental factors has contributed to a multifaceted and protracted crisis in South Sudan, one of the world’s newest independent States. This has adversely impacted the building of the country’s nascent institutions and, consequently, its capacity to provide basic services to its population. The post-independence conflict that began in 2013, and has continued at different levels of intensity and geographical spread, has been attributed to the ‘failure of development to reconcile political differences and grievances’ (Republic of South Sudan, 2018, p. 12). The nature of the conflict is not only political but also has several layers (i.e. ethnic and intercommunal), sometimes aggravated by natural disasters. All these combined have caused displacement, violence and disruption of essential services, for example health and education (OCHA, 2019).

The ceasefire agreed between the main parties to the conflict following the signing of the Revitalized Agreement on Resolution of the Conflict in South Sudan (R-ARCSS) in 2018 has largely held, although some armed groups are not yet party to the agreement. A small number of areas in the Equatorias continue to experience clashes. This is exacerbated by localized inter- and intra-ethnic communal violence – often driven by resource scarcity – that has been reported in some states (OCHA, 2019).

As a result of the conflict, nearly 4 million people remain displaced: 1.5 million internally and more than 2.2 million as refugees (OCHA, 2019). Moreover, a combination of conflict and natural disasters had rendered nearly 6.4 million people (54 per cent) of the population acutely food insecure as of August 2019, according to the Integrated Food Security Phase Classification (IPC) analysis (OCHA, 2019). In addition, it is estimated that more than 1.3 million children under five will be acutely malnourished in 2020, affecting their preparation for the early years of school, among other developmental issues.

Besides recurring conflict, South Sudan is also prone to the adverse effects of natural hazards such as droughts, floods and disease outbreaks, further complicating the lives of vulnerable populations and derailing efforts towards long-term sustainable development. The combination of political, humanitarian and economic crises has contributed to the soaring cost of living, food insecurity and serious challenges in the provision of essential basic services.

One of the consequences of the different crisis factors is a high number of people in dire need of humanitarian support in most parts of the country. According to the UN Office for the Coordination of Humanitarian Affairs (OCHA), an estimated 7.5 million people need some form of humanitarian

assistance or protection, with 45 out of the 78 counties in South Sudan categorized as being in severe need while the rest (33) are in extreme need. Furthermore, an estimated 5.2 million people face difficult living conditions with two-thirds of the counties showing a convergence of significant water, sanitation and hygiene (WASH), protection and education-related needs. Among the 5.2 million people in need are host community members or people who are otherwise affected but not displaced, while 1.4 million are IDPs, nearly 600,000 are returnees and about 300,000 are refugees (OCHA, 2019).

C. Education in Emergencies context

The effect of the prolonged conflict, economic factors, natural hazards and years of underinvestment in education have converged to affect the delivery of quality education for a large population of children and youth, and deny many adults an opportunity to acquire critical literacy skills. According to the South Sudan *Humanitarian Needs Overview* for 2020, an estimated 3.1 million children, both boys and girls, are in need of access to education services in 2020³.

This includes IDPs, refugees, returning populations and host communities, who face significant challenges. They have limited or no access to pre-primary, primary and secondary education opportunities and are exposed to factors that complicate their chances of accessing education or remaining in school, such as early marriage, forced recruitment to armed groups, physical and other disabilities. Twenty-two per cent of school-aged refugee children are out of school while the returning population from Sudan and other neighbouring countries has created more pressure on functional schools.

Furthermore, some 2.2 million children and youth are estimated to be out of school, with this number expected to increase to 2.4 million if the situation does not change (UNESCO, 2018). The majority of out-of-school children remain in remote rural areas with little or no school coverage.

Education infrastructure is in poor condition. According to AES 2018 data, about 70 per cent of classrooms are either open air, tents, roof-only or semi-permanent. In addition, 42 per cent of primary and secondary schools and classrooms are either partially or completely damaged, although the data show variation between levels of schooling, with a bigger proportion of primary schools (70 per cent) either partially or completely damaged (MoGEI). Moreover, 34.2 per cent of schools lack toilets and less than 50 per cent have access to functioning water sources within or near the school compound.

Teacher supply, quality, attendance and remuneration remain key challenges for the delivery of quality education in South Sudan. According to the Annual Education Statistics (AES) data for 2018, 70 per cent of teachers are untrained with the highest proportions of these teachers in the Alternative Education System (75 per cent), at primary school level (74 per cent), and in early childhood education (ECE) (71 per cent), followed by technical and vocational education and training (TVET) institutions (49 per cent) and secondary schools (40 per cent). About 37 per cent of the teaching force in primary schools has only a primary-level education (in some cases, which has not been completed). Moreover, gender disparity persists: only 14 per cent of teachers are female. Low remuneration, poor terms of service, delayed or lack of payment and lack of systematic career development continue to undermine

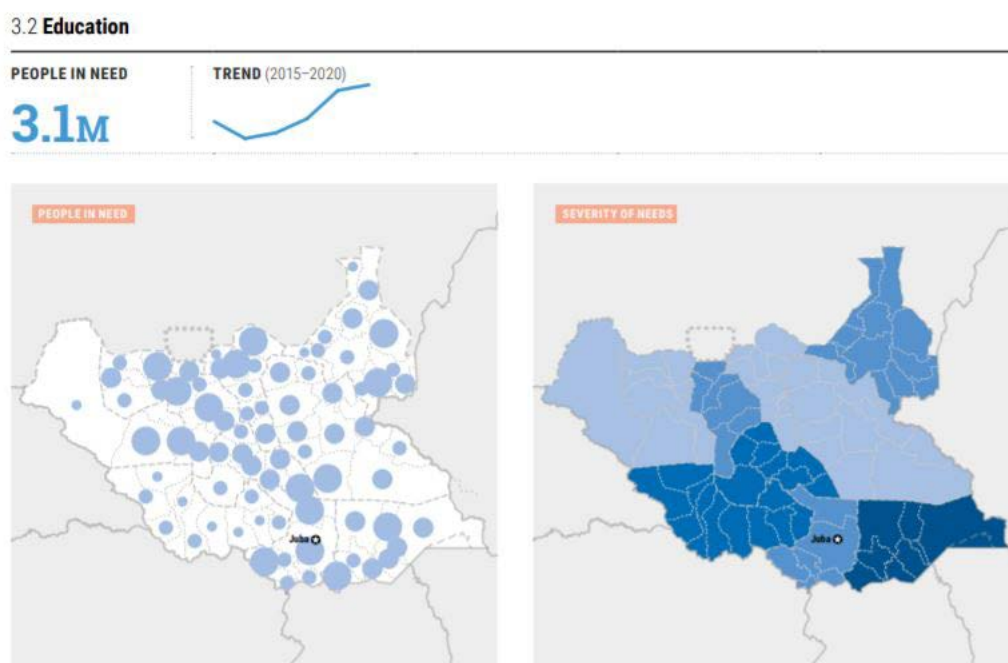
³ According to the Education Cluster, the number of those in need was arrived at by computing two indicators: % of out of school children and % of drop-outs.

efforts to improve the quality of teachers and lead to high turnover.

Insecurity continues to hamper provision of education in several ways: it has rendered an estimated 20 per cent of schools non-functional due to fighting around schools. In some areas, schools are still closed; and in others, children often miss school due to conflict in their communities. In addition, a number of schools are used for military purposes or occupied by displaced people fleeing fighting, further constraining access to education.

Other factors affecting provision of education include inadequate or no basic teaching, learning and recreational supplies; lack of food as the food security situation continues to deteriorate; lack of access to schools for children in remote rural areas who comprise the majority of those out of school; long walking distances to schools; and exclusion, in particular, of children with disabilities, pastoralists and children in conflict-affected areas, including IDPs and refugees.

Figure 3. Map of severity of education needs (2019)



Source: OCHA/ReliefWeb

II. Data environment: Describing the state of play

A. Prioritization

Key education stakeholders engage and invest in data collection depending on their level of interest in data and access to resources. There are some commonalities in terms of the purpose of data collection and analysis across organizations. This section discusses the main uses of data among actors in the sector consulted for this case study. The importance of data was highlighted in discussions with all the organizations consulted. Different levels of resources and capacity to collect and analyse data were evident, with most organizations dedicating some level of capacity to data gathering and analysis. Data were considered important for a number of key reasons:

Organizations generate information to support programme/project planning and design. With regard to EiE data engagement, the need to justify thematic areas of intervention as well as the overall number of those targeted are a necessity for any project design. Donors funding emergency interventions require organizations to demonstrate a good understanding of the target populations, needs and locations, and organizations have to collect primary and secondary data to meet this requirement.

The MoGEI requires data for *policy analysis, budgeting and decision-making*. The school and teacher population data have informed budget planning, which includes determination of the capitation grants to schools and planning for teacher incentives. In addition, most recently, MoGEI has used data from the Annual Education Census (AEC) to plan the printing and distribution of textbooks on the new curriculum. Furthermore, AEC data provide background information used to assess progress on key education indicators during the annual General Education Review conference that brings together key stakeholders in the sector, including national- and state-level ministry officials, donors and education partners.

To provide information for accountability in use of resources. Organizations are required to provide progress on their interventions to a range of stakeholders including donors, the Education Cluster and government authorities, as well as to satisfy internal reporting requirements. Data are an important component of this process.

To support monitoring and evaluation of the performance of education interventions. This includes use of data to assess how projects/programmes are performing against targets. In EiE interventions, data are mostly used to demonstrate achievement of outputs such as how many children were enrolled in school or participated in different activities or the number of facilities constructed or provided. This is done on a regular basis depending on the scope of projects/programmes or as part of a planned periodic review of interventions. During evaluations, data provide evidence to assess the efficiency and effectiveness of programme interventions.

The most immediate use of analysis of project data is to engage with communities, for example, to *inform community mobilization efforts* around certain emerging issues such as declining enrolments. In addition, some organizations indicated that data are collected to inform *broader research objectives* related to whether organizations are achieving their initial plans as part of evaluating their theories of change, which moves beyond successful delivery of outputs to assessing the results of interventions for their target populations. Analysis of these data is used for *internal learning and decision-making*; in other cases, it is shared widely to influence donors and government.

A number of organizations also indicated that the data gathered inform *strategic advocacy* activities at national and international levels. At national level, stakeholders have used data to advocate on issues such as ensuring schools are safe spaces for learning by calling on armed actors to vacate schools, as well as calling for increased funding for education both by government and donors. Internationally, data have been used to strengthen international appeals on a range of issues.

B. Actor mapping

EiE data are understood as data that aim to capture and provide a snapshot of the education situation for crisis-affected populations across the various levels of schooling. There are different actors collecting and providing this information in South Sudan, though such information is not always strictly collected as EiE data. Thus, sometimes targeted analysis is required to pick out information with relevance to EiE. Overall, key actors providing some form of EiE data in South Sudan include MoGEI, the South Sudan Education Cluster (SSEC), UN agencies and for-profit organizations. International and national NGOs are also active in collecting crisis-related education data; however, the consolidation and dissemination of these data tends to come through the Education Cluster system or UNICEF, as well as through partners' own forums. The sections below provide an overview of some existing initiatives and key actors, their perspectives on data, data production, data needs, the interface with education ministry data, challenges and gaps.

MINISTRY OF GENERAL EDUCATION AND INSTRUCTION

MoGEI, through funding from the Global Partnership for Education (GPE), conducts an annual education census and covers key indicators on the education sector for pre-primary, primary and secondary education, non-formal education, and TVET. This information is collected through the Annual Education Census (AEC) and published in the Annual Education Statistics (AES) booklets (also available in soft copy) produced by the Ministry. In addition, the Ministry mapped out the GIS coordinates of most schools in South Sudan in 2013. The EMIS unit at MoGEI manages the data collection process. Lastly, the Ministry, through the South Sudan National Examinations Council, collects and stores data on assessment of learning outcomes, primarily the results of primary and secondary school leaving examinations.

The EMIS Annual Education Census

The AEC is the main data exercise conducted by MoGEI directly through its staff. Previously, most of the planning and analysis was done with the support of external consultants. However, in the last exercise (completed in 2018) much of the work was managed by the EMIS unit – although with some level of input from consultants, especially at the stages of analysis and final reporting. Since 2006, the annual data collection has been supported by GPE through UNICEF with the exception of 2014, 2017 and 2019, when the AEC was not conducted. MoGEI only assumed control of EMIS in 2013 with the objective 'of increasing ownership, sustainability and decentralization'. The annual data collection exercise has mainly been affected by cycles of conflict and lack of funding from the government, hence it has been reliant on partners.

Focus of data collection

The AEC data collection covers the following key data points/indicators, although the AES booklet provides further analysis of sub-components:

- *Enrolment and characteristics of learners:* The main information collected and analysed includes the number of schools by level of education and ownership; distribution of students by age and level of education; number and types of disabilities and gender; refugees enrolled in schools by state and gender (appearing for the first time in the 2018 AEC); demobilized soldiers by grade and state; student flow information (drop-outs and reasons for drop-out, repetitions and promotions)

- *Teachers:* Population of teachers by state, gender and level of training as well as pupil-teacher ratio by state and by levels of education
- *School infrastructure:* The condition of classrooms by state, level of education (permanent, semi-permanent, roof only, tent or open air); number of schools not damaged, damaged or partially damaged; availability of critical facilities (drinking water, school latrines, other support infrastructure)
- *Language of instruction and curriculum used in school*
- *Access to school feeding*
- *School governance and supervision:* Number and frequency of school supervision visits by state, presence of school governance bodies.

Data collection, entry and analysis

MoGEI annual data collection uses a paper-based questionnaire that is filled manually by head teachers. They are required to fill the summary information drawn from the pupil admission and attendance registers as source documents. This process takes about a week from the time the exercise starts to the time they submit the questionnaires back to the supervisors at the *payam* or county levels. The data gathering process begins with a one-day training for all head teachers, county education directors, *payam* education supervisors, and county liaison officers to ensure a common understanding of the questionnaire, how to complete it correctly and the responsibilities for each person in the exercise. The staff from the EMIS national office facilitate the training at the state level.

Once the questionnaires are completed, they are forwarded to the national EMIS office through the EMIS focal person at the state ministries of education (subnational level). At the national office in Juba, data entry into computers takes place (with the exception of 2016, where data entry in two states was decentralized to their state capitals). The first step is to sort the questionnaires into two categories: the complete ones and those that have missing information. The properly filled questionnaires are marked with a green sticker and are ready for keying data into the database. The data entry clerks (mostly students from the university) are supervised by a team of supervisors – which, during the 2018 process, included two staff members from MoGEI and a consultant – during the data entry process. The supervisors review the data as they are being keyed-in to ensure accuracy and identify errors, which are then followed up for rectification. At the end of each day's work, the supervisors conduct a random sampling of entries to further check and verify that data have been entered properly. Incomplete questionnaires are marked with a red sticker and forwarded to a call centre set up for the data collection process. Here, using contacts provided in the forms, follow-up is done through phone calls to the head teachers or relevant staff to provide missing information or verify any data that raise questions.

An important component for ensuring quality through the entire process is training for all those involved in data collection, supervision, data entry and analysis so that they understand their roles as well as the purpose of the exercise. Key actors provide additional quality checks through multiple reviews of analysis report drafts. Towards the end of the process, validation of the data through a national workshop bringing together MoGEI staff and key partners provides a final review and check

on the quality of the data. The key steps in the data management process have been outlined in a data management manual for the Ministry.

Data storage

The AES and GIS information for primary schools (only collected in 2013), which are in the custody of the MoGEI unit, are stored in an MS Access database. Due to the limitations in the capacity of this MS Access database to handle large amounts of data, as well as difficulty in integrating different components of data into this database, MoGEI plans to migrate to a platform that has capacity to support more information as well as integration of different datasets. However, the discussions are still at a preliminary stage.⁴

Education Management Information System

Structure of EMIS unit⁵

At the national level, the EMIS unit currently has six staff and is headed by the Deputy Director for Data and Statistics. The Directorate of Planning and Budgeting of MoGEI supervises the activities of the unit. At the state level, the EMIS unit has an EMIS focal person who is an employee of the state ministry but is seconded to the national EMIS unit during the AEC. Before the changes in the number of states that occurred in 2015 and 2016, the EMIS unit had a focal person in each of the previous 10 states; however, with the reorganization of the administrative structure that increased the number of states from 10 to 32, not all states have a designated EMIS focal person. The EMIS management is hence quite centralized with most of the responsibilities handled by the EMIS unit at the national level.

Before the onset of the conflict, the EMIS unit had a strategy for gradually decentralizing data collection activities to the state level, while the national level would retain the role of conducting analysis of data, oversight of state-level data collection, policy development, monitoring and dissemination of data analysis at the national level. In order to achieve the decentralization of data collection, the plan was to support state-level units in terms of training and equipment required to fulfil their role. The first phase targeted two states: Central Equatoria and Western Bahr el Ghazal. However, this was interrupted by the 2013 conflict and the process stalled. As a result, data collection and analysis were recentralized to the national EMIS unit.

In terms of allocation of resources to the unit, only staff salaries are supported through the national budget – although this has not been consistent, with staff going for some months without pay. As a result of lack of funding, the capacity of the EMIS unit to oversee data management beyond that which is supported by donors is quite constrained. This includes its own capacity building plans as well supporting state-level ministries. Consequently, the strategic plan to roll out the decentralization of data management to the state level cannot be implemented as, currently, there are no resources to support this process. To emphasize the seriousness of this challenge, according to the Deputy Director in charge of the EMIS unit, without the support of GPE from 2016 to 2018, the Ministry would have

⁴ Key actors involved in supporting data were invited to participate in the working group meetings. At least two meetings were held before the end of 2019. UNESCO was invited and participated in the first meeting. Others included GESS, CGA, UNICEF, MoGEI and USAID, among others. It is important that UNESCO engagement be sustained. The nature of the platform to be used is part of this discussion and has not yet been decided.

⁵ Information from this section is based on interview discussions with a Ministry official.

found it hard to implement the annual education data collection exercise. GPE is currently supporting a system strengthening project, which includes building the capacity of the staff in order to manage the EMIS.

In terms of the EMIS, MoGEI has fragmented datasets that are managed separately, and lacks a unified platform for consolidating these different datasets. MoGEI holds the AES data and school GIS coordinates in one database. The Schools' Attendance Management System (SAMS) is currently in the process of being handed over to MoGEI by Charlie Goldsmith Associates (CGA), who were managing the system as part of GESS 1; however GESS 2, managed by BMB Mott MacDonald, are providing support in addition to pro-bono support from CGA. The Human Resource Information System (HRIS) is managed by Mott MacDonald under the EU-funded IMPACT project. UNHCR produces information on refugee education through the refugee EMIS while the National Examinations Council manages national examination information. The Ministry has recognized the need to integrate these fragmented datasets into a harmonized system. Discussions led by MoGEI on how to approach this challenge are at an early stage.⁶

EMIS in relation to EiE data

The *South Sudan General Education Strategic Plan (GESP) 2017-2022* makes a commitment to include EiE as part of the priority thematic areas of focus and proposes to build an education system that is resilient to different shocks. This is in recognition of the context within which the education sector operates, characterized by protracted conflict and the interplay of other non-conflict risks that intersect to exacerbate the challenges of education provision.

The sector plan envisions a linkage between the humanitarian and development phases, now recognized as a gap in education provision in the country. Key issues of focus include activities to build social cohesion; renovation/reconstruction of education facilities; creating secure and safe learning spaces (e.g. ensuring armed forces vacate schools, fencing, and ensuring schools are constructed near communities to reduce distance that learners have to commute); and ensuring school structures can withstand natural hazards such as strong winds, lightning and flooding, as well as being conflict resilient. Additionally, it prioritizes strengthening coordination and addressing the educational needs of IDPs, refugees and returning populations – including integrating IDP and refugee teachers into the national certification program, as well as contingency planning and pre-positioning of stocks of teaching and learning materials to respond to situations of displacement.

However, despite this recognition, there is no clear structure or strategy on how to implement such a commitment from the viewpoint of data collection and analysis. MoGEI mainly relies on the Education Cluster to lead in the collection, analysis and storage of data, with the involvement of the Ministry mainly being to co-design data collection indicators and tools and to provide staff for data entry.⁷

⁶ The EMIS unit convened a Data Working Group in mid-November 2019 and shared a concept note on data integration for members' input. Further meetings are scheduled in 2020.

⁷ This is based on discussions with a Ministry official.

Challenges related to EMIS

- The current data collection schedule and focus of MoGEI is not very responsive to collecting information on emergencies, although some aspects can still be found in the existing data. The period between data collection cycles can be significant; it is mostly one year, but during periods of disruption, it can extend to more than a year, which means that information on the impact of geographically dispersed as well as localized emergencies is not directly assessed. Furthermore, MoGEI data do not directly assess the effect of non-conflict-related emergencies – such as famine or floods – on the education system. Generally, it is not straightforward to get EiE data from EMIS as it lacks data and analysis on key aspects of EiE-related information.
- Moreover, capacity issues further affect collection of data across the board:
 - Data literacy among teachers is a challenge with some teachers unable to complete data questionnaires correctly. At least 37 per cent of the teachers, according to the 2018 AES, have only completed primary school level or are primary school leavers. This becomes significant when considered against the backdrop of poor quality of education at this level of schooling. Teachers are the key sources of information when it comes to providing and filling in data questionnaires. Furthermore, even where capacity exists, the turnover of teachers due to low and inconsistent payment makes it more difficult to reap the full benefits of training in terms of improved data collection.
 - Many areas of the country are inaccessible during the rainy season or during surges in armed conflict. Additionally, because of poor road, mobile phone and internet networks and limited financial resources, data collection efforts are severely constrained.
- Furthermore, updating of school information in the EMIS list has not kept pace with the changes on the ground, especially following the conflicts of 2013 and 2016. Organizations highlighted the mismatch between the EMIS list and actual schools. Some schools on the list are no longer operational while new ones are not reflected and hence have no codes.
- Similarly, the population figures on which estimates are based are also outdated, as the last population census was conducted in 2008. As a result, there are no precise figures on the population, including at the county level, which complicates efforts to estimate the number of school-aged children and youth out of school.

Data use

The use of education data by MoGEI includes to:

- Provide information for MoGEI budgeting process
- Determine the value of capitation grants for schools
- Disburse cash transfers to states, counties and schools, and to girls who are supported through the GESS project
- Determine the number of teachers to be paid; in addition, teacher attendance data captured through the system are used to determine the value of incentives owed to teachers on a monthly basis

- Analyse and plan for capacity building, for example, for teacher training
- Determine the number of textbooks required for the roll-out of the new curriculum, as well as plan for their distribution to schools.

Dissemination

MoGEI dissemination of AES data has been through the Annual Education Statistics booklets in both hard and soft copies. The same information is available on MoGEI's website, although feedback from those consulted during this exercise suggests that the information has not been updated regularly. The summary of AES for each state is published in hard copy and distributed with information specific to each state. Though MoGEI, in principle, is meant to be the owner of the SAMS data, the dissemination of these data is not prominent on the Ministry's website.

UNHCR - REFUGEE EMIS

UNHCR in South Sudan is currently responsible for a total of 299,162 refugees, of whom 92 per cent are from Sudan. In terms of demographics, 61 per cent of the refugee population are under 18 (UNHCR, 2019).

UNHCR is supporting 36 primary schools in refugee camps in 5 states with 551 operational classrooms, in addition to 4 secondary schools. In these schools, UNHCR is responsible for construction, furniture, teaching and learning materials, hiring, and payment of teachers' incentives. In urban areas, UNHCR does not establish schools; but instead, school-going refugee children and youth are integrated into existing public schools. These public schools receive support based on findings from needs assessments conducted by UNHCR partners.

Data collection

All refugee data are collected through a biometric system at the point of registration that is overseen by the protection unit of UNHCR and its partners. Education for UNHCR is approached as a component of protection. Upon registration, every individual refugee gets a proof of registration, which is extracted from the biometric database and assigns a unique individual number that does not change, regardless of where an individual refugee is in South Sudan. This number is required at the point of enrolment at school. The individual number is linked to the UNHCR database and is used to validate the school enrolment details for refugees but is also useful in tracking the progress of learners. In addition to the enrolment data, schools also collect attendance details, which they previously recorded on MS Excel spreadsheets but now are making use of MoGEI school attendance registers. The information is later entered into the refugee EMIS.

School enrolment and attendance data are stored in the refugee EMIS, according to information from the UNHCR education unit. Education data are collected at all levels and are gender- and age-disaggregated. Other data recorded in the refugee EMIS include information on teachers and their nationality, subjects they teach, GPS coordinates of schools, furniture, facilities, school materials, etc. the refugee EMIS is updated based on events in a refugee life, or changes in the case of other categories of data (e.g. new classrooms or additional furniture). The same applies for teacher information, which is also updated following changes such as transfers, changes in subjects taught or training status. Enrolment information is updated as soon as changes happen (e.g. drop-outs or new

enrolments). The biometrics database and the refugee EMIS information are linked through the individual number.

According to the interview with UNHCR, it was emphasized that ‘the refugee EMIS is only a roadmap whose end process is the inclusion of refugee data into EMIS. It should be considered as an effort to collect and verify the information for all refugees ahead of inclusion. To this end the indicators captured in the refugee EMIS align very well to those captured in the EMIS’.⁸ As part of this process, UNHCR has also supported the training of the deputy director in charge of EMIS on the refugee EMIS to prepare the unit for inclusion of refugee education data into the national EMIS.

Besides the biometrics and school-level data, UNHCR also conducts needs assessments based on specific situations. For example, at the time of the interview, UNHCR was conducting a needs assessment in response to the flood emergency in Maban (Greater Upper Nile). Data collection is mainly through paper-based methods. Education data collection at the school level also includes information on health, WASH, child protection, sexual and gender-based violence (SGBV), and disability, among other cross-cutting issues. At some point, data were being collected on the KOBO platform using tablets but this was abandoned due to staff turnover and financial constraints.

Data entry and controls

The responsibility for data entry, especially concerning enrolment, is a joint effort among teachers, UNHCR education partners and UNHCR field-level staff. Staff at a higher level verify data entered by those they supervise. Data management is also controlled through user rights that limit what different levels of users can do with regard to data creation and management. For example, teachers can only view and edit the data in their schools while UNHCR partners can only view and edit data related to their specific camps.

UNHCR interface with EMIS

UNHCR refers to data from EMIS, especially with regard to data on refugee hosting areas. This information is used to compare education quality indicators among refugee and host communities.

Challenges to inclusion of the refugee EMIS into EMIS

- Capacity challenges at the EMIS unit – in terms of human and financial resources and lack of adequate equipment – affect its ability to discharge its mandate effectively.
- Currently, the enrolment data on refugee schools in EMIS differ from UNHCR records and are thus unreliable for the purpose of planning. For example, data from EMIS show there are refugees in a number of states that are not reflected in the UNHCR data. This could be due to a number of possible reasons including misunderstanding of the definition of who is a refugee.

Gaps in EMIS data from UNHCR perspective

- EMIS data are not updated regularly; as such, some of the schools captured in the last education census are not functional, while new schools have been established but are not reflected in the EMIS list. In addition, teacher numbers have changed but the figures have not been updated (this

⁸ This is based on discussions with UNHCR in Juba.

information was provided before the release of the 2018 AES figures). The 2018 AES figures provided information on the number of refugees, although the perspective of UNHCR on the quality and accuracy of the latest information was not discussed.

- Confidence in the EMIS data among data users is affected, especially due to the long intervals before the data are updated. Moreover, questions about the accuracy of the information persist, in part due to the perception that quality assurance mechanisms to verify data provided by teachers are inadequate.

Inclusion of the refugee EMIS into EMIS

The plan for inclusion of the refugee EMIS into EMIS anticipates a situation where MoGEI collects and updates data on refugees in the same way it does for the rest of the learners in line with Ministry's timeframe. However, UNHCR will continue to collect and manage enrolment data through the refugee EMIS for organizational decision-making. It is expected that data collected through both systems should be similar, each triangulating information from the other system. Eventually, when the inclusion is successful, UNHCR foresees a situation where there will be no need for collecting data separately, but instead would depend on the government to take leadership on data collection for refugees.

Data use

The main uses of education data for UNHCR include:

- Analysis of key education indicators to provide information on access and quality of education among refugees. More specifically, as the data capture age and the system updates this information automatically, it is possible to analyse key education indicators on coverage of education services including enrolment, promotion, transition and drop-out rates. Other information such as identifying the level at which learners are likely to drop out of school can be carried out based on analysis of multi-year data.
- Monitoring and evaluation to assess progress and impact of interventions and report on the performance of UNHCR programmes, internally as well as to external donors.
- Feeding into the UNHCR planning process to ensure the education needs of refugee children and youth are addressed. A key use of these data is to support gap analysis on education service provision. Further, data are used in the preparation of distribution plans for a range of materials.
- Resource mobilization.

Dissemination

UNHCR's approach to data sharing is mainly guided by the need to protect certain aspects of information as part of its mandate for protection of refugees, and hence it does not disseminate its raw dataset. Data sharing agreements exist with several partners due to the sensitivity of some of the data it collects. At a wider level, UNHCR shares analysis of its data to show progress in refugee education programmes. Data are shared with MoGEI, but on a case-by-case basis – for example, information on school enrolment in the refugee camps was shared with MoGEI to inform distribution of the new curriculum textbooks.

SOUTH SUDAN EDUCATION CLUSTER

The South Sudan Education Cluster (SSEC) is a key reference on EiE information for actors in the humanitarian space, as mentioned by most of the respondents for this case study. The SSEC collects at least two types of data.⁹ First, it collects nationwide education functionality data; this was done annually from 2016 to 2018, but was skipped in 2019 as it coincided with MoGEI's 2019 AEC exercise. The next assessment is planned in 2020. The nationwide annual assessment has been a key data source informing the annual Humanitarian Needs Overview cycle, the analysis of which is widely used by education actors in planning and responding to the humanitarian crisis.

The second type of data held by the Education Cluster is aggregated from the partners' (national and international NGOs') monthly 5W matrix reports based on implementation of activities in the different parts of the country. The data are an indication of education partners' presence in the country. The accuracy of the 5W matrix reports has faced a number of challenges. As information is based on activities completed on a monthly basis, some of the information is repeated and therefore when consolidating over the year, the numbers can be unrealistically high. There is a very real possibility of reporting the same beneficiaries multiple times. For example, if an organization pays teachers and provides education supplies, it is very difficult to avoid double counting of these students. This requires clear guidelines from the Cluster as well as adherence to these guidelines by partners. However, in some cases such guidelines are not followed due to misunderstanding about how to report on indicators and can be unreliable to that extent.

In the last three annual Education Cluster nationwide assessments (2016, 2017 and 2018), objectives for data gathering remained consistent. The three main and interrelated objectives are: to provide information that helps stakeholders understand the education situation in South Sudan in order to inform strategies for mobilization of funds for the sector; to identify areas most affected and the most effective responses for addressing the needs identified; and finally, to provide recommendations on the most effective activities for resuming education in a way that creates linkages between humanitarian and development interventions.¹⁰

Data collection

The nationwide SSEC assessments collect data on the following thematic areas/issues:

- Background characteristics of an area that affect education such as levels, frequency and nature of violence; changes in population and triggers for these changes; and types of emergencies other than violence experienced in the area during the assessment year (only assessed in 2018).
- School-level data in sampled schools, including regarding access during different weather conditions and school functionality, as well as suggestions about what could be done to reopen non-functional schools. In the case of functional schools, data are collected on enrolment, attendance, the number of education days lost in the year and reasons for the loss, as well as the

⁹ The analysis for this section is based on information gathered from assessment reports and discussions with the Education Cluster staff through a face-to-face meeting and emails. Additional information was also collected in discussions with Cluster members during interviews.

¹⁰ The objectives can be found in the 2016, 2017 and 2018 South Sudan Education Cluster annual nationwide assessment reports, available at <https://www.humanitarianresponse.info/en/operations/south-sudan/education> (see 'Assessment and Questionnaires').

number of drop-outs among boys and girls and reasons for their leaving. In addition, data on learner absenteeism are also highlighted.

- Number, types and frequency of attacks on schools.
- Number of refugees and IDPs attending school on the day of assessment, although information on the number of refugees and IDPs enrolled in the school are not highlighted in the questionnaire.
- Teachers: The assessment collects data on the number of teachers in the school present at the start of the school year by employment type (i.e. government, community or volunteer), and the number of those present on the opening day of school that are absent on the day of assessment by gender, employment type and their highest academic qualification. It also assesses and ranks the reasons for teacher absenteeism and the number of months for which teachers have been paid in the year of assessment.
- Governance and support: The assessment collects data on the existence of school management bodies and frequency of meetings, as well as the frequency of supervision visits by an education authority.
- Type of support required for the school: The assessment also collects information from the key informant on the top three education activities required to support children in the school.

The nationwide assessment, over the three-year period for which data are publicly available, used a sample of slightly less than 10 per cent of the schools registered in EMIS for each year (this is about 400 schools out of a total of 5,564 schools in 2018). The main methodology was primary data collection, with questionnaires administered to head teachers in sampled primary schools across the nation and county education directors in all the counties. This was supplemented with data from secondary sources. The sample selection method varied slightly over the years, with the 2016 and 2017 sampling frame using a six-strata, two-stage cluster sample while simple random sampling (randomization via an Excel sheet) was applied in 2018.

The data collection exercise is managed at different levels. The Education Cluster unit in Juba oversees the whole exercise nationally, while at the state level, the exercise is coordinated by field focal points based in the state capitals. Field focal points are trained at the capital and afterwards cascade the training to field teams comprising staff from NGOs and MoGEI who do the actual data collection. Since 2018, the data collection process includes support from an assessment working group. Data collection was conducted over a three-week period with most of the data collected face-to-face; but when the security situation did not allow, data were collected via telephone. Key informants in 76 out of 78 counties were interviewed by the end of the data collection exercise, which represents 97 per cent coverage.

Data processing and quality

The SSEC data collection, entry and processing integrate a number of quality checks throughout the process, including:

- Verification of data sources referred to by key informants through reference to actual records (for example, in 2016, 85 per cent of the information on school enrolment was based on enrolment records), direct observation (head counts of learners) and probing of key informants;

- Multiple reviews of completed assessment questionnaires: at state level, questionnaires were reviewed by assessment field focal points while at the national level, the Education Cluster unit reviewed the data. Follow-up with the key informants by the field assessment teams by phone when there were queries on the information provided;
- Double data entry (two-pass verification process) to address data entry errors;
- Triangulation of information at several levels: information on key indicators was collected both at the county level as well as the school level, comparison of data with the previous year's results as the same questions were retained, and comparison with EMIS findings when this information was available;
- Use of external statistical review whereby statistical analysis was supported and reviewed by a team of external statisticians;
- Validation of initial findings at state and national level by assessment teams and education resource persons; and
- Multiple reviews of draft and final versions of the assessment report by the Education Cluster unit, assessment field focal persons, the assessment technical working group and Education Cluster partners, and the Ministry of Education.

Challenges

The quality of data is affected by the capacity of partners to report accurately. If partners do not do their data collection and reporting accurately, it affects the quality and reliability of the consolidated Cluster data. This is also affected by how partners understand and interpret the key indicators during data collection and reporting. Although efforts have been made to train focal persons from partner organizations and to provide a document that explains how to interpret, collect and report on the different indicators, the high turnover of staff means that the challenge has not been fully addressed. Furthermore, the cluster coordination unit has a limited number of staff, and is therefore unable to independently verify information provided by partners.

Gaps

- The Education Cluster assessment only focuses on primary school level; other levels of education are not addressed;
- As data collection focuses on the school level, it does not provide information on the proportion of school-aged children who are out of school or factors that contribute their being out of school. Further household factors that affect education are not assessed;
- Learners' psychosocial needs are not addressed in the assessment despite South Sudan emerging from a prolonged violent conflict;
- The issue of the quality of learning in functioning schools has not been a focus of the assessment.

Dissemination

The SSEC consolidates data from all the reports shared by partners. The consolidated data are disseminated in the form of information management products, e.g. maps and dashboards, which are shared with partners when available, as well through the Cluster website. The summary of the 5Ws information from all partners provides information to demonstrate collective efforts in reaching those in need.

GIRLS' EDUCATION IN SOUTH SUDAN (GESS) AND EU IMPACT PROJECTS

Charlie Goldsmith Associates (under GESS 1) and Mott MacDonald (GESS 2 and IMPACT Project) have supported a nationwide data capture system for students and teachers.¹¹ The South Sudan Schools' Attendance Monitoring System (SAMS) is designed to be a comprehensive database that collects information on all primary and secondary school learners at the stage of admission through a paper-based 'Pupil Admission Register' questionnaire filled at the start of every school year.¹² The system also collects information on daily attendance and changes in enrolment (e.g. new enrolments, transfers, drop-outs), information that is collected daily and transmitted through an SMS-based system. The process of handing over the management of this database to MoGEI is ongoing.

With support from the second phase of GESS and IMPACT, MoGEI and Mott MacDonald have been collecting and updating data on teachers and the information is stored in the Human Resource Information System (HRIS) database that captures relevant information about teachers. These data have been used to manage the payroll for teachers' incentives currently being supported through the EU-funded IMPACT project.

The information from the HRIS database provides education actors with data on teachers and is useful for decision-making, including budgeting and deployment. The database provides information on the number of teachers, distribution across the states, academic qualification, and length of service among other key information. It is important to note that in South Sudan, teacher management is the function of the state ministries of education.

The present case study analyses the SAMS data system, one of the components of these multi-year projects, which collects data at the school level and includes information on both learners and teachers. The SAMS data capture a variety of details regarding a school: location; state of school infrastructure and facilities; governance structure; teacher details, including their professional qualifications; detailed information on learners and their characteristics; status of learners with disabilities; and details regarding drop-outs, among a wealth of other data. The 2019 questionnaire also includes information on the status of learners (whether IDP or refugee), and for teachers (if they are refugees and their nationality). In addition to the learners' information, the pupil admission registers also collect additional data on schools (e.g. environment, mobile network coverage, radio station coverage).

¹¹ Data collected are used for cash transfers to girls as well to determine the value of school capitation grants through GESS programmes. For further details, please see:

<http://girlseducationsouthsudan.org/activity/quality-education/>

¹² From the interview with staff from Charlie Goldsmith Associates, it appeared information from all schools in the country was captured; however, in discussions with MoGEI staff, it seemed some schools were not yet included in the SAMS.

Data collection process

Data on learners' admission is collected annually through a paper-based questionnaire filled at the school level at the beginning of each school year using the pupil admission register (PAR) tool. Hard copies of the completed admission register are filed at the school while two copies are shared with the county/state Ministry of Education and the state anchors (a state anchor is an NGO that oversees the project in the specific state and supports the data entry process among other aspects). All the copies of the admission registers, once received at the state level, are keyed into the database by teams of data entry clerks under the supervision of the staff from the state anchor and the state ministries of education.

Besides the annual admission registration, the system also collects daily learner attendance and changes in the admission register (e.g. new learners, drop-outs), which are transmitted on a daily basis to the SAMS database through an SMS-based system that is free of cost for the teachers. Where phone network connectivity is limited, an alternative process of submitting attendance data has been provided wherein teachers fill a paper summary and submit it through the county liaison officers to the state anchors, who then enter the data into the database either through submission of an SMS or directly to the online platform.

The data are housed on a cloud-based online platform (www.sssams.org), where a certain level of data is available to the public depending on user privileges. The system has the capacity to generate metro reports (i.e. weekly system-generated standard reports showing progress). These are shared in hard copy with MoGEI and displayed on their notice for general information.¹³

Quality control issues related to data collection and analysis

The data collection process starts at the school with the filling of the admission registers at the beginning of each new school year. Further information is collected through the class attendance registers that are filled on a daily basis and directly submitted to the database through an SMS.

Checks on the accuracy of the information provided are instituted at the different levels of the education system. The completed register for each class is signed and dated by three officials of the school, namely, the head teacher, the chair of the school management committee/the board of governors, and the *payam*¹⁴ education supervisor. The *payam* education supervisor also reviews the forms but is expected to provide further quality checks based on regular monitoring visits, for example, by conducting head counts to verify the data provided. At a different level, the State Ministry of Education, through the education liaison officer and the state anchors, provides another level of oversight in the data gathering process as well as at the point of data entry.

Moreover, the data system is designed in such a way that it provides automatic quality checks. For instance, certain pupils' data are mandatory, and when missing, the data cannot be processed into the database. This includes date of birth and three names for each learner. In cases where this information is missing, the registers are sent back to the schools for corrections. In order to validate the accuracy of information in the database, once the data from the registers are entered into the database, the list

¹³ Based on information from staff at CGA.

¹⁴ A *payam* is the second lowest unit of administration in South Sudan and brings together a number of villages – usually less than ten.

is then printed and sent back to the school for verification. The cash transfer teams provide an additional level of data validation during school visits.

In order to improve data collection, training is provided to the head teachers and administrators through the country and state education officials so they can support the data collection process. The county liaison officers support schools by training teachers on how to accurately capture and transmit information by SMS.

Challenges

Despite a well-articulated process, SAMS faces a number of challenges:

- At the school level, teachers sometimes fail to capture some important information. For example, SAMS has the potential to track individual learners over the years as they advance or drop out of the school system; if teachers do not provide codes¹⁵ for children from the previous year when registering them in a new year, it makes it difficult to track individual learners. The importance of tracking individual learners was highlighted by one key informant who explained that, by only focusing on overall enrolment, this information might conceal some important issues. While enrolment might remain constant, by focusing on individual learners, it might be possible to detect whether there are changes in the actual learners, with some dropping out and replaced by others. It is also possible that those who are considered to have dropped out from one school might have actually enrolled in another school. As highlighted, the SAMS data collection tool has the provision to capture data on learners not enrolling in a subsequent year for different reasons, but this is highly dependent on the commitment of teachers to provide such information and the capacity to analyse and make the information available. Other details such as dates of birth – which would provide useful data for indicators such as net intake rate – are also not consistently provided.
- A novel idea of the SAMS database is the updating of daily school attendance, new enrolments as well as departures via SMS. This would provide real-time information on the number of learners in the school system at any given time; however, it is also dependent on teachers sharing the information on a daily basis and using the correct format. There are instances when this does not happen, or at least not consistently.
- The low network connectivity across South Sudan, partly due to destruction of the mobile phone infrastructure in some areas during the 2013 conflict, has complicated data sharing through internet or SMS and necessitated reverting to a paper-based system that is submitted to state anchors for entry into the system. This requires the education liaison officers to visit such schools and collect the information in person, which is an additional cost and takes more time.

SAMS interface with EMIS

The SAMS data collection tool (pupil attendance register) cross references the school EMIS code, providing an opportunity to link and compare the data generated from the AEC with that captured through SAMS. There has been improvement in terms of narrowing the variations between the two datasets over the years, with the 2018 data indicating more convergence as compared to 2013.

¹⁵ This code is not a nationally-developed unique number like an ID. It is a school-based code that is based on the alphabetical order in which the names of the pupils/learners appear.

Staff at the Ministry in charge of EMIS (a director and five other staff that make up the EMIS unit) have been trained on how to access and analyse data from the SAMS database, which is part of preparing them to take over the responsibility of managing the system after the full handover is completed. In addition, they have access to the backend programmes and codes used in programming of the database. As mentioned earlier, the process of handing over the management of the database to the data and statistics section is ongoing and a number of structures still need to be put in place for MoGEI to take full ownership. Moreover, further support is required in terms of resources for training on how to manage and make use of the system as well improving the capacity to conduct analysis based on these data.

Challenges in data collection, use, management and dissemination

While the raw data are open source, available to be downloaded and able to be used for different forms and levels of analysis, this capability has not been fully utilized as not all actors have sufficient understanding and experience to take full advantage of the SAMS data potential. Full and detailed analysis of the data is also constrained by limitations in funding.¹⁶ In addition, attendance reporting is hampered by poor mobile connectivity in some areas, which delays submission of information and requires county liaison officers to move to schools where there is connectivity to collect and submit the attendance summary, which is an additional cost. There are schools that are not yet included or reached with the mobile collection, and funding to extend 100 per cent coverage is not available.

There is a lot of potential for subnational ministries of education (state and county level) to benefit from the wealth of information collected through the SAMS data; however, lack of capacity for data analysis is an impediment to making use of the full potential of this platform. Moreover, the limited capacity and access to internet, limited human resources and lack of hardware to support the data management process compound the challenge. With regard to limited capacity and access to internet coverage, a model exists on how to address this challenge: in Malawi, a version of SAMS that makes effective use of better available capacity and infrastructure is operational. This could provide a model from which South Sudan could benefit.¹⁷

The SAMS data are shared with MoGEI and therefore there are similarities in how these data are used, as the Ministry is the main user of this dataset.

Dissemination

SAMS data are mainly shared through an open access platform where non-personal data can be viewed. The SAMS online data limits access to personal data through a password system. SAMS updates information regularly, which is shared with MoGEI through weekly progress reports generated through the SAMS database (metro reports). These weekly reports are also posted on the MoGEI noticeboard for information to the wider public.

¹⁶ The Pupil Admission Register (PAR) captures a lot of detail about the school, the learners and their characteristics, school governance, drop-outs and actions that schools take. All this provides a wealth of data.

¹⁷ Information on this section is based on a summary of several discussions and feedback from staff from Charlie Goldsmith Associates via email, phone and face-to-face discussions.

NGOs AND UN AGENCIES

National and international NGOs as well as UN agencies working in education are important stakeholders and have been relied upon by government and communities in the implementation of EiE activities in South Sudan. They have a wide coverage reaching many of the states, even those that MoGEI could not access at the height of the conflict. As a result of access to international networks and funding from institutional and private donors, most of them have existing capacities that allow them to mobilize and respond to emergency situations within short notice. In order to design effective emergency interventions, they need to understand the needs of the affected population and hence have to find or collect data that serve this purpose. They are therefore key stakeholders in the use and creation of data for EiE. This section summarizes existing views and practices with regard to production and use of data among these organizations.

Need for data

Organizations generally collect their own primary data to supplement other publicly available data. Primary data are collected when information is required to demonstrate the presence and magnitude of humanitarian needs but this information is not yet available, or when available information is not specific to a particular context – for example, during rapid onset emergencies where secondary data are not sufficient to demonstrate the level of needs for a particular area. However, in certain circumstances, organizations may undertake data collection as part of the Joint Education Cluster Assessment and support this process in their geographical areas of intervention.

Organizations interviewed indicated that they also utilize data from the Education Cluster and other humanitarian clusters, as well as data from UN agencies to design interventions. Data from MoGEI are consulted less frequently, and when used, serve the purpose of providing the general context and background. The reasons why these actors do not prioritize information from MoGEI will become clearer when discussing the existing gaps, at the end of this section.

Data collection

When collecting data on emergencies, most of the organizations interviewed indicated that they use the education component of the Initial Cluster Rapid Needs Assessment (IRNA) tool. However, modifications to the tool are made depending on what other programmatic information is required. For example, one organization explained that they required information on age and grade level of learners as well as their perceptions on the extent to which they were learning; but this was not provided for in the Cluster tool. In this case, the organization had to modify their data collection tool to include this information.

In terms of actual data collection, most of the organizations still make use of paper-based questionnaires, with only a small number of those interviewed using digital data collection devices, tools and platforms. The common platforms used by these organizations are ONA and KOBO. The cost and capacity to make use of these platforms was a major reason why some organizations had not adopted them. For organizations using paper-based data collection tools, data are stored in MS Excel or, in some cases, in a centrally accessible drop box. Data analysis, in this case, is also through MS Excel software.

Analysis of information collected by most NGOs shows some similarity to the information collected through the AEC, the SSEC, as well as SAMS. This information includes school-level information such as school enrolment and learner attendance, number and qualifications of teachers and attendance, presence of facilities (depending on sectors of intervention), presence and functionality of schools, governance structures, facilities and infrastructure.

The unique information collected by these organizations relates to data on inputs and outputs of activities implemented, such as number of resources supplied, training attendance or facilities constructed. This type of data is collected regularly since it is required for the design of interventions as well as for reporting to donors and accountability. Outcome-level data include the extent of use of outputs and are mostly collected during project evaluations.

Some of the NGOs indicated that they provide schools with some of the tools necessary to collect the information required, such as attendance registers, which should be provided through the Ministry. These represent parallel data collection efforts that duplicate information collected by others in the same school. This may be attributed to lack of confidence in the data provided by MoGEI as well as lack of awareness about the existence of other equally useful data.

Data quality

Data quality was highlighted as an important component of data collection by all organizations interviewed for the case study. However, there are variations in the sophistication of approaches employed to ensure data quality. At the most basic level, organizations reported verifying primary records used to capture key information such as attendance registers. This was mainly done through use of spot checks, e.g. head counts to verify numbers provided. Some organizations have set up additional measures to ensure quality of data; this includes instituting levels of data responsibility and checks among different staff.

For example, one organization indicated that, at the data collection stage, each team has a supervisor who accompanies the team and reviews their work. The organization reported allocating different user rights at the data entry level depending on responsibilities. Similarly, at the level of data analysis, responsibilities are delegated based on roles within an organization; for example, a monitoring officer has the responsibility for running the first level of analysis of data, which is reviewed by a senior M&E coordinator and then a technical specialist validates the report. On a regular basis, the organization further conducts data audits where an information manager at headquarters level runs data checks and generates quality assurance reports. However, such detailed quality assurance measures were an exception rather than the norm among organizations consulted.

As part of improving the quality of data, most organizations indicated that training for data collectors was a prerequisite. This included making sure they understood the purpose of data collection and how to use the tools. It also involved ensuring common understanding of indicators and the importance of the information collected. One organization emphasized the importance of ensuring data collectors understand the purpose of data collection: 'When the purpose of collecting data is not well understood by staff collecting it, they will not collect the data or, [if they do], they will not pay attention to it. They need to understand why data are collected, for what purpose and how it helps the organization. Once they understand the value of data it makes a difference, but this process takes time'.

Challenges

The current MoGEI data collection schedule is more aligned to support transition to recovery and development (where the education context is not changing often or rapidly) and less suited to the demands of emergency interventions. For example, according to many organizations, a widely shared view is that emergency education information is currently better captured and provided through the Education Cluster. However, this poses a challenge for the future, when the situation stabilizes and the Cluster is deactivated. There is a need to strengthen the Ministry of Education's capacity to collect, store and disseminate EiE data.

Data are a political tool, as they are used to influence the allocation of resources. Key sources of information, be it at the school or within the community, are aware of this. As a result, perceived incentives from the provision of data influence how well actors – those collecting and supplying data – are committed to providing accurate information. Inflated enrolment figures are tied, for example, to extracting more capitation funds, food or other benefits.

The motivation of teachers to collect required information such as daily class attendance is sometimes compromised due to low and irregular incentives, affecting data consistency, quality and reliability. The challenge is compounded by high turnover of teachers, which necessitates continuous training in a context of few resources.

Data collection is hampered by additional access challenges; this includes insecurity, which affects organizations' capacity to conduct timely data collection exercises in times of conflict, as they are sometimes targeted by armed actors in the conflict. For example, three counties were not accessible in 2019 due to hostilities, ongoing violence against humanitarian personnel and assets, and the physical environment – although this was an improvement over the previous year, during which 19 counties were inaccessible (OCHA, 2019). Similarly, South Sudan has a six-month-long rainy season, which, in a context of already poor road infrastructure, makes movement difficult – especially in the flood prone eastern and north-eastern parts of the country.

Funding for quality data collection activities remains inadequate since many education programmes do not prioritize data collection during planning for interventions, or donors do not fully fund data collection activities as they are not seen as a priority compared to saving lives. Collection of quality data requires adequate resources and this needs to be prioritized.

Gaps

A significant portion of the data generated by NGOs remains in the periphery, except what is shared through UNICEF and the Education Cluster as part of their monthly reports, or through their websites for communication and visibility. Considering the geographical reach of these actors, this prevents a full appreciation of the EiE data landscape in South Sudan.

Most EiE data collection happens in response to emergency events and is geared towards making a case for humanitarian response or supporting the design of recovery interventions. Use and collection of data to anticipate or prevent emergency situations was not demonstrated during data consultations for this case study.

Organizations' interface with MoGEI education data

The data from the Ministry are mainly used by organizations to provide a broader context or overview of the education situation in South Sudan because of its wider coverage for the period that data are collected, unlike the NGOs' primary data, which are mostly localized. At the subnational level (state, county and *payam*), organizations reported working closely with respective ministry officials to collect school-level data directly and hence are not reliant on EMIS data. In addition to providing the general education context, MoGEI data support organizations in decision-making in terms of selection of intervention areas based on needs and weak coverage of education services. This information subsequently supports in development of project interventions. However, variations exist in the extent to which organizations make use of this information.

Many organizations shared the view that data from the Ministry had a limited role with regard to planning for EiE interventions. This was primarily attributed to the following:

- The Ministry data do not capture the immediate impact of shocks, whether geographically dispersed or localized. Many organizations observed that the information required to analyse the impact of an emergency, and hence design appropriate interventions, is not readily available from the Ministry data, which forces them to conduct parallel data collection to address their data needs.
- In a context like South Sudan that is in a constant state of flux, annual data tends to be out of tune with the existing situation. This is the case with MoGEI data where the period between the data reference, actual data collection and dissemination tends to be significant. For example, the latest AES data was collected towards the end of 2018 and referred to enrolment figures at the start of that school year, which is an interval of almost one year. Furthermore, the analysis was officially validated in December 2019 and report released in early 2020, which is an additional year. In case of emergency events in the course of the year, this information will take time to be reflected in the data, or most likely, it will not be reflected at all and therefore becomes less useful.

Gaps in EMIS data

Based on information gathered during discussions with key actors in the field, a number of gaps exist with regard to EiE data. Key information relevant to EiE planning is not prioritized in the EMIS data, including:

- Number of schools occupied by armed actors or displaced populations
- Number of attacks on education facilities (while numbers of schools/classrooms destroyed during the conflict exist, there is no analysis on reasons behind the targeting of schools for attack)
- Data on the effects of different emergencies on the psychosocial situation of teachers and learners and current coping mechanisms – and hence, information on the proportion of learners or teachers in need of mental health and psychosocial support, or the number of teachers that have been trained on this component.

EMIS data focus on the school as the locus of data collection. The emphasis is on learners who are already in school. However, the household factors affecting education, as well as the situation of school-aged children and youth not in school, are missing. Lack of this information has serious implications for policy and planning to address the needs of children and youth affected.

Data dissemination

Information is mostly shared internally within the organizations' management structures and externally with donors through different types of reports. Almost all the organizations consulted receive funds from UNICEF for EiE activities and thus, apart from the Education Cluster, UNICEF also receives reports on EiE. Some of the data are shared through the organizations' websites, which has become increasingly common. In the case of collaboration with other organizations, for example through consortia, data are shared with collaborating partners. Sharing of information is also done through presentation of data in forums when making presentations on topics of interest.

However, despite acknowledgement of various primary data gathering initiatives at the community level, sharing of datasets among organizations remains rare. A number of reasons were suggested in discussions and included that the organizations rarely request data among themselves, even when they work in the same geographical locations; this might be related to the fact that data are used for resource mobilization and hence rarely shared in an environment of stiff competition for scarce donor funding.

Lack of data sharing leads to duplication of efforts, with organizations often requesting the same information from the same communities and creating fatigue and suspicion among them. As one respondent put it: 'everyone is asking for data and they [community] don't see the use this data is put to or what benefit it brings to them. There is a lot of data collected but they don't see any immediate benefits and hence they are suspicious. They feel that organizations collect data to get money for their own good'.

Overall, data sharing and dissemination depends on the type of data. Sensitive data – such as number and names of schools occupied by soldiers and protection-related issues such as details and information of survivors of SGBV – are normally not shared publicly.

IOM – DISPLACEMENT TRACKING AND MONITORING

The International Organization for Migration (IOM) Displacement Tracking and Monitoring (DTM) unit collects data regarding the situation of displaced and returning populations in South Sudan using various tools. While these data cover other sectors in addition to education, they have particular use in capturing trends in movement of populations and the availability of and access to basic services, infrastructure and other key indicators, which can provide useful information for planning education services for target populations. The displaced numbers from IOM DTM are used by OCHA to estimate the number of people in need. This figure further informs the Education Cluster's estimation of the proportion of children and youth in need of education services. The mobility tracking collects cross-sectoral data on IDPs and returnees by location and is conducted on a quarterly basis, or as specific circumstances demand. This provides an overview of service availability in counties.

Besides the mobility tracking, DTM also conducts facility, infrastructure, and services mapping, known as the Village Assessment Survey (VAS), which includes questions on education. This covers components such as teachers, students and access to teaching and learning materials. In addition, DTM collects flow-monitoring data on a daily basis targeting displacement sites, key transit hubs and border crossing points to provide information on the mobility dynamics of migrants, including IDPs and returnees. Finally, DTM also collects operational data for service provision inside camps in conjunction with its partners.

Dissemination

The IOM DTM unit has different platforms through which analysis on various indicators regarding displaced and returning populations are shared. For example, information on their website is regularly updated and shared through an email-broadcasting network to all subscribers. Further, a mechanism for collecting feedback is in place and includes satisfaction surveys conducted twice a year among recipients of data. Moreover, in order to address any gaps in understanding of DTM data resources, there are plans to begin reaching out to different humanitarian clusters starting in early 2020 to create awareness of what data exist, the purpose of data collection and how to make use of such data.

III. Challenges and gaps in data production, dissemination and use

A. Challenges

- Teachers are the key source of information for filling in data questionnaires. However, data illiteracy among some of the teachers has been highlighted with a number of teachers unable to complete data questionnaires correctly, compromising data quality. This may be attributed to low levels of education among some of the teachers, with more than one-third of teachers in primary schools only having a primary-level education themselves. Turnover of trained teachers further complicates efforts towards quality data collection.
- Updating of school information in the EMIS list has not kept pace with the changes on the ground, especially following the conflicts of 2013 and 2016. This means that information on schools in EMIS differs to some extent from current reality and reflects negatively on MoGEI capacity to update its information quickly.
- The population figures on which estimates are based are outdated, with the last census conducted in 2008, which complicates efforts to analyse key education indicators.
- The contribution of the state ministries to data production remains peripheral, yet they are key stakeholders who have the mandate for direct implementation of education services at the subnational level. Lack of capacity for data collection and analysis is an impediment to making these units the locus of data collection. Moreover, the limited capacity and access to internet, limited human resources and lack of hardware to support the data management process compound the challenge.

- The motivation of teachers to collect required information – such as daily class attendance – is compromised due to low and irregular incentives, affecting the consistency, quality and reliability of data. The challenge is further exacerbated by high turnover of teachers, which necessitates continuous training; yet the resources for such training are limited.
- A number of access challenges hamper effective and efficient data collection, which include insecurity, weather conditions, and underdeveloped road and communication infrastructure.
- The consistency of and intervals between data gathering, especially for MoGEI data, mean that information on the immediate impact of emergencies on the education system is often missed. This tends to be even more pronounced with regard to the effects of localized conflict, famine and floods.
- Funding for quality data collection activities remains inadequate as many education programmes do not prioritize data collection when budgeting for interventions or donors do not allocate enough funds for this component.

B. Gaps

The data systems analysed for this case study present a number of gaps:

- Critical information on EiE programming is missing from EMIS data; this includes the number of schools occupied by armed actors or displaced populations, and the number of attacks on education facilities. While numbers of schools/classrooms destroyed during the conflict exist, there is no analysis on reasons behind the targeting of schools during armed conflict.
- Much of the data on EiE generated by NGOs – especially data from assessments – remains in the periphery and is not publicly available, except for what is shared through UNICEF and the Education Cluster as part of monthly reports or through their websites. As a result, understanding of the EiE data landscape remains limited.
- Taken separately, the Education Cluster assessment and the SAMS data only cover certain levels of the education system: the Education Cluster focus is on primary education, while SAMS data cover basic education (pre-primary, primary and secondary levels). To get a complete picture of the education system, one would have to include data from AEC (which additionally covers TVET and alternative education programmes such as the Accelerated Learning Programme); however, AEC data collection has been delayed in most cases, for example there was no data collection in 2017 and 2019.
- The data collection for all the data systems focuses at the school level. Although SAMS collects additional information on the school environment, all of the datasets focus on children and youth in schools; hence, they are missing information on those not in school, their characteristics and the factors that contribute to their being out of school. The out-of-school problem in South Sudan is closely linked to the conflict, which has contributed significantly to the number of children who are unable to continue with education because of displacement, destruction of school infrastructure and general underinvestment in the education system.

- Information on the impact of the various emergencies on the psychosocial situation of teachers and learners, and how they cope, is not addressed by the datasets analysed. As a result, there is no idea of the proportion of learners or teachers in need of psychosocial support. Moreover, the number of teachers who have been trained on this component is also not available from the existing data systems. It is possible that other clusters have done some work on this, but if so, such information does not appear to be widely shared among actors.
- The data collected by different systems are mainly geared towards assessing the functionality of schools, focusing on the extent to which children are enrolled and being taught (presence of teachers and their qualifications) and the general school environment and management. Information on the quality of learning is not directly assessed at a national level. The issue of quality of learning provides an important linkage between humanitarian interventions and long-term education work. There are not sufficient, robust data on what is happening in the classroom during EiE interventions to inform policy and planning.

IV. Summary of findings

A. Prioritization

Discussion with actors in the education sector shows that the need for quality data exists and their collection and management are a priority activity. Among humanitarian and development organizations, data are being used to inform decisions throughout the project management cycle, from design and implementation to monitoring and evaluation of projects/programme activities. MoGEI is increasingly making use of education data to inform policy analysis and decision-making. The most prominent use of learner and teacher population data has been its application to budget planning, which includes determination of the capitation grants to schools and teacher incentives, as well as teacher training proposals.

B. Key actors

Overall, key actors providing some form of EiE data in South Sudan include MoGEI, the Education Cluster, UN agencies and for-profit consultancy organizations as part of donor-funded projects/programmes. International and national NGOs are also active in collecting crisis-related education data; however, the consolidation and dissemination of this data mainly flow through the Education Cluster system, although data are also shared through partners' own forums in some cases.

C. Data collection and analysis

The Initial Rapid Needs Assessment (IRNA) tool is widely used to collect information by education partners when emergency responses are triggered. However, modifications to the tool are made depending on what other programmatic information is required. The Education Cluster has a detailed questionnaire that has remained standard for the last three nationwide assessment exercises while the SAMS data collection tool (admission register) is a detailed eight-page questionnaire. Data

informants at the school level include teachers, head teachers or members of the school boards. The Education Cluster has an additional level of questionnaire that collects information from county education officers during the nationwide assessment.

In terms of actual data collection, most of the stakeholders rely on paper-based data collection tools, with a small number migrating to digital data collection devices, tools and platforms. ONA and KOBO are the most mentioned platforms for data management. Cost and capacity to make use of these platforms was a major reason why some organizations had not adopted them. For organizations using paper-based data collection tools, data are stored in MS Excel spreadsheets or a centrally accessible drop box and analysed by use of MS Excel software.

There are a number of common data points prioritized by all key data mechanisms during data collection, which provides an opportunity for triangulation of data. In addition, each data mechanism analysed had some unique information driven by programmatic needs and hence makes different contributions to the general education data landscape. EiE data are mainly produced by the Education Cluster, which includes information that is shared from partners through the 5W matrix reports. However, a significant amount of EiE data, especially that which is collected by NGOs is not shared for the benefit of other members. There are different reasons why this may be the case. One main reason offered points to weak data collection methodologies that undermine the validity of data collected, complicating its wider use.

MoGEI has made a commitment, through the GESP 2017-2021, to include EiE within all of its priority programmes. The main aim is to strengthen coordination of EiE. However, the roadmap for data collection and management for EiE has not been clearly articulated and remains a critical gap in the strategy. Currently, MoGEI is dependent on the Education Cluster to lead in the collection, analysis and storage of EiE data.

D. Quality

Data quality is an important component of data collection in all the data systems analysed. However, there are variations in the sophistication of approaches employed to ensure quality at different stages of the data management process. The most widely used quality control method is training of enumerators and supervisors, as well as data entry clerks. This ensures that data collectors, supervisors, and analysts understand how to use the tools as well as the purpose of data collection. Quality is further assured through verification of information by reviewing primary sources as well as conducting spot checks. Additional measures include instituting levels of data responsibility and checks among different staff, multiple reviews of data collection questionnaires, triangulation of data with other available sources, double entry of data (two-pass verification process), multiple reviews of reports, and validation of draft reports by relevant stakeholders.

E. Use of EMIS data

Variations exist among NGOs in the extent to which they use data from the Ministry. The main use of EMIS data is to provide organizations with a broader overview and context of the education situation in South Sudan because of its wider coverage. The Ministry data are used to inform decisions on where to locate interventions through analysis of gaps in education services.

The contribution of MoGEI data in designing EiE interventions was found to be minimal as it was considered of limited use with regard to issues of concern to EiE. The main reason provided was that the data are collected much later after emergency situations have occurred and do not capture the immediate impact of shocks to help in decision-making. Furthermore, AES data are considered to be out of date with the current situation as the period between the data reference, actual data collection and dissemination is normally significant and renders available data outdated for planning of EiE activities.

F. Decentralization of EMIS

Centralized data collection and management, while understandable within the current context of South Sudan, does not support efficient and effective data collection. Before the onset of the conflict, a strategy for gradual decentralization of data collection to state level had already started, with the first phase targeting two states: Central Equatoria and Western Bahr el Ghazal. However, the 2013 conflict halted implementation. The GESP 2017-2021 envisages a plan to decentralize EMIS to all states; this provides an opportunity to restart and support the process.

However, challenges exist in the implementation of this strategy. The most critical is lack of funding to support EMIS activities. Currently, the budget allocation for the unit only covers salaries for staff, which, like the case of other public servants, has been inconsistent. Because of lack of funding for the EMIS unit, the capacity of the unit to plan for, and oversee, data management beyond those activities supported by partners and donors is severely constrained. It is not anticipated that this situation will change in the near future, which highlights the need for significant, coordinated support from partners to move the EMIS agenda forward.

State ministries are in charge of education activities at the state level, yet their role in data collection and management remains peripheral, despite their being key stakeholders who have the mandate for direct implementation of education services at the subnational level. Lack of capacity for data collection and analysis, which includes limited human resources and lack of technical data management skills, access to internet and hardware, is an impediment to making these units the locus of data collection. High turnover of staff at this level due to frequent changes in leadership of states is an additional challenge.

The EMIS consists of fragmented datasets, sometimes managed separately, without a platform for consolidating them. The Ministry has recognized the need to integrate these fragmented datasets into a harmonized system with discussions at a preliminary stage. There is an opportunity to bring experience, ideas and resources into this process.

G. EMIS in relation to EiE data

The *South Sudan General Education Strategic Plan 2017-2022* has made a commitment to include EiE as a focus area for the Ministry during this period and aims to build an education system that is resilient to different shocks. However, despite this recognition, the strategy for how to implement this commitment from a data collection and analysis standpoint was not evident during the discussions.

V. Recommendations

Drawing from the views of all the respondents in the process of compiling the case study as well as analysis of key documents, this section highlights the principal recommendations that emerge:

1. *Strengthening the overall EMIS should provide the overarching goal of any planned support for data management systems, with other specific efforts or modules being seen as contributing to the larger goal.* The efforts towards improving the quality, timeliness and use of EiE data should not be conducted separately as this is likely to aggravate the problem of segregated datasets. It has been recognized that the Ministry lacks a unified platform on which to host and integrate all its key datasets, with information on the education system currently stored in fragmented databases. Discussions have begun on how to integrate the different datasets into a single platform. This should also include working closely with UNHCR to integrate refugee education data into EMIS in a way that meets the quality standards needed to support refugee education.
2. *EiE data should be harmonized and integrated into EMIS.* One approach would be to develop a specific module in EMIS that focuses on EiE data, and which would be linked to other education datasets. This should be accompanied by a framework for data collection that responds to the question of who has the responsibility to collect what data, how often and what tools are to be used and that clarifies the thresholds for emergency response that trigger the data collection, analysis and dissemination process. With regard to the question of who is to collect data, the shared view was that the Education Cluster, working closely with its members, should continue to coordinate the whole process of emergency data collection, analysis and dissemination, but also consider supporting MoGEI in actualizing the plans to strengthen its EiE capacity in line with the GESPP 2017-2022.
3. *Working within existing structures, strengthen capacity to coordinate and manage EiE, which should include a focus on EiE data.* As noted, the GESPP 2017-2022 includes EiE as a priority area with one of the key activities being to ‘develop a strategy to strengthen its preparedness and response abilities to sustain education in emergencies (EiE)’. There is an opportunity for an organized forum of EiE actors to contribute to the development of MoGEI’s long-term strategy and thinking on how to structure EiE in South Sudan. As part of this strategy, the question of what data are required, how they are to be collected, by whom, when and how they are to be reported, how they are to be integrated into EMIS and how they are to be disseminated should form part of the agenda for the strategy development. For a start, a separate forum for all actors involved in EiE to discuss issues of relevance to EiE under the auspices of MoGEI and the Education Cluster would

help to focus on this component of education. A national forum whose agenda is to review progress on EiE activities, including the status of data should be considered. The forum would be tasked to review the relevance of EiE data being collected, assess its quality and analyse the performance of EiE interventions among other issues of relevance.

4. *There is a strong case for refocusing on decentralization of data management closer to the locus of service delivery.* A completely centralized process of data collection, analysis and dissemination, as is currently the situation in South Sudan, may not be the most effective model. *The state, or a cluster of states to start out, should gradually become the focus of managing data, including EiE data.* However, the existing capacity challenges at subnational level, including at the school level, need to be prioritized as part of the decentralization strategy. The decentralization process should therefore be accompanied by a strong focus on thorough and sustained capacity building for data, which should include providing human and material resources, training on data collection and monitoring, as well as harmonized tools for data collection and reporting. Well-coordinated capacity support for the national EMIS unit to enable it to fulfil its mandate, as well as support the decentralized units, is also critical. Capacity support should be coordinated with other partners to avoid duplication of efforts, which calls for a strong coordinating body.
5. *MoGEI should ensure that primary data collecting tools, such as pupil admission and attendance registers, are available at all schools; and should institute measures to verify the accuracy of the information on these registers as part of school supervision.* This will serve as a reliable source of information for anyone interested in information at the school level and will address a key problem of different data for different organizations provided by teachers based on perceived benefits. Further, it will help address the problem of duplication of registers by organizations, which puts an additional burden on teachers and provides an opportunity for manipulation of data.
6. *Establish and strengthen mechanisms for dissemination of data as part of the EMIS unit activities.* Inadequate mechanisms for data dissemination – generally among education actors, and more specifically, at MoGEI – were highlighted as a major impediment to data use and a main reason for parallel data gathering activities among education stakeholders. To begin with, *MoGEI needs to be a strong champion of the data that currently exist and encourage robust feedback from all its stakeholders. More systematic methods of disseminating data, whose key focus is to ensure new information reaches as many users as possible, should be explored.* The example of IOM DTM could provide a useful approach.
7. *Nationwide education data collection efforts need to include a focus on household-level information to complement the school-level data in the absence of a national census.* This would provide additional data on households' demand for education as well as related gender dimensions that are currently missing from the key datasets used in South Sudan. This could be through periodic household surveys, similar to the food security cluster surveys, that would gather information on the proportion and situation of children and youth not currently in school. Alternatively, MoGEI could partner with the Education Cluster and other clusters or organizations to include such questions in their assessments.

8. *The links between EiE, recovery and development programming in South Sudan need to be better articulated to inform EiE interventions.* Currently, what constitutes this linkage and how it is to be conceptualized and implemented lack clarity. The starting point for this debate could be to interrogate what is meant by quality education in the emergency phase, during recovery and in the long-term development phases and how to make the connections in terms of data. This should also include the issue of how quality can realistically be measured in the different phases of interventions while remaining realistic about the context.
9. *Strengthen data collection methodologies among MoGEI officials as well as education partners, especially at the field level.* Lack of shared robust methodology has been identified as a key impediment to data sharing and use. This should be accompanied by the formation or strengthening of a broad-based assessment working group within the Education Cluster, which would review proposals for EiE assessments from Cluster members, especially with regard to methodology and analysis so that such assessments could be for wider use and reference. Links to such assessment reports should be made available through both the SSEC and MoGEI websites.

Bibliography

- Ministry of General Education and Instruction (MoGEI). 2017a. *National Education Statistics for the Republic of South Sudan 2016*.
https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/emis_2016_-_statistics_booklet_-_2017-02.pdf
- MoGEI. 2017b. *The General Education Strategic Plan, 2017-2022*.
https://www.globalpartnership.org/sites/default/files/general_education_strategic_plan_south_sudan_2017-2022.pdf.
- MoGEI. *National Education Statistics for the Republic of South Sudan 2018* (not yet published).
- MoGEI and IIEP-UNESCO. 2017. *South Sudan Education Sector Analysis, 2016: Planning for Resilience*.
<https://unesdoc.unesco.org/ark:/48223/pf0000259247>
- MoGEI and UNICEF. 2019. *Education Budget Brief: South Sudan 2019*. <http://www.mofep-grss.org/wp-content/uploads/2019/09/UNICEF-South-Sudan-2019-Education-Budget-Brief.pdf> accessed 12092019.
- Mott MacDonald. 'Giving teachers an incentive to strengthen South Sudan', <https://www.camb-ed.com/intdev/article/534/impact>.
- Republic of South Sudan. 2018. *South Sudan National Development Strategy: Consolidate Peace and Stabilize the Economy, July 2018 - June 2021*. <http://www.mofep-grss.org/wp-content/uploads/2018/11/NDS-4-Print-Sept-5-2018.pdf>
- South Sudan Education Cluster (SSEC). 2012. *South Sudan Minimum Standards for Education in Emergencies: Contextualized from the INEE Minimum Standards for Education: Preparedness, Response, Recovery*.
https://reliefweb.int/sites/reliefweb.int/files/resources/South_Sudan_Minimum_Standards_4th_copy.pdf.
- SSEC. 2016 *South Sudan Education Cluster Assessment*.
<https://www.humanitarianresponse.info/en/operations/south-sudan/document/nation-wide-assessment-report-ssec-2016-11>
- SSEC. 2017. *2017 South Sudan Education Cluster Assessment*.
<https://www.humanitarianresponse.info/en/operations/south-sudan/document/nation-wide-assessment-report-ssec-2017-11>
- SSEC. 2018. *2018 South Sudan Education Cluster Assessment*.
<https://www.humanitarianresponse.info/en/operations/south-sudan/document/nationwide-assessment-report-ssec-2018-10>
- UNESCO. 2018. *Global Initiative on Out-of-School Children: South Sudan Country Study*.
<http://uis.unesco.org/sites/default/files/documents/global-initiative-out-of-school-children-south-sudan-country-study.pdf>
- UNHCR. 2019. *South Sudan - Refugee Statistics as of 30 September 2019*.
<https://data2.unhcr.org/en/documents/download/71689>

UNOCHA. 2019. *Humanitarian Needs Overview - South Sudan: Humanitarian Program Cycle 2020*.
<https://reliefweb.int/report/south-sudan/south-sudan-humanitarian-needs-overview-2020-november-2019>

World Bank. 2018a. 'Mobile cellular subscriptions (per 100 people) - South Sudan'. International Telecommunication Union, World Telecommunication/ICT Development Report and database.
<https://data.worldbank.org/indicator/IT.CEL.SETS.P2?locations=SS>

World Bank. 2018. 'Access to electricity (% of population) - South Sudan'. Sustainable Energy for All (SE4ALL) database from the SE4ALL Global Tracking Framework led jointly by the World Bank, International Energy Agency, and the Energy Sector Management Assistance Program.
<https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=SS>

World Bank. 2019. *South Sudan Economic Brief – April 2019*.
<http://documents.worldbank.org/curated/en/300191560955394963/pdf/South-Sudan-Economic-Brief.pdf>