

Strengthening Education

Management Information Systems

for increased resilience to crises

A synthesis of case studies

2019							
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	G. TOTAL
1.	30	21	51	0	0	0	51
2.	12	16	28	0	0	0	28
3.	23	32	55	23	31	54	109
4.	10	13	23	110	141	251	274
5.	9	9	18	99	92	191	209
6.	06	05	11	74	55	129	140
7.	03	05	08	114	51	165	173
	93	101	194	420	370	790	984
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P.3	21	34	55	19	35	54	109
P.4	09	08	17	115	137	258	275
P.5	09	09	18	102	94	196	214
				00	00	124	134

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The Global Education 2030 Agenda

UNESCO, as the United Nations' specialized agency for education, is entrusted to lead and coordinate the Education 2030 Agenda, which is part of a global movement to eradicate poverty through 17 Sustainable Development Goals by 2030. Education, essential to achieve all of these goals, has its own dedicated Goal 4, which aims to **“ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”** The Education 2030 Framework for Action provides guidance for the implementation of this ambitious goal and commitments.



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S H O R T S U M M A R Y

The importance of Strengthening Institutional Management Information Systems and data for increased resilience to crisis

UNESCO commits to support Education Systems towards being more resilient and responsive in the face of conflict, social unrest and natural hazards – and to ensure that education is maintained during emergency, conflict and post-conflict situations.

One of the key challenges facing education in crisis-affected countries is the lack of accurate, reliable and timely data, needed to drive effective emergency preparedness, response and recovery processes.

In 2019, UNESCO and its partners conducted six country cases studies in Chad, Ethiopia, Palestine, South Sudan; the Syrian Arab Republic and Uganda to examine existing EMIS and recurring challenges related to informing Education in Emergencies (EiE) strategies and crisis-sensitive education plans to mitigate the disruption of education and ensure access to quality and safe education to all children and youth.



This publication is a technical analysis and synthesis of the key findings and recommendations brought forward by the six studies to inform the way forward of the initiative and contribute to building resilient education systems.



"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"

Acknowledgements

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It was drafted by Jane Kalista, an independent consultant, and draws on the findings of case studies authored by Esmá Al-Samarai for the Syrian Arab Republic, David Mwaniki for South Sudan, Francesca Pinna for Palestine, Noemi Robiati for Chad, James Sparkes for Uganda and Eszter Szucs for Ethiopia, commissioned as part of a larger initiative to strengthen EMIS and data for increased resilience.

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Executive summary

The importance of strengthening EMIS and data for increased resilience

Building system resilience is key to mitigating the impacts of crises on education opportunity for millions of learners. Doing so implies a focus on reinforcing national and local capacities and systems, and improving humanitarian-development coherence. Well-coordinated national responses that bring together governments, humanitarian and development stakeholders are needed to support longer-term recovery and to 'build back better', creating safer and more equitable education systems.

Data-driven and crisis-sensitive planning and management of such responses are increasingly recognized as an essential part of system strengthening and resilience. Quality data can help more accurately determine the nature and scope of educational challenges, and more fully address them. However, national education authorities and their partners often lack comprehensive, disaggregated, timely and reliable information that can serve as a baseline for developing relevant preparedness, response and recovery strategies, and for monitoring their implementation.

Available data are typically fragmented, and their collection and use tend to mirror and reinforce misalignment between

humanitarian and development programming. National Education Management Information Systems (EMIS) are often unable to adapt to the rapidly changing and complex nature of crisis situations, and lack crisis-sensitive indicators or are missing quality data for such indicators. Humanitarian education data systems may be established in parallel to national systems as a result; and data may not be readily harmonized or integrated between them, deepening the humanitarian-development divide.

Efforts to improve EMIS and make them more responsive to the data needs of their end-users stand to benefit all stakeholders involved in crisis preparedness, response and recovery. Better EMIS data can serve as a valuable baseline for assessing crisis-related needs and vulnerabilities, and designing, monitoring and measuring the impact of interventions. Strengthened EMIS – and capacities of national authorities to collect and use crisis-related information – can help to improve the overall quality of EiE data and promote greater humanitarian-development coherence, more effectively linking emergency response data with longer-term recovery and development and enabling data-informed prevention and preparedness.

The country case studies

In the framework of a larger initiative focused on strengthening EMIS and data for increased resilience to crises, undertaken by UNESCO in partnership with NORCAP and supported by Education Cannot Wait and SIDA, case studies were undertaken in Chad, Ethiopia, Palestine, South Sudan, the Syrian Arab Republic and Uganda from late 2019 to early 2020. The studies examine existing EMIS and recurring challenges related to education data and the management and use of information in emergencies and protracted crises. They also outline a number of concrete recommendations and next steps to better support national education systems in the collection, analysis and use of data for crisis preparedness, response and recovery.

While the case studies underscore the importance of context and provide country-specific recommendations, their findings have implications for broader work to build resilience and enable evidence-based decision-making in emergencies and protracted crises. The present publication highlights common challenges and opportunities related to the data environment and across the cycle of data production, dissemination and use, ranging from legal, policy and institutional frameworks, capacity and coordination to data quality, interoperability and integration to accessibility, availability and accountability. It then identifies priorities that might inform collective efforts to strengthen data collection and use in emergencies and protracted crises.

Key findings and recommendations

Strengthen and link legal, policy and institutional frameworks around EMIS, data and EiE: Collectively, the case studies demonstrate the need for clear legal, policy and institutional frameworks for both EMIS and EiE that set out roles, responsibilities and accountabilities, and establish the necessary structures and processes for them to be viable. Coherence between – and deliberate linking of – comprehensive EiE strategies and EMIS frameworks are also of critical importance for promoting more effective collection and use of data for resilience.

Reinforce capacities, with a focus on sustainability: Technical, financial, human resource and infrastructure capacity are key determinants of an enabling environment for effective EMIS. Crisis situations are no exception, as underscored by the case studies, and can exacerbate existing capacity challenges with respect to EMIS, and to reliable data and information more generally. Capacities for crisis-sensitive planning and management, which serve as both a driver and end-user of data that can strengthen system resilience, are equally critical. Sustainable investment and support to reinforce local and national capacities for EiE data production and use, with realism about what data can safely and reliably be collected, should be prioritized.

Maximize impact through improved coordination: Coordination is integral to effective data collection and use under any circumstances. But the complexities of delivering education in emergencies and protracted crises and the number and variety of stakeholders involved make all the more pressing the need for information sharing, harmonization of tools, joint assessment and agreement around indicators and shared definitions, and clear lines of responsibility. Better coordination around data and information can help to improve preparedness and response, optimize the use of

limited resources and strengthen humanitarian-development coherence.

Increase interoperability and integration to improve data quality and facilitate use across the humanitarian-development nexus: Increased interoperability and integration stand to help generate better data and facilitate its use; strengthen coordination efforts; and improve humanitarian-development coherence, including by more deliberately linking national system data with the broader EiE data ecosystem. This includes developing shared terms and indicators, with standardized definitions and methodologies, and ensuring their consistent use within national data systems and across partners, as well as harmonizing tools and facilitating data sharing. At the same time, the nature of crisis-affected contexts and the inherent security and protection risks therein make clear the need for careful reflection about appropriate levels of interoperability and integration, and the safeguards required to ensure that data ‘do no harm’.

Build an EiE data culture that promotes accountability: The case studies underscore the importance of clearly communicating the goals of data collection, regularly sharing data analysis and providing feedback, creating training opportunities that empower providers of data to also be end-users, and making sure that accountability – especially to crisis-affected populations – is one of the primary aims of data collection and use. Creating a shared EiE data culture among ministries, schools, communities, and humanitarian and development partners, and ensuring that data collected are harmonized, rationalized, usable by all stakeholders involved in their production and translated into meaningful, visible change for affected communities should be among the primary goals of efforts to strengthen EMIS and data for increased resilience.

Introduction

This publication provides a thematic analysis of the findings of case studies conducted in six different contexts: Chad, Ethiopia, Palestine, South Sudan, Syrian Arab Republic and Uganda.

NATIONALS				REFUGEES			24/09/2019	
CLASS	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	G. TOTAL	Remarks
1.	30	21	51	0	0	0	51	
2.	12	16	28	0	0	0	28	
3.	23	32	55	23	31	54	109	
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6.	06	05	11	74	55	129	140	
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P.3	21	34	55	19	35	54	109	
P.4	09	08	17	115	137	258	275	
P.5	09	09	18	102	94	196	214	
P.6	04	06	10	69	55	124	134	
				102	40	142	147	

The case studies are part of a larger initiative focused on strengthening education management information systems (EMIS) and data for increased resilience to crises, undertaken by UNESCO in partnership with NORCAP and supported by Education Cannot Wait (ECW) and SIDA. The initiative uses a broad definition of 'EMIS' as a subsystem of an education system aimed at collecting, storing, processing, analysing and disseminating information. UNESCO promotes an understanding of EMIS that goes beyond the infrastructure utilized for the collection, management and analysis of data. EMIS is understood to be education sector-wide, covering all levels and types of learning and including – but not limited to – administrative data from school censuses, financial data, learning assessment data and education items related household surveys. In essence, EMIS encompasses the entire 'data eco-system' at all levels of a national education system.

The case studies undertaken in the framework of the initiative examine existing EMIS and recurring challenges related to education data and the management and use of information in emergencies and protracted crises. In so doing, they highlight gaps between EMIS and humanitarian education data, and outline a number of concrete recommendations and next steps to better support national education systems in the collection, analysis and use of data for crisis preparedness, response and recovery.

While the case studies underscore the importance of context and provide country-specific recommendations, their findings have implications for broader work to build resilience and enable evidence-based decision-making in emergencies and protracted crises. In consolidating and comparing these findings, the present publication aims to identify common challenges and opportunities, and to draw out lessons and reflections for partners engaged in providing education in crisis-affected contexts. It is intended to inform the discussions of the second international conference on EMIS organized by UNESCO, and builds on the findings of the first UNESCO-GPE International Conference on EMIS in 2018.¹ It also contributes to the wider EiE data agenda emerging from the 2019 Education in Emergencies Data Summit² and ongoing efforts to strengthen EMIS in support of implementing Sustainable Development Goal 4 (SDG 4) and the Education 2030 Agenda. It is produced as part of UNESCO's efforts related to data and education for crisis-affected people on the move, and in support of its pledge at the first Global Refugee Forum in 2019.³

The publication begins with an overview of the current landscape of education data in emergencies and protracted crises, and of the role of EMIS in supporting countries and partners to deliver on their commitments to quality education for crisis-affected populations. Next, it provides a summary of the six case studies, including a presentation of the methodology used and an outline of key findings. Insights from a synthesis of these findings are then presented and possible ways forward identified, both at country and global level, that might guide the collective development of recommendations and charting of next steps.

1 Principal challenges for strengthening EMIS identified during the 2018 conference clustered around ensuring an enabling environment, data quality (including accuracy, reliability, coverage and completeness), decentralization, and fragility and conflict. With respect to fragility and conflict, the conference findings highlighted the following: 'Learners in fragile situations often go unreported in education data systems, thus leaving their needs unaddressed and aggravating their vulnerability. In some cases, areas affected by conflict are no longer within the control of the government, making it even harder to collect data. Weak governance systems and political instability also prevent the implementation of needed data management reforms. It must be noted as well that traditional EMIS, which often report statistics on an annual basis, do not suffice in crisis situations, which tend to evolve rapidly. Given these constraints, it is important to identify which kinds of data are important to collect and which kinds of data can be realistically collected' (UNESCO & GPE, forthcoming, p. 44).

2 For more information regarding the EiE Data Summit, its Long-term vision and Action Agenda, please see <https://inee.org/blog/next-steps-strengthening-education-emergencies-data>

3 For more detailed information regarding UNESCO's GRF pledge, please see 'UNESCO pledges its renewed support for refugees' education at Global Refugee Forum', <https://en.unesco.org/news/unesco-pledges-its-renewed-support-refugees-education-global-refugee-forum>.

Background

Addressing education needs in crisis-affected contexts is vital to ensuring inclusive and equitable quality education for all, in line with SDG 4, and the principles of leaving no one behind and reaching the furthest first.

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P.5	09	09	18	102	94	196	214	
P.6	04	06	10	69	55	124	134	
P.7	04	08	12	102	40	142	147	

Approximately 75 million children and youth in these settings are in urgent need of educational support; girls and women are often particularly disadvantaged (ODI, 2016). Where crisis and insecurity are protracted or chronic, entire generations of learners may be impacted, with lasting consequences for economic opportunity and development.

SDG Target 4.5 specifically calls for equal access to education at all levels for vulnerable groups, including those living in crisis-affected contexts. This call is reiterated in the Education 2030 Framework for Action, which stresses the need to ‘develop education systems that are more resilient and responsive in the face of conflict, social unrest and natural hazards – and to ensure that education is maintained during emergency, conflict and post-conflict situations.’

Building system resilience is key to mitigating the impacts of crises on education opportunity for millions of learners, helping better prepare for and respond to the complex challenges for access, quality and equity they introduce. It implies a focus on reinforcing national and local capacities and systems, and improving humanitarian-development coherence.⁴ Well-coordinated national responses that bring governments, humanitarian and development stakeholders together are needed to support longer-term recovery and to ‘build back better’, creating safer and more equitable education systems.

Data-driven, crisis-sensitive planning⁵ and management of such responses are increasingly recognized as an essential part of system strengthening and resilience. Quality data can help more accurately determine the nature and scope of educational challenges, and more fully address them (Montjourides, 2013). Without stronger data and better coordinated approaches to collecting, managing and using them, education systems risk an inability to respond effectively to needs and an absence of robust accountability.

However, national education authorities and their partners often lack comprehensive, disaggregated, timely and reliable information that can serve as a baseline for developing relevant preparedness, response and recovery strategies, and for monitoring the impact of their implementation. Available data are typically fragmented, and their collection and use tend to mirror and reinforce misalignment between humanitarian and development programming (INEE et al., 2019; Buckner et al., 2019). Initiatives to improve data production and dissemination in emergencies are

many and disparate, and sometimes unaware of one another, with missed opportunities for collaboration and partnership (INEE et al., 2019). Differing data needs – i.e. coordination and planning, programme design and proposal development, evaluation and reporting, policy and strategic decision-making, advocacy – result in different focuses for national systems, humanitarian and development data; they also lead to duplicative data collection efforts and parallel systems, and can limit data interoperability, sharing and use (INEE et al., 2019; Buckner et al., 2019).

Moreover, national EMIS are often unable to adapt to the rapidly changing and complex nature of crisis situations, and may lack crisis-sensitive indicators – or be missing quality data for such indicators (UNESCO & GPE, forthcoming). Humanitarian education data systems may be established in parallel to national systems as a result; and data production may differ in frequency, scale and scope – with data collection undertaken at different intervals and focused, for example, on specific populations or levels of education. Data may not be readily harmonized or integrated between them, further exacerbating the humanitarian-development divide.

In recognition of these challenges, a collective agenda for education in emergencies (EiE) data has begun to emerge. The 2019 EiE Data Summit and the associated NORRAG Special Issue on ‘Data collection and evidence building to support education in emergencies’ articulate a longer-term vision for strengthening data and information in emergencies and protracted crises.⁶ Included in this vision are national EMIS that are better prepared for and responsive to crisis, and, in turn, are able to support crisis-sensitive sector planning and service delivery that build more resilient education systems.

Efforts to improve EMIS and make them more responsive to the data needs of their end-users stand to benefit all stakeholders involved in crisis preparedness, response and recovery, including humanitarian actors. Better EMIS data can serve as a valuable baseline for assessing crisis-related needs and vulnerabilities, and designing, monitoring and measuring the impact of interventions. Strengthened EMIS can help to improve the overall quality of EiE data and promote greater humanitarian-development coherence, more effectively linking emergency response data with longer-term recovery and development and enabling data-informed preparedness.

4 This is in alignment with commitments to the New Way of Working, which emphasizes ‘working over multiple years, based on the comparative advantage of a diverse range of actors, including those outside the UN system, towards collective outcomes’ that bring humanitarian and development actors (and other relevant partners) together to reduce needs, risks and vulnerabilities and that seek, wherever possible, to reinforce and strengthen the capacities that already exist at national and local levels, rather than replace them. See <https://agendaforhumanity.org/initiatives/5358> and https://www.unocha.org/sites/unocha/files/NWOW%20Booklet%20low%20res.002_0.pdf

5 ‘Crisis-sensitive educational planning involves identifying and analysing existing risks of conflict and natural hazards and understanding the two-way interaction between these risks and education to develop strategies that respond appropriately. Crisis-sensitive planning aims to contribute to minimizing the negative impacts of risk on education service delivery and to maximize the positive impacts of education policies and programming on preventing conflict and disaster or mitigating their effects. It also requires identifying and overcoming patterns of inequity and exclusion in education, including for forcibly displaced populations, as well as harmful cultural practices.’ IIEP-UNESCO, 2019. <http://www.iiep.unesco.org/en/crisis-sensitive-planning-and-inclusion-forcibly-displaced-populations-west-and-central-african-4844>

6 For more information, please see Education in Emergencies Data: A Long-Term Vision and Action Agenda, https://inee.org/system/files/resources/EiE%20Data%20Summit%20Agenda_Final%20.pdf and Data collection and evidence building to support education in emergencies, NORRAG, April 2019, <https://resources.norrags.org/resource/view/525/276#accept-cookies>

The case studies

As the first phase of a larger initiative focused on strengthening EMIS and data for increased resilience, UNESCO, in partnership with Education Cannot Wait and NORCAP, commissioned six country case studies, that were undertaken in direct collaboration with ministries of education (MoEs) and in-country humanitarian and development partners.

CLASS	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	G. TOTAL	Remarks
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P.6	04	06	10	69	55	124	134
				102	40	142	147

The goal of these case studies was to gain an in-depth understanding of challenges and opportunities in using existing EMIS and other data sources for crisis preparedness, response and recovery in different contexts; and, in turn, to inform the design of targeted interventions that reinforce national capacities and improve coordination around the collection and use of data and information for crisis-sensitive planning and management.

In particular, the case studies provide analysis of the following:

- Various data and information needs of MoEs and partners as well as the tools and methods they apply;
- Coordination of data management and data sharing processes across actors;
- Information generated through EMIS and current EMIS mechanisms, drawing on UNESCO's prior EMIS work and assessments;

- Data gaps in EMIS for crisis-sensitive planning and crisis responses;
- Integration and interoperability of EMIS data with other sources of data such as education needs assessments, population and displacement data collected by humanitarian actors;
- Existing approaches and initiatives such as the Refugee EMIS (REMIS), managed by UNHCR; and
- Barriers to effective data collection, analysis, sharing and use – including political, financial and technical factors.

They also offer initial recommendations for EMIS adaptation and complementarity between EMIS and humanitarian data. This includes exploring how EMIS can better contribute to needs assessments undertaken by humanitarian and development partners, and how partners/needs assessments can better complement and strengthen EMIS, including with respect to displacement and population data collected by humanitarian actors. For a summary of these recommendations, please see Annex III.

Methodology

Purposeful sampling was used to identify the six countries in which case studies were conducted: Chad, Ethiopia, Palestine, South Sudan, the Syrian Arab Republic and Uganda. The sample included a range of crisis-affected contexts in which ECW Multi-Year Resilience Programmes (MYRP) had been developed and covering different types of crisis context, including conflict and insecurity, natural hazards and displacement – both protracted and acute. Consideration was also given to feedback from Field Offices regarding MoE needs vis-à-vis EiE data and improving the crisis sensitivity of EMIS, as well as to where UNESCO had the necessary operational capacities to support subsequent phases of the initiative.

NORCAP personnel were deployed as case study authors to the concerned UNESCO Field Offices for a period of up to four months from late 2019 to early 2020 to conduct primary research, as well as a desk review of relevant literature.⁷ This research was undertaken in-country for five of the six case studies.⁸ Findings were elaborated using an analytic framework developed jointly by the authors and project leads.⁹

Field work consisted of questionnaires, semi-structured interviews and focus groups with relevant education authorities (at central and decentralized levels) and education personnel (teachers, school staff), humanitarian and development education partners (including UN agencies, national and international NGOs, and donors, and representatives from relevant sector coordination mechanisms such as the Education Cluster), and other relevant humanitarian partners (such as OCHA and the

Protection Cluster). Reference for NORCAP personnel conducting the interviews can be found in Annex II.

It additionally involved analysis of key information systems and tools for data collection and management used by national authorities and other partners. Where security considerations allowed, a limited number of site visits were undertaken. Case study authors also participated in relevant workshops and coordination forums, and in several cases, presented preliminary findings of their research to stakeholders, including ministries of education.

Desk reviews involved analysis of key documents pertaining to the national context, including national policies, education sector plans, humanitarian response plans, relevant humanitarian and development partner reports, and Education Cluster strategy and information management documents. They also included an examination of relevant global literature on education data in emergencies and protracted crises and on EMIS more broadly.

Special attention was paid to assessing the extent of coverage of EMIS from a sector-wide angle, to ensure that all education levels from early childhood to adult education and all modes of learning from formal to non-formal were covered. The mainstreaming of gender- and age-disaggregated indicators in humanitarian and development data was also systematically analysed, as was the extent to which existing EMIS captured data concerning marginalized groups, including learners with special needs as well as refugees and IDPs, and protection concerns.

7 Reference for NORCAP personnel conducting the interviews can be found in Annex II.

8 The author of the Syria case study was home-based and conducted interviews virtually in addition to using electronic questionnaires and email correspondence with ministry officials and other relevant partners.

9 Please see Annex I: Country Case Study Analytical Framework

Key findings

While the case studies cover a range of different contexts and present rich detail specific to each, collectively they provide a number of insights that can help guide collaborative efforts to strengthen national systems and improve data quality and use in crisis-affected contexts. The following sections synthesize key findings across the six studies and identify the main challenges and opportunities that emerge for strengthening EMIS as a tool for crisis preparedness, response and recovery, including those related to the enabling environment as well as to the specificities of data production, dissemination and use. Many of these issues are closely interrelated (e.g. challenges of capacity impact on quality, coordination and use; weak coordination affects both data production and dissemination and use, particularly in relation to interoperability), and in a number of cases, are symptomatic of challenges for EMIS more broadly, which crisis may only exacerbate.

Enabling environment

The political and institutional environment in which an EMIS operates are essential determinants of its effectiveness, with a strong enabling environment laying the foundations for success (Abdul-Hamid, 2017; UNESCO & GPE, forthcoming). The enabling environment comprises 'the laws, policies, structure, processes, resources, and data-driven culture surrounding an

EMIS that make data collection, management, use, and access possible' (Abdul-Hamid, 2017, p. 30). The following sections outline issues related to the enabling environment required for EMIS to support crisis preparedness and response, including with respect to legal, policy and institutional frameworks, capacity, and coordination:

LEGAL, POLICY AND INSTITUTIONAL FRAMEWORKS

Legal, policy and institutional frameworks for EMIS, on the one hand, and for EiE, on the other, are a necessary part of creating an enabling environment for improved data collection and use by national systems in crisis-affected contexts. So, too, are clear, reciprocal linkages among them.

The 2018 UNESCO-GPE EMIS Conference highlighted the role of legal and policy frameworks, and strategies for their implementation, in increasing the effectiveness and credibility of EMIS (UNESCO & GPE, forthcoming). The content and emphasis of such frameworks vary by context; but in their most basic forms, they should institutionalize and enforce use of EMIS. This includes delineating the roles and responsibilities of various stakeholders involved in data production, dissemination and use; establishing institutional arrangements for the leadership and coordination of data efforts, including a unit or department focused specifically on EMIS; defining the purposes of data collection and use of such data; mapping all data types and associated accountabilities for data production; ensuring privacy and security controls; and establishing regulatory mechanisms to promote accountability (UNESCO & GPE, forthcoming).

Similarly, work on strengthening the resilience of education systems has underscored the importance of crisis-sensitive sector analysis, policy and planning, and of including considerations related to the management of EiE in institutional frameworks. This is true for countries responding to or recovering from crises, but also as a valuable preparedness measure in any context. Crisis-sensitive policy and planning frameworks and institutional arrangements for the management of EiE can help to enable effective data production and use at the level of national systems in emergencies and protracted crises – mandating crisis-related data collection and guiding the

design of relevant indicators, facilitating coordination, and ensuring feedback loops for evidence-based decision-making.

Across the case studies, the extent to which legal and policy frameworks and institutional arrangements for EMIS and EiE exist or are interlinked is variable. Several of the studies cited the lack of an overarching EMIS framework or data policy as a hindrance to well-coordinated and comprehensive data collection and use, leading to fragmentation of data and duplication of effort. Others cite missing links between EiE-related policy and planning and information systems.

In Palestine, for example, the absence of a specific data collection policy and the emergence of additional data needs have led most of the technical directorates within the ministry to develop specific information management systems that are used in a parallel manner and that do not generate a unified and cohesive snapshot of the education system.¹⁰ While EiE is mainstreamed within the sector plan and addressed within other strategic documents, there is no comprehensive EiE strategy; nor are there accompanying measurable indicators, aligned with the EMIS and institutional information systems, to inform a 'vulnerability baseline' and support monitoring and evaluation activities.¹¹ In the case of Uganda, the absence of a legal and policy framework establishing the EMIS and driving the Annual School Census that served as its main source of data contributed significantly to its discontinuation in 2017.¹²

In other cases, a solid EMIS framework exists but stands to be updated and/or makes little reference to emergencies or crisis-related data needs. For example, in Chad, the EMIS strategy dates back to 2014 and would benefit from a consultative review to better reflect current reality and needs, including in relation to emergencies, which were highlighted as an issue

¹⁰ See Palestine case study, pp. 15-16.

¹¹ Ibid., p. 19.

¹² See Uganda case study, p. 9.

needing to be explored but never fully reflected in annual EMIS questionnaires.

In some contexts, EiE considerations are integrated within sector plans and policy documents but lack a dedicated strategy and/or staffing resources. The absence of an officially-endorsed EiE strategy with a clear approach to data collection and use and the lack of institutionalized EiE functions limit the inclusion of crisis-related data in EMIS, and can undermine coordination and information-sharing.¹³

Though limited, there are also promising examples of crisis-sensitive sector plans supporting the inclusion of crisis-related indicators in EMIS or opening new possibilities for strengthening coordination and harmonizing data production and use. In the case of Chad, the integration of EiE in the current transitional sector plan, the Plan intérimaire de l'éducation au Tchad (PIET), prompted the inclusion in the 2018-2019 EMIS questionnaire of indicators on enrolment of refugees, IDPs, returnees and orphans and vulnerable children; for the first time, the EMIS Annual Report for 2018-2019 included disaggregated data for these groups.¹⁴ The South Sudan case study highlights the

General Education Strategic Plan 2017-2022 priority around developing a dedicated EiE strategy as an opportunity to focus on crisis-related data collection and use, and to ensure the integration of such data within the existing EMIS.

The same is true of initiatives to develop or strengthen EMIS policy frameworks. For example, in Uganda, work is underway to address the critical actions identified by an EMIS Task Force when conducting their review in 2017, including the development of EMIS policy framework. The development of this framework – and the assessment of the data and analysis needs that underpin it – are an important avenue for ensuring that crisis-sensitive data are captured within the new EMIS.

Collectively, the case studies demonstrate the need for clear legal, policy and institutional frameworks for both EMIS and EiE that set out roles, responsibilities and accountabilities, and establish the necessary structures and processes for them to be viable. Coherence between – and deliberate linking of – comprehensive EiE strategies and EMIS frameworks are also of critical importance for promoting more effective collection and use of data for resilience.

CAPACITY

Technical, financial, human resource and infrastructure capacity¹⁵ are key determinants of an enabling environment for effective EMIS (Abdul-Hamid, 2017). Crisis situations are no exception, as underscored by the case studies, and can exacerbate existing capacity challenges with respect to EMIS, and to reliable data and information more generally. Capacities for crisis-sensitive planning and management, which serve as both a driver and end-user of data that can strengthen system resilience, are equally critical.

While each of the case studies demonstrates will among national education authorities and humanitarian and development partners to collect and use data to guide crisis responses, issues of capacity are significant. They range from the level of training and technical understanding of staff (including related to the use of IT and statistical analysis, for example, or to EiE), to the impact of significant budget reductions and the availability of financial resources amidst

competing demands, to levels of staffing and frequent turnover, to limited or unreliable IT infrastructure and other logistical difficulties.¹⁶ These challenges are manifest both for EMIS and other government-led data initiatives, as well as for those of humanitarian and development partners.

For example, in South Sudan, where teachers are the key sources of information, data literacy is identified as a challenge, with some teachers unable to complete data questionnaires correctly; low levels of teacher education,¹⁷ coupled with high levels of turnover due to low and inconsistent salary payments are cited as capacity issues for data collection.¹⁸ In the Syrian Arab Republic, power outages, limited internet coverage and lack of IT equipment often result in manual entry of data at governorate level, increasing the risk of errors.¹⁹ In Chad, the vastness of the country and access to particular regions, issues of capacity and accountability, and limited materials, transport to schools and other means make it more difficult to have an effective

13 For example, see the case studies for Ethiopia (p. 16), Palestine (p. 19) and South Sudan (pp. 15, 35).

14 See Chad case study, p. 14.

15 This paper uses the following understanding of 'capacity', drawn from the UNESCO-IIEP *Guidebook for Planning Education in Emergencies and Reconstruction*: 'the ability of individuals, organizations or systems to perform appropriate functions effectively, efficiently and sustainably' (IIEP-UNESCO, 2010).

16 These issues are highlighted as challenges in many contexts, but may be intensified in crisis settings. For example, turnover of trained teachers and staff may be higher in areas of higher risk due to displacement, security issues or working conditions. Levels of education and training among staff may be lower as a result of protracted crisis. Power outages and other resource constraints resulting from conflict or natural hazards may additionally impact use of technology solutions.

17 At least 37 per cent of primary school teachers, according to the 2018 AES, have only a primary education or are primary school leavers (South Sudan case study, p. 16).

18 See South Sudan case study, p. 16.

19 See Syria case study.

system at the subnational level.²⁰ In Ethiopia, especially in the emerging regions and among lower level EMIS units (woredas and schools), limited experience and expertise of EMIS staff, not least due to turnover, are identified as a persistent challenge.²¹ Across the different contexts, the level of information management capacity varied among Education Clusters as well – ranging from consistent data collection, analysis and dissemination supported by dedicated staffing, as in the case of South Sudan or Palestine, to challenges for data production and dissemination owing to inconsistent participation and response of Cluster members, staff turnover, or capacity issues at decentralized levels, as in the cases of Chad and Ethiopia.

📌 Sustainability and the humanitarian-development divide in Ethiopia

It is agreed by stakeholders that EMIS in its present form does not fit the needs of EiE. Data take too long to be available and the focus should be on affected populations as granularly as possible (at least at woreda if not school or individual levels), with reasons for compromised educational participation determined so needs can be met appropriately, effectively and efficiently. Data need to allow for preparedness planning and relevant, timely response.

There have been multiple attempts by the Education Cluster to address this; however, without systemic linkage to crisis-sensitive planning, they could not succeed. The Regional Education Bureaus were requested to provide data on a quarterly basis using a form devised by the Cluster; however, as this was not formally part of the system, it 'depended on negotiation capacity', and was not functional. Subsequently, a pilot tested feasibility to collect data through a mobile application: Save the Children provided 12 tablets and trained woreda EMIS officers, who were to enter data from paper-based school questionnaires, supervised by two national EMIS staff, with data transmitted to central servers. While the first round was successful, the load of 50 to 60 schools for woreda officers each quarter and the requirement for principals to fill out the questionnaire repeatedly, on top of their other tasks – not to mention the cost of airtime for data transmission and per diems – could not be sustained. Learning from this, provision of tablets directly to principals was considered; however, costs were prohibitive. The concept was adjusted, with woreda officers collecting data on hard-copy questionnaires on a rolling basis, visiting five to ten schools per month, but resources were not received. The humanitarian funding streams could not accommodate system-level support; the development side (GEQIP) did not see the place of EiE (Ethiopia case study, p. 29).

Several of the case studies also point to concerns about sustainability, given the heavy dependence on donors and partners for financial, technical and/or technology support, the resource-intensiveness of data collection and processing, the investment requirements associated with demands for increasingly sophisticated EMIS, and the extent to which data efforts may be donor- or project-driven (in some cases, reflecting low data demand and usage in planning). For example, in Uganda, two recent reviews of the EMIS identify lack of sustainable investment in EMIS, coupled with a focus primarily on the technology pillar (at the expense of strengthening the people and processes that make up the EMIS system as a whole), among the principal contributors to its deterioration.²²

The need to reinforce capacities for crisis-sensitive sector analysis, policy and planning was also identified as a key aspect of strengthening EMIS and crisis-related data capacities. This is necessary for ensuring a comprehensive understanding of crisis-related risks and impacts, as well as of preparedness and mitigation measures, that can guide the design, collection, analysis and use of relevant data.

For example, in Chad, at the time of writing, the Department of Civic Promotion was acting as the liaison and focal point for EiE; however, capacity and training in EiE were limited, as was the capacity to respond to arising needs, and no system for emergency reporting existed within the Ministry structure.²³ In Ethiopia, main weaknesses of emergency engagement observed in the national Education Sector Development Programme (ESDP) V are inadequate information collection and sharing from school to higher levels to inform resource requests and response, and communities and the system receiving little support in crisis preparedness and response.²⁴ The Palestine case study suggests that while a small team of ministry staff received EiE training in 2015, equipping them with knowledge and skills related to the INEE Minimum Standards and the role of the MoE in strengthening resilience, additional capacity is needed at all levels and across directorates to ensure a thorough understanding of vulnerabilities, as well as the necessary measures needed to limit their impacts on the education system – including related to data collection and evaluation, planning and coordination.²⁵

20 See Chad case study, p. 15.

21 See Ethiopia case study, p. 14.

22 See Uganda case study, pp. 9, 19.

23 See Chad case study, p. 20.

24 See Ethiopia case study, p. 12.

25 See Palestine case study, p. 28.

COORDINATION WITHIN AND ACROSS MINISTRIES, HUMANITARIAN AND DEVELOPMENT ACTORS

Coordination is integral to effective data collection and use under any circumstances. But the complexities of delivering education in emergencies and protracted crises and the number and variety of stakeholders involved make all the more pressing the need for information sharing, harmonization of tools, joint assessment and agreement around indicators and shared definitions, and clear lines of responsibility. Coordination around data and information can help to improve preparedness and response, optimize the use of limited resources and strengthen humanitarian-development coherence.

All six case studies reported coordination challenges and recommended measures to address them as fundamental to strengthening EMIS and data in crisis settings. These challenges relate to coordination both of data and of EiE, more generally, as well as of EiE data specifically. They are evident across and within line ministries sharing responsibility for different subsectors of the education system and for displaced populations – often owing to a lack of clear institutional arrangements; and at (and among) different levels of the education system, from national ministries down to district education offices. They also pertain to coordination between the government and humanitarian and development partners, and across and within humanitarian and development partners themselves.

While humanitarian and development coordination forums such as Education Clusters, Education-in-Emergencies Working Groups, Refugee Education Working Groups and local education groups (LEGs) or other sector working groups exist and are active in the different contexts, the extent to which data or EiE, or both, are a focus of these groups varies. The level and consistency of partners in providing data and information via these forums differ as well.

Furthermore, ministry participation in humanitarian coordination mechanisms may be limited or inconsistent – in part, owing to challenges of capacity and the absence of clear institutional frameworks for EiE; while government representation in sector working groups and clusters may not cover all subsectors of the education system or include representation from all ministries and directorates involved in EiE and/or data management.²⁶ Humanitarian actors may be absent from development-oriented coordination mechanisms, and vice versa – and may themselves have internal coordination challenges. Moreover, the interaction between these humanitarian and development coordination forums may be limited, resulting in missed opportunities to promote humanitarian-development coherence, including in and through data.

For example, in Ethiopia, at the time of research undertaken for the case study, the Sector Working Group, Education Cluster and Refugee Education Working Group did not optimally interact; key members of the Cluster were not aware of the education sector plan review underway, nor of crisis-sensitive planning efforts. Lack of knowledge of each other's activities was repeatedly pointed out by partners, and the structure of dual-mandate organizations mirroring humanitarian-development separations (exacerbated by one or another function sometimes based outside-of-country) was also a hindrance to effective coordination and information-sharing.²⁷

The examples of Palestine, where management of the education sector (and, therefore, of data) reflects the broader administrative fragmentation resulting from the protracted crisis, and the Syrian Arab Republic demonstrate the difficulty of coordinating data collection and use across all partners in the context of protracted crises in which different managing authorities and/or coordination groups have responsibility for service delivery. The resulting challenges for coordination make it difficult to have a coherent or complete picture across the whole of the education system.

Even within ministries of education, different departments are responsible for different aspects of education and may have separate data systems, with little coordination between them. For example, in Chad, coordination challenges arise not only between the ministries in charge of different levels of education but also among the MoE's departments, who often work in silos, resulting in fragmented communication or implementation of activities.²⁸ In Palestine, different ministry departments have developed specific information management systems that are used in parallel and intra-ministerial coordination challenges are cited as an impediment to comprehensive crisis-related data collection and use.²⁹ The absence of clear institutional arrangements for EiE compounds these challenges.

Across the case studies, weak coordination, particularly around data and information sharing, is shown to result in duplication of effort and fragmentation of data, confusion and fatigue among providers of data (who may be asked repeatedly for the same information) and inefficient use of resources, both human and financial. Missed opportunities for better alignment and collaboration across ministry, humanitarian and development partners are also a consequence.

²⁶ See, for example, the country case studies for Chad (pp. 25, 30-31) and Ethiopia (pp. 16-17).

²⁷ See Ethiopia case study, p. 22.

²⁸ See Chad case study, pp. 31, 38.

²⁹ See Palestine case study.

Data production

Cited as one of the potential benefits of EMIS for supporting preparedness and longer-term crisis response and recovery is its ability to capture comparable system-wide data over time – as opposed to humanitarian needs assessments, for example, which may be useful for giving a quickly actionable understanding of needs in affected areas (INEE et al., 2019). At the same time, the utility of EMIS and its ability to bring

humanitarian and development considerations together at the level of national systems stand to be reinforced by the wealth of available data and the efforts of humanitarian and development partners active in supporting preparedness and response. To be able to do so, there are a number of challenges related to the quality of data production that need to be addressed. These are discussed below:

COVERAGE AND COMPLETENESS

Across the case studies, a number of issues around the coverage and completeness of data collected by EMIS, as well as humanitarian and development partners, were identified. These issues relate both to the range and content of such data, and to the geographical scope of data collection efforts.

First, few data systems effectively collect data across all education levels and delivery types for all types of learners (e.g. refugees, IDPs), while duplication exists for particular subsectors or populations. This leads to critical information gaps that stand to impact negatively on crisis response (in addition to education access and quality more generally), including with respect to resource mobilization, as well as policy, programming and advocacy. It also risks inefficient use of resources and confusion or fatigue on the part of school-level respondents, and underscores the need to promote complementarity and strengthen coordination.

In a majority of the countries, EMIS captures data from pre-primary through higher education, as well as TVET and non-formal education. But EMIS data coverage across levels may be uneven both in terms of the number of indicators for which data exist and the quality of such data.³⁰

Partners' data collection efforts may have different, sometimes overlapping, target populations and/or purposes, owing to differing data needs and capacity. For example, the Education Cluster may have information management capacity at country level, but the scope of its assessment efforts may be limited to primary or basic education.³¹

Individual organizations tend to concentrate on assessment for purposes of proposal development and project planning, and on inputs and outputs of their project activities, primarily for monitoring, evaluation, and donor reporting – and though they participate in joint needs assessments, often also conduct their own, sometimes collecting similar information from the same respondents. Refugee EMIS (REMIS) captures data on refugees in camp settings, but may not include data for those refugees enrolled in government schools in host communities (for whom disaggregated data may not exist in EMIS); whereas host communities accessing refugee camp schools may not be captured in EMIS, even though they are included in REMIS.³² Data collection in refugee camps may become duplicative when camp schools become part of the national system and/or EMIS questionnaires or annual school censuses begin collecting disaggregated data about displacement status.³³

Second, the focus of data collection efforts is overwhelmingly on access, with comparatively little attention to, or emphasis on, learning outcomes or other qualitative dimensions relating, for example, to protection and well-being – at the level of EMIS but also among humanitarian actors.³⁴ Improving measurement of these dimensions, both via EMIS (UNESCO & GPE, forthcoming) and in EiE,³⁵ is gaining priority globally, but still not widespread or consistent, as the case studies demonstrate. Moreover, many data collection initiatives, including for EMIS, are school-based and therefore capture little information about the reasons that children and youth might drop out, or be out of school in the first place – information which is of particular importance for

30 For example, in Ethiopia, most available EMIS data concern primary and secondary education; while data on alternative basic education are collected, these are reportedly weak by comparison because responsibility lies with lead teachers at school-level who receive no preparation in management. In South Sudan, a Student Attendance Monitoring System (SAMS) has been developed to monitor enrolment and attendance, but is not yet integrated within EMIS and covers only primary and secondary levels.

31 For example, in South Sudan, the Cluster carried out a detailed nationwide assessment over three years, providing valuable emergency-related data; however, it focused only on primary level (South Sudan case study, pp. 20-22).

32 See, for example, the case of Ethiopia, where REMIS includes data only for refugee schools and host community members attending refugee schools are not captured in national statistics (Ethiopia case study, p. 27).

33 See, for example, the case of Chad, where camp schools have become part of the national system and disaggregated data on displacement status are now included in EMIS, and the need to harmonize data collection efforts is cited (Chad case study, p. 25).

34 See, for example, the case studies for Chad, where data on learning outcomes and qualitative dimensions of education is limited (p. 16), and South Sudan, where information relevant to EiE planning (e.g. related to psychosocial well-being and support), is not prioritized within the current EMIS, nor is there much information regarding the quality of learning – particularly for EiE interventions (pp. 30, 34).

35 See, for example, the proceedings of the 2019 EiE Data Summit: https://inee.org/system/files/resources/EiE%20Data%20Summit%20Proceedings_Final.pdf.

both immediate response and longer-term recovery, as well as for addressing the drivers of conflict, violence and inequality.³⁶

Third, emergencies and protracted crises can limit geographical coverage of data collection, especially for EMIS – with areas most in need of support often the hardest to reach, or for which it is the most difficult to have complete and reliable information, whether for political reasons or because of capacity. Security issues and damage to infrastructure, both physical and technological, may impede access to certain schools and/or district offices in affected areas and limit connectivity, preventing timely data collection; human resource and technical capacity for data collection may also be reduced in crisis-affected regions. For example, in South Sudan, many areas of the country are inaccessible during the rainy season or during surges in armed conflict, while poor roads, mobile networks and internet, and limited financial resources severely constrain data collection efforts.³⁷

In conflict situations, EMIS data may not be available – or may be misrepresented or incomplete – for areas not (fully) under the territorial control of the government, while humanitarian

data may be highly sensitive and not readily shared. In the Syrian Arab Republic, for example, information sharing is a sensitive issue and many data are not available because of security and protection concerns and/or political reasons.³⁸ Moreover, multiple supervising authorities for education because of protracted crisis can make it difficult to have a complete picture of education needs; this is the case in Palestine, where it is difficult for the MoE in the West Bank to access information on schools in Gaza and parts of Jerusalem, as well as for those run by UNRWA, beyond more traditional administrative statistics captured in the General Education database.³⁹

Fourth, many data systems and collection initiatives in the contexts studied are resource intensive and rely on donor funding for the technology improvements and capacity development that make their full and effective use possible. This impacts the scalability of such efforts, particularly in crisis-affected areas; and means that coverage of schools may be limited, with expansion gradual and dependent on securing the necessary resources and support.⁴⁰

ACCURACY AND RELIABILITY

In order for data to be comparable over time – and ultimately, useful for promoting equity and inclusion for crisis-affected learners – they need to be sufficiently accurate and reflect stable and consistent collection processes across collection points (UNESCO & GPE, forthcoming). A challenge for EMIS under any circumstances, this can be particularly difficult in crisis-affected contexts, as the case studies demonstrate.

By their very nature, conflicts and/or political or economic instability, natural disasters and pandemics complicate data collection and verification, and therefore its accuracy and reliability. Crises strain capacity, prevent access to geographic areas, create population movement, heighten security risks and exacerbate inequalities; when protracted or chronic, these impacts are only compounded. Crises may also (further) politicize basic services or establish different managing

authorities for their delivery. Amidst this reality, ensuring accurate and reliable data becomes all the more challenging for national systems.

In crisis-affected contexts, the availability of population data may vary. Such data may be substantially out-of-date, as is the case in South Sudan where the last population census was conducted in 2008,⁴¹ or may be difficult to capture accurately at subnational level because of internal displacement, as the case of Ethiopia shows.⁴² This makes it difficult to have a precise picture of the number of children and youth out of school, much less to compare over time, and can mask differences within and across regions.

Capacity for data collection and verification at different levels are also an issue. Comprehensive data collection, cleaning

36 See, for example, the case studies for Chad, Palestine and South Sudan, which all highlight the absence of information regarding out-of-school children and reasons for drop-out/non-enrolment, in part because the school is the locus of EMIS data collection.

37 See South Sudan case study, p. 16.

38 See Syria case study; and ODI, 2020b.

39 See Palestine case study, p. 24.

40 For example, in Syria, the rollout of the School Integrated Management Information System (SIMIS), which is a comprehensive system that enables the real-time collection of data from schools, is planned for some 2,500 schools (of the more than 13,000 schools in Syria) – ‘but cannot be used to its full potential yet due to limited resources for procuring equipment and providing high-speed internet to all schools’ and requires sustained technical and financial support (Syria case study, p. 14). In South Sudan, the Schools’ Attendance Monitoring System (SAMS) – which collects information on enrolment and attendance in real-time, primarily through a pupil admission register collected at the beginning of the year and via SMS on daily basis – is not currently used to its full potential, as not all actors have sufficient understanding and experience to do so. Moreover, full and detailed analysis of the data is constrained by limitations in funding; and attendance reporting is hampered by poor mobile connectivity in some areas, delaying submission of information and increasing costs. There are schools that are not yet included or reached with mobile collection, and funding to extend 100 per cent coverage was not available at the time the case study was conducted (South Sudan case study, p. 26).

41 See South Sudan case study, p. 16.

42 See Ethiopia case study, p. 24.

and verification processes involve substantial costs and inputs of time and labour. They also involve the use of technology and maintenance of equipment, which even in more basic forms, may be a challenge in crisis-affected contexts.⁴³ Lack of equipment and reliable access to internet can make the process of data entry cumbersome and introduce errors. Where resources are constrained or security/weather conditions impede access, significant delays in conducting annual EMIS data collection or transmitting data to higher levels may occur.⁴⁴

Moreover, accuracy and reliability rely on thorough understanding of the process and purpose of data collection and of the definitions and terms used among data providers and collectors; this requires training and understanding down to the level of head teachers and teachers providing data at schools and in classrooms. In crisis-affected contexts, demands on teachers and administrators are already considerable, turnover may be high, and levels of education and training

may be limited. The lack of robust documentation surrounding data collection, analysis and use also compounds lack of understanding of process and purposes. Furthermore, sensitivities around collecting particular types of information (e.g. related to displacement status, psychosocial needs or other protection issues) and/or confusion about the use of crisis-related terms – for example, ‘refugee’, ‘IDP’ and ‘returnee’ – or understanding of what questionnaires are asking may also complicate the accurate collection of crisis-related data.⁴⁵ So, too, does the language in which data collection tools are made available.⁴⁶

Lastly, accuracy and reliability may be affected by incentives to skew data, whether political or material. Where data collection is linked to capitation grants or other distribution of resources, enrolment figures may, for example, be inflated.⁴⁷ Where government authorities may control part but not all of a territory, the accuracy of data provided may also be compromised.

TIMELINESS AND RELEVANCE

Timeliness and relevance are quality issues of particular concern for strengthening EMIS and data to increase resilience at the level of national systems. Crisis-affected contexts require an ability to adapt to the rapidly changing and complex nature of such situations; and steps toward longer-term recovery and development require comprehensive understanding of the needs and risks that have been introduced (or exacerbated).

Given the nature and scale of EMIS data collection efforts, timeliness is a recurring challenge across the case studies. Though a number of them mention steps being taken to make EMIS data more current and available (including through school management information systems that collect data more regularly and mobile data collection from schools), paper-based, annual school censuses remain the primary source of information and analysis in most cases.

Political or economic instability, resource constraints and capacity issues may delay the conduct of school censuses – sometimes significantly.⁴⁸ Even where data are collected annually, it may take additional time for analysis to become available. Moreover, such data are collected once and reflect a single point in time, making it difficult to capture fluctuations and variability in enrolment, attendance and retention, for example. This can make it difficult to have a comprehensive understanding of the way crisis and displacement interact with access and quality – particularly where new events occur after data have been collected.

For EMIS data to be relevant and useful in supporting crisis preparedness and response, they need to be crisis-sensitive. In other words, they should be able to help national authorities in recognizing crisis risks and putting measures in place to

43 For example, the Syria case study cites lack of computers, electricity cuts and limited internet connectivity, coupled with low levels of computer literacy among remaining teachers and education staff, as major challenges in crisis-affected areas for EMIS data collection and verification (pp. 16-17).

44 See, for example, the case studies for Chad, where the annual school survey was not conducted from 2016 to 2019; and South Sudan, where the period between data collection cycles can be significant during periods of disruption, and many areas of the country are inaccessible during the rainy season or during surges in armed conflict.

45 See, for example, the case of Chad, where ‘it is important to note that the understanding of what each category means and/or how the director or teachers should gather such information may still vary at the school level. School directors have never been trained in how to complete the questionnaires, which means that aspects of the forms may still be unclear to some; this affects the quality of the data provided. Establishing the age of children per class, questions related to the contribution of PTAs to the school, or the distinction of IDPs and returnees are examples of unclear areas for school-level personnel’ (Chad case study, pp. 14-15).

46 For example, in Chad, the fact that EMIS questionnaires were available only in French, even in Arabic-speaking schools was cited as a challenge (Chad case study, p. 37). For more information regarding translation and comprehension of data collection tools and their impact on data quality in humanitarian contexts, see also the 2018 report by Translators Without Borders, *The Words Between Us: How Well Do Enumerators Understand the Terminology Used in Humanitarian Surveys? A Study from Northeast Nigeria*.

47 See, for example, the case studies for Ethiopia, where data integrity is at times compromised by incentives such as school grants or allocations to regions (p. 24); South Sudan, where perceived incentives from the provision of data are reported to influence how well individuals collecting and supplying data are committed to providing accurate information, and ‘inflated enrolment figures are tied, for example, to extracting more capitation funds, food or other benefits’ (p. 29); and Uganda, where schools are awarded capitation grants based on school enrolment, and there is therefore a built-in incentive for head teachers to exaggerate student numbers (and to some extent needs at the school) in the hope of securing more funding (p. 22).

48 For example, in South Sudan, the annual education census exercise has been affected by cycles of conflict and lack of government funding, and was not conducted at all in 2014, 2017 or 2019 (South Sudan case study, p. 12). In Chad, data collection for the 2017/18 and 2018/19 school years had to be collected and analysed retroactively, as the last annual school survey was conducted in 2016 and Ministry data were unavailable for over two years (Chad case study, p. 13).

help mitigate their impacts. Ideally, this means a focus on specific populations, including refugees and IDPs as well as learners with special needs, and the inclusion of EiE-relevant indicators that may not already be part of a more traditional EMIS; it also implies the availability of more granular data, down to the school level, and the disaggregation of indicators to account for inequities related to demographic factors such as gender, religion, ethnicity and wealth. These data can help to anticipate, identify, understand and address the differential consequences of crisis across the education system.

The degree to which EMIS deliberately include EiE-related indicators varies considerably across the case studies. However, in a number of contexts, steps have been taken to include displacement status in questionnaires and analysis (although potential sensitivities and risks in requesting, collecting, storing and using this information are underscored).⁴⁹ As the case of Uganda highlights, a number of existing data can be useful for crisis-sensitive sector analysis and planning even if they do

not seem specifically crisis-related at face value.⁵⁰ Moreover, there is potential for existing data systems integrated within EMIS to capture data that can support response and recovery – for example, teacher management information systems (TMIS), which might be used to capture information about emergency-related teacher training, including in psychosocial support.

Echoing the findings of the previous EMIS conference regarding data in crisis-affected contexts, the case studies demonstrate the importance of striking a balance between what data should ideally be collected and what can realistically and safely be collected, given limited resources, competing demands, security risks and, most importantly, ethical considerations. This may vary considerably from one context to another and might be expanded incrementally; but it is an essential consideration for promoting sustainability and ownership and avoiding harm.

INTEROPERABILITY AND INTEGRATION

All six of the case studies demonstrate the need to improve data interoperability and integration,⁵¹ given the number of actors and data systems involved in collecting and analysing data across the continuum from prevention and preparedness to response and recovery. Increased interoperability and integration stand to help generate better data and facilitate its use; strengthen coordination efforts; and improve humanitarian-development coherence, including by more deliberately linking national system data with the broader EiE data ecosystem. At the same time, the nature of crisis-affected contexts and the inherent security and protection risks therein make clear the need for careful reflection about appropriate levels of interoperability and integration, and the safeguards required to ensure that data ‘do no harm’.

The studies identify varied challenges related to interoperability, ranging from the ability of data systems to communicate with one another to inconsistencies in the use of indicators, terms, definitions, methodologies, and geographic boundaries

delimiting communities, villages and cities. Many of these challenges are closely interlinked with issues of coverage, accuracy and reliability, as well as capacity, coordination and institutional frameworks. They arise in relation to data within and across ministries and managing authorities, as well as partners.

While in some contexts, multiple government databases (e.g. for teacher management, school management, human resources or examination results) may be integrated within EMIS, in others, valuable data are housed in separate systems that do not readily interact. For example, in Uganda, the Annual School Census (EMIS), the TMIS, Refugee Response data and education development partners’ initiatives such as Strengthening Education Systems for Improved Learning (SESIL) are managed separately and the data are generally stored and analysed in isolation.⁵² The case of Ethiopia – where some regions reportedly have more than ten databases related to different initiatives –

49 See, for example, the case studies of Chad and Ethiopia.

50 For example, using nationality data and/or new entrant data to observe overall trends for increasing displacement and reasonable estimates of the number of refugee children enrolled in a given school or district (Uganda case study, p. 23); detailed records of textbook stocks to identify needs in the event that materials are destroyed; or information captured by the census related to HIV/AIDS, including details regarding available resources, such as guidance and counselling, and other activities that might be helpful for identifying resources for psychosocial support and similar responses (p. 25).

51 ‘Interoperability’ for purposes of this paper follows the definition from the Collaborative on SDG Data Interoperability: ‘Interoperability is the ability to access and process data from multiple sources without losing meaning and then integrate that data for mapping, visualization, and other forms of representation and analysis. Interoperability enables people to find, explore, and understand the structure and content of datasets. In essence, it is the ability to ‘join-up’ data from different sources to help create more holistic and contextual information for simpler, and sometimes automated analysis, better decision-making, and accountability purposes.’ (<http://www.data4sdgs.org/initiatives/interoperability-data-collaborative>)

‘Integration’ refers to ‘the act of incorporating two or more datasets into the same system in a consistent way. Data integration is one of the possible outcomes of data interoperability’ (Morales & Orrell, 2018, p. 9).

52 See Uganda case study, p. 21.

demonstrates the practical challenges for processing and comprehension of data across multiple, disparate systems.⁵³

Moreover, none of the EMIS studied deliberately integrate humanitarian data; such data may be consulted during planning processes – and their production may involve MoE input – but they are not systematically linked or housed within a central location alongside other sources of EMIS data for use by national authorities. Particularly where issues of access and coverage make it difficult for national authorities to collect EiE-related data themselves or where their capacity is stretched, greater interoperability and more deliberate linking of existing emergency data with EMIS – for example, Education Cluster data – could strengthen national systems. Furthermore, improved interoperability would help to facilitate an eventual handover of responsibility for the management of such data to national authorities and promote greater coherence between response and recovery.⁵⁴

A number of the case studies point to the potential benefit of unique IDs for schools, and potentially for teachers and students, to increase interoperability of data systems managed by different departments and line ministries within national systems, as well as at school level.⁵⁵ The possibility of using these unique IDs for crisis-related data collection efforts such as joint needs assessments and other partner-supported or –led data initiatives, was also highlighted; doing so would enable collected data to be linked to existing EMIS and could help to support data verification and analysis. In Ethiopia, for example, the Education Cluster EiE Response Strategy mentions that all school-based data collection is to use EMIS school IDs to allow for integration with EMIS data.⁵⁶

Unique IDs – together with use of standardized definitions and methodologies for calculating indicators and harmonized tools (discussed below) – stand to strengthen humanitarian-development coherence by facilitating the eventual handover of responsibility for monitoring education delivery for specific crisis-affected populations or areas to national systems (such as is the goal of REMIS). They also enable comparability over time and across datasets. Provided appropriate protection and privacy measures are in place, unique IDs for learners could

also improve tracking of individual crisis-affected learners' needs and targeted support to address them.⁵⁷

Developing shared terms and indicators, with standardized definitions and methodologies, and ensuring their consistent use within national data systems and across partners emerge key priorities in a number of the case studies. The lack thereof is identified as an impediment to use and comparability of data, and ultimately to addressing needs comprehensively.⁵⁸ Differing use of definitions, indicators and methods for calculating them happens across partners and ministries but also among different departments within ministries; and even from one assessment cycle to the next.⁵⁹

The case studies also signal the need for harmonization of tools, using common indicators and definitions; these tools include, for example, EMIS questionnaires and annual school censuses, assessments used by humanitarian and development partners to guide project development and implementation, and forms and requirements for donor and partner reporting. Doing so is cited across the studies as a priority for ensuring consistency, promoting interoperability, avoiding duplication, increasing cost effectiveness and minimizing fatigue among providers of data.

Several of the studies mention an (over)abundance of tools and processes used for data collection by national authorities, as well as humanitarian and development actors. Some of these tools and processes are duplicative; many of them use different terms, methods of calculating indicators and time horizons; and few are closely coordinated.

While differing data needs and the required (or feasible) frequency of data collection mean that not all tools and processes can be harmonized, there is a considerable margin of progress that can be made. The case of Chad also emphasizes the value of pursuing joint data collection efforts, particularly between the ministry and partners, for increasing collaboration, reducing fragmentation and discrepancies, optimizing costs, and strengthening capacity.⁶⁰

A number of avenues for pursuing better alignment, harmonization and interoperability exist at country level and

53 See Ethiopia case study, p. 33.

54 See, for example, the recommendation of the South Sudan case study regarding the integration of EiE data within EMIS (p. 37) and its discussion of the end goal of REMIS, which is the inclusion of refugee data into the national EMIS (p. 18).

55 See, for example, the case studies for Chad (p. 15), Ethiopia (p. 33) and South Sudan (p. 25).

56 See Ethiopia case study, p. 15.

57 See GPE, 2019a, more generally regarding school and learner IDs. The Palestine case study highlights the absence of a mechanism that can enable student-level follow-up to track the needs of specific vulnerable individuals (p. 25); gradually introducing learner IDs where capacity and security architecture allow – and with careful consideration given to levels of personal data protection and context – might be one means of better targeting support to crisis-affected learners.

58 For example, in Syria, 'there is a need to agree on common definitions used when collecting data, such as defining criteria of people with special needs, household, orphans as well as defining the correct boundaries of communities, cities and villages. NGOs have noticed that the boundaries of a community differ from one NGO to another and therefore data vary and disagree with each other' (Syria case study, p. 36).

59 In Palestine, 'a large quantity of data is generated by the MoE through different systems and managed by different DGs. While these systems may collect instrumental data for Education in Emergencies, the lack of common processes, tools, and standards limit their ability to be harmonized and integrated.' For example, 'the crisis in Palestine can affect the possibility of building or rehabilitating school infrastructure, which results in lower WASH standards within schools in the most fragile areas. At least five different systems in the MoE collect data on WASH: GE Data, E-School Portal, Health School Environment Assessment, M&E Report and ESS. While all information is helpful, it is dispersed and may not be integrated, as it is gathered by different authorities at different times, in different locations and in different ways. The perception of 'adequacy' or 'good condition of sanitation facilities' may differ considerably between a school principal, a contracted firm and a Health Field Worker. Therefore, while the information may seem to overlap or be complementary, there could be significant inconsistencies that should not be ignored' (Palestine case study, pp. 21-22).

60 See Chad case study, pp. 36, 40, 42.

should be capitalized upon, with care taken to involve all key stakeholders – including relevant ministries and ministry departments as well as both humanitarian and development partners. These include the conduct of sector reviews, the preparation of sector plans, refugee response plans and emergency response strategies, the development or updating of EMIS policies and frameworks, and initiatives to strengthen EMIS more generally; they also include the articulation of strategies for relevant coordination groups, including the Education Cluster, and ECW- and GPE-funded programmes. More effective coordination around data, for example, between Education Clusters or EiEWGs and LEGs or Education Sector Working Groups can further support efforts to improve interoperability and harmonization in the production of data. Better alignment between education sector plans and Education Cluster strategies can similarly help to improve coherence across humanitarian and national data.

As guidance from the Collaborative on SDG Data Interoperability points out, ‘maximum levels of interoperability are not always desirable and can in fact be harmful or even unlawful (e.g. if they result in the unintentional disclosure of personal data)’ (Morales & Orrell, 2018, p. 11). This is particularly salient in crisis-affected contexts, where certain data are inherently political, potentially sensitive and/or carry protection or security risks for both beneficiaries and education providers, as well as for school infrastructure and learning materials. These include, for example, data related to displacement status, psychosocial and other learning needs, sexual and gender-based violence, or military use of schools. A comprehensive and careful consideration of these risks and sensitivities should underpin harmonization efforts, and should be used to determine the optimal degree of interoperability in a given context, with clear protocols and data-sharing agreements for ensuring data security and safe use.

Data dissemination and use

In emergencies and protracted crises, national education authorities and humanitarian and development partners produce and use data for different purposes, introducing challenges for sharing and dissemination (Buckner et al., 2019). The availability, quality and user-friendliness of these data to

a large degree govern their usefulness. In turn, the extent to which data translate into action impacts the quality of ongoing data production. Challenges and opportunities related to data dissemination and use are discussed below:

USE OF EMIS DATA FOR PREPAREDNESS AND RESPONSE

The potential for EMIS to capture crisis-related data and strengthen national system-level preparedness and response is recognized across the case studies; but in practice, use of EMIS in its present form to support EiE is limited, and, in many cases, strengthening the functioning of EMIS more generally is a prerequisite.

Partners surveyed reported using EMIS data as background when developing proposals, or to provide a picture of the broader education landscape, but identified the time horizon (both for collection and analysis/availability), quality and relevance of such data as obstacles to its use for programming and monitoring in crisis-affected contexts – in addition to issues regarding ease of access and available analysis. The granularity and coverage of data collected also limit their usefulness in addressing emergency needs in some cases.

Even among ministries, though EMIS data are sometimes used for crisis-sensitive planning, feedback loops could be further

strengthened or made more deliberate; so, too, could the use of data for greater accountability to affected populations. Better integration of humanitarian data within EMIS would also help usefulness. Where coordination across and within ministries is limited vis-à-vis crisis response and/or databases exist in silos, the ability for EMIS to strengthen system resilience is also reduced. Furthermore, institutionalization of and capacity for EiE within national systems play a role in the extent to which EMIS is used for preparedness and response, as does shared understanding of the value and purpose of crisis-sensitive planning and management. As one official interviewed in Ethiopia explained, ‘Even if the content of EMIS changes, our approach also needs to change.’⁶¹

⁶¹ See Ethiopia case study, p. 22.

AVAILABILITY AND ACCESSIBILITY

The extent to which data are readily shared and user-friendly varies from one context to another and from one partner to another, impacting both use and dissemination. This occurs for a variety of reasons, including related to sensitivity of data or security issues, competition for resources, internal or institutional practice, capacity, coordination, and cost-benefit analysis. While project or situation reports and summary analysis are more frequently available, sharing of datasets among organizations remains relatively rare.

Moreover, the various sources for EiE data available in a given context are often dispersed, with some data housed on organizational websites and/or made available via dashboards and maps, or in annual statistical reports, others in monthly digests, donor reports or evaluations, and still others by request or on a case-by-case basis. In some instances, partners are unaware particular data or analysis exist(s), or have trouble finding and accessing it; in others, sharing of data is not consistent. Data and information may not be presented strategically or in a way that facilitates their use for decision-making, and are not always kept up-to-date online or able to be printed and distributed widely because of resource constraints.

For example, in South Sudan, inadequate mechanisms for data dissemination generally among education actors, and more specifically at the Ministry of General Education and Instruction, are highlighted as a major impediment to data use and a main reason for parallel data gathering activities among education stakeholders.⁶² In Chad, while EMIS Annual Reports contain valuable information, they are lengthy and would benefit from an accompanying publication that is more analytical and focused in nature, and that shows trends in key indicators, to be made available on the MoE website (when it is functional). This is cited as necessary for more strategic

decision-making.⁶³ In Palestine, certain data collected by the different information systems of the MoE do not feed into common reports or assessments and external stakeholders can only consult it upon specific request to the competent DG or district.⁶⁴

In many cases, the way in which data are presented or shared prevents their ready use across data systems, particularly as very few raw data are made readily available. The use of different definitions and tools, including different methods of calculating indicators or presenting disaggregated information, makes it difficult to compare reported data over time and across organizations, and therefore, to have a coherent situational analysis of the education system and its response to crisis-related needs.

While it is likely ill-advised (and practically impossible) to pursue total interoperability or integration among the diverse systems that collect and analyse crisis-related data in a given context, several of the case studies emphasize the value of a central platform or repository for shareable data and analysis – closely associated with EMIS – that can be populated and used by national authorities and their partners, and that brings available data sources together. Legal, policy and institutional frameworks – with clear roles and accountabilities, as well as data confidentiality protocols – and data-sharing agreements⁶⁵ may also help to increase the flow of data among stakeholders and facilitate its use. So, too, can better alignment of tools and harmonization of indicators, encouraging greater comparability between EMIS and humanitarian data. Lastly, clear strategies for the dissemination of data and analysis, and efforts to increase its usability and usefulness at different levels of decision-making and response are further needed.

TRANSLATING DATA INTO VISIBLE RESULTS

The quality of data relies on a number of different factors, but essential among them are the involvement, motivation and trust of the providers of such data. Efforts to provide and process data are resource-intensive, both in terms of time and labour; without visible benefits for learners and teachers, it is difficult to sustain participation and response.

A concern echoed across the case studies is that the flow of information is not sufficiently two-way and that providers of data are not adequately equipped to use them at their own levels to improve management and response. Limited sharing of data and analysis and investment in capacity to collect and use information at local level is a missed opportunity to

⁶² See South Sudan case study, p. 38.

⁶³ See Chad case study, pp. 16, 19.

⁶⁴ See Palestine case study, p. 23.

⁶⁵ For example, in South Sudan, UNHCR has data sharing agreements with several partners due to the sensitivity of some of the data it collects (South Sudan case study, p. 19). A case study of coordination of education in Syria conducted by ODI (2020b, p. 57) reports that 'when all parties have been included in a transparent process of developing information protocols, they have proved effective in allowing partners concerned with releasing sensitive information to share more openly.'

strengthen district, school and even classroom preparedness and response; it also prevents improvements in the way data are collected that would ultimately strengthen their quality, and can reduce consistency and motivation.

In Chad, for example, the issue of reports being regularly sent but never receiving feedback – causing fatigue at the school level – was often cited by school directors in discussions at district level; the disconnect between the work done on needs and the actual response was highlighted as creating frustration. ‘Actors are being mobilised, resources are being directed to conduct needs assessments, collect data, and write reports and recommendations, but there are no answers, no follow-up, and no funding available to cover the identified gaps.’⁶⁶ In Uganda, much of the data provided to the central level is not accessible in consolidated and analysed form (for example, there is currently no access to the central EMIS system), restricting the utility of the data collected for district- or school-level decision-making.⁶⁷

In the context of emergencies and protracted crisis, where humanitarian and development partners and projects may be numerous, data collection efforts that show little result for affected schools and communities (and are often duplicative) can undermine trust. As one respondent in South Sudan expressed, ‘...everyone is asking for data and they [the 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’.⁶⁸

This is true at the level of communities and schools, as well as at district level. It is also the case among partners providing data through coordination mechanisms such as the Education Cluster. For example, in Ethiopia, Cluster members have reportedly complained that data procedures put excessive demands on their time and the fact that the value of this – i.e. receipt of additional humanitarian funds – is not seen, serves to dampen motivation.⁶⁹

There are a number of promising efforts to support improved dissemination and use of EMIS data and of clearer links to other humanitarian data efforts, particularly at subnational and school level. These include: (i) the development of school management information systems and data analysis and dissemination tools – such as school report cards (synthesizing EMIS and inspection data to summarize performance vis-à-vis national standards) or dashboards⁷⁰ – that can provide more regular and granular information and help support annual planning and targeted response to identified gaps, as well as increase transparency and accountability;⁷¹ (ii) capacity strengthening at school and district level for the management and use of data and for crisis-sensitive planning, including for example the inclusion of refugee learners and schools in the national system;⁷² and (iii) placement of data officers within – or other direct support to – district education offices.⁷³ However, many of these are in pilot phases and their expansion depends on the availability of funding as well as the continued support of humanitarian and development partners; in some cases, technology requirements may also limit their full and reliable use in crisis-affected areas and schools. Ensuring that strengthening EMIS efforts are part and parcel of a broader programme with delivery of tangible gains at local level (such as school construction, materials, supplies and school grants) has also been seen to facilitate endorsement and participation.⁷⁴

The concerns raised underscore the importance of clearly communicating the goals of data collection, regularly sharing data analysis and providing feedback, creating training opportunities that empower providers of data to also be end-users, and making sure that accountability – especially to crisis-affected populations – is one of the primary aims of data collection and use. Ensuring that data collected are harmonized, rationalized, usable by all stakeholders involved in their production and translated into meaningful, visible change for affected communities needs to be the goal of efforts to strengthen EMIS for increased resilience.

66 See Chad case study, p. 37.

67 See Uganda case study, p. 29.

68 South Sudan case study, p. 31.

69 See Ethiopia case study, p. 30.

70 See, for example, the SESIL project in Uganda (Uganda case study, pp. 33-34).

71 Various different initiatives of this type are profiled in the case studies (although, in many cases, school management information systems and other real-time data collection initiatives are either still in a pilot phase or face challenges of coverage that may be exacerbated in crisis-affected areas). While their use is generally not crisis-specific, they may present opportunities to strengthen preparedness and response at school and local level.

72 See, for example, the work of IIEP-UNESCO on crisis-sensitive planning in Ethiopia at woreda, regional and federal levels (MacEwen, 2019, pp.88-90).

73 See, for example, the Uganda case study, where the Education Response Plan (ERP) Secretariat is providing direct support to district education offices with a refugee presence, and the recruitment of a data officer for each of the DEOs that have a refugee caseload is planned to provide additional capacity and an interface with EiE partners and to support district-level planning and decision-making processes (pp. 15, 36); discussions are also underway regarding whether to set up ERP committees at district level (p. 15).

74 See Ethiopia case study, p. 25.

The way forward

Thematic analysis of the case studies provides a number of useful insights for strengthening EMIS and data to increase resilience. Rich in contextual detail and analysis, the six case studies illustrate the range and complexity of challenges; and at the same time, they highlight a number of promising steps for supporting more effective and coherent collection and use of data for crisis preparedness and response at the level of national systems.

CLASS	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	G.TOTAL	REMARKS
P.1	30	21	51	0	0	0	51	
P.2	11	16	27	0	0	0	27	
P.3	06	05	11	70	58	128	139	
P.4	03	04	07	109	74	183	190	
P.5	03	05	08	114	51	165	173	
P.6	06	05	11	74	55	129	140	
P.7	03	05	08	114	51	165	173	
	93	101	194	420	370	790	984	

NATIONALS				REFUGEES			
CLASS	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	G.TOTAL
P.1	31	22	53	0	0	0	53
P.2	10	17	27	0	0	0	27
P.3	21	34	55	19	35	54	109
P.4	09	08	17	115	137	258	275
P.5	09	09	18	102	94	196	214
P.6	04	06	10	69	55	124	134
P.7	04	06	10	102	40	142	147

A wealth of data initiatives exist in the contexts examined, each with their own strengths and gaps, and many of which serve complementary purposes – even if considerably more remains to be done to reduce fragmentation and duplication, and to improve quality and efficiency. As the case studies confirm, different end-users need data for different purposes, and the nature of emergencies and protracted crises often make it in everyone's interest that data are collected and stored through different channels, with varying degrees of interoperability determined by context. However, a 'New Way of Working' to deliver education in crisis-affected contexts, focused on collective outcomes and multi-year planning, necessarily implies improving humanitarian-development coherence in and through data collection and use (Buckner et al., 2019).

In this context, the value of harmonized EMIS and data systems that begin to bring together humanitarian and development considerations under national oversight becomes all the more apparent. National education data in contexts of emergency or protracted crisis can be a valuable entry point for transcending the humanitarian-development divide and for promoting alignment, information sharing, collaboration and longer-term planning. Strengthened capacities to collect and use quality crisis-related data stand to enable national authorities to play a more effective leadership role in early planning for EiE and helping to promote continuity between emergency response and recovery, in addition to increasing preparedness.

The end goal is not for EMIS to replace different sources of crisis-related data or to become the sole data source; nor is it to develop new data systems or introduce a host of new indicators. Rather, it is for existing EMIS to better capture and integrate such data; and to enable their use for decision-making across all levels of the national system to prepare for, mitigate and respond to the impacts of crises on education – and ultimately, to support prevention by helping to better identify and address triggers and drivers of emergencies.

Supporting this collective aim implies that humanitarian and development partners align and harmonize their data efforts with EMIS (and with one another) to the greatest extent possible and depends on improved coordination across education authorities and their partners, in addition to investments in capacity and training. It calls for a realistic approach that seeks to build on existing initiatives, promote complementarity and identify strategic opportunities for better linking EMIS and EiE data – including, for example, sector reviews and the development of new sector plans or transitional education plans, as well as EMIS development or improvement efforts. It involves striking a balance between the 'ideal' and the 'realistic' and ensuring that data collection and use 'do no harm', with primacy given to protection, sustainability and ownership.

The case studies make clear the importance of context for determining priority actions to strengthen EMIS for increased resilience. But a number of guiding principles and potential solutions emerge that should inform the development of next steps, at both country and global level, to support national

capacities for data collection and use in crisis preparedness and response. These include:

1. Strengthening and linking legal, policy and institutional frameworks around EMIS, data and EiE

- Develop, or strengthen, institutional frameworks for both data and EiE that clarify roles and responsibilities within and across relevant ministries, establish dedicated organizational structures and draw upon existing strategies (e.g., the education sector plan) and mapping of data processes and needs – and ensure coherence between them.
- Ensure that crisis-related data needs, roles and responsibilities are reflected in national education data policies and legal frameworks, with clear links to policies, strategies and institutional structures for EiE; and that EiE policies, strategies and institutional arrangements include accountabilities for data collection and use that are aligned with national data policies and EMIS frameworks.
- Establish strong legal protections related to data sharing, privacy and security.
- Involve both humanitarian and development partners in the review and updating (or design) of national EMIS and data frameworks, including the mapping of data needs specific to crisis preparedness and response.
- Identify and capitalize upon strategic opportunities, such as the conduct of sector reviews, or the development of sector plans and EiE strategies, to link strengthening EMIS and data for resilience and improved capacity for system preparedness and response.
- Improve coherence between national education strategies and sector plans and humanitarian strategies and response plans, including with respect to data.

2. Reinforcing capacities, with a focus on sustainability

- Invest in human and technical capacity for data collection, analysis, dissemination and use across levels of the data chain, as well as among humanitarian and development partners, including dedicated staffing, training and efforts to improve staff retention.
- Mainstream crisis-sensitive approaches to data and understanding of relevant issues for crisis-related data into existing EMIS capacity-related initiatives, from national ministry level down to school and classroom, to better support their collection and use.
- Strengthen capacities for crisis-sensitive sector analysis and planning, including related to the use of EMIS and humanitarian data. This includes drawing on existing EMIS indicators that may not 'look' crisis-related but can be useful for crisis-sensitive planning, in addition to introducing more specifically crisis-related indicators.
- Develop tools and guidance to support national authorities and their partners in collecting and using EMIS data for crisis preparedness and response (including around the collection and use of sensitive information –

e.g. regarding displacement – and the identification of specific vulnerabilities of educators and learners in crisis settings); and incorporate crisis-sensitivity into EMIS tools and support more generally.

- Explore technology solutions that might help to improve the timeliness and coverage of data collection, accompanied by training and support to facilitate their use; however, a clear understanding of the context, analysis of risks, review of existing technology and considerations of cost effectiveness and sustainability should be the starting point.

3. Maximizing impact through improved coordination

- Strengthen coordination around EiE and data within ministries of education and across line ministries with shared responsibility for education sector preparedness and response, including through dedicated functions and clear lines of reporting and accountability.
- Improve coordination among humanitarian and development coordination mechanisms (i.e. Education Clusters, Sector Working Groups/LEGs and refugee coordination groups), including specifically around data, and encourage active ministry participation and leadership therein.
- Ensure the participation of both humanitarian and development partners in processes related to the review or updating of EMIS and/or specific EMIS tools (e.g., questionnaires, annual school censuses), especially those determining what data should be collected and how they can be analysed most effectively to support decision-making for policy and programming; and the participation of national authorities in the review and development of strategies and tools related to data collection – and EiE, more broadly – by humanitarian coordination bodies such as the Education Cluster.
- Streamline data collection, where possible undertaking joint assessments and using common or harmonized tools, to avoid duplication and minimize respondent fatigue.
- Capitalize on existing initiatives to strengthen EMIS and seek to include resilience and crisis-related concerns as a specific focus within them.

4. Increasing interoperability and integration to improve data quality and facilitate use across the humanitarian-development nexus

- As a prerequisite for interoperability and integration, prioritize the standardization of terms, definitions, indicators and methods for calculating them, and harmonize tools for their collection, so that data are comparable and usable across partners and over time. These should be aligned with EMIS to facilitate their use by national education authorities for planning and management of system-level response and longer-term recovery. Better documentation related to EiE data collection, analysis and use should also be pursued.

- Where established, use unique school IDs in humanitarian needs assessments and other crisis-related data collection to improve interoperability, facilitate verification and triangulation of data, understand needs and impacts over time, and enable the eventual integration of datasets.
- Ensure that a careful analysis of risks, protection issues and sensitivities underpins decision-making about the interoperability and integration of data in crisis-affected contexts. Making sure that data ‘do no harm’ should be paramount.
- Draw on comparative advantages to encourage the development of complementary datasets that can contribute to more robust EMIS, and in turn, better support system-wide crisis preparedness and response.
- Leverage funding to encourage harmonization of data collection efforts and alignment with EMIS, helping to ensure that progress of contributions, whether humanitarian or development, can be monitored against a crisis-sensitive education sector plan.

5. Building an EiE data culture that promotes accountability

- Improve understanding around the value of data for decision-making to support crisis preparedness and response at the level of national systems.
- Encourage crisis-sensitive sector policy and planning that are data-driven and ensure strong linkages with EMIS data collection and use.
- Increase awareness and understanding of the value of strengthened EMIS and national data among humanitarian partners, and of the importance of integrating humanitarian data within national EMIS among development partners.
- Improve the availability and accessibility of EiE data to promote transparency and accountability, including by exploring the feasibility of a central platform or repository of shareable data at country-level that would bring information together in one place and facilitate its use.
- Strengthen feedback loops so that EMIS data are used for crisis-sensitive planning and programming at all levels, with visible results; and, in turn, are improved by crisis-sensitive planning and management processes across the education system.
- Empower providers of data at school and district level to also be end-users, better equipping them to respond to identified needs and make targeted improvements, including related to preparedness and risk reduction.
- Strengthen the ability of communities in crisis-affected contexts to ensure the accountability of actors operating in their schools through better data and processes around its collection, analysis, availability and use.

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Annex I

Country case study analytical framework

Objective of the case study: Highlighting gaps between the information generated through EMIS and data and information used by humanitarian/development actors at country level

Expected length: 25 pages

CONTEXT Setting the stage	CROSS CUTTING THEMES
<p>General country context Max. 1 Page</p> <p>Crisis and education in emergency context 2 Pages</p>	
DATA ENVIRONMENT Describing the 'state of play'	
<p>THEMATIC AREAS:</p> <p>Prioritisation Importance and priority attributed to data collection, processing, and analysis and actors relationship to it (data-demand, what drives those who are collecting data to do so?)</p> <p>Actor mapping Overview of '5Ws' related to EiE data. Description of the main partners dealing with education data including MoE and EiE partners; brief description of their perspective on data, their data needs and their existing initiatives.</p>	<p>Gaps and challenges Analysis and findings throughout the entire study should articulate the gaps and challenges in the EiE data area, with a particular focus on the EMIS</p>
PRODUCTION Description and analysis of the production of main datasets informing education service delivery and EiE	
<p>Description and analysis of how the data is collected for main systems identified including:</p> <ul style="list-style-type: none"> ▶ Data collection, housing and processing ▶ Collection and analysis methodologies ▶ Quality control mechanisms (for example, is data triangulated with other data sources) ▶ Overview of other main systems used by EiE actors, if any, potentially including REMIS etc. <p>EMIS The above should include an overview of the current EMIS, including but not limited to:</p> <ul style="list-style-type: none"> ▶ Analysis of what data is being produced and by who within the MoE ▶ Data gaps in the EMIS in relation to EiE and resilience. <i>This could reference more general data gaps if they EiE/resilience gaps are symptomatic of broader problems.</i> 	<p>Capacities All levels of national system, including if relevant decentralised level of the education system. (Abilities, resources, funding, technical knowledge, institutional structure)</p>

DISSEMINATION AND USE		
<p>MoE/Education System</p> <ul style="list-style-type: none"> ▶ Overview of what, who and how data from the EMIS is used ▶ Link to policy and planning processes for EiE, including if relevant decentralised levels of government ▶ Coordination and use of national systems across the MoE and EiE actors – <i>data sharing, coordinated analysis etc</i> ▶ Integration of EMIS with other EiE information systems ▶ Where appropriate and relevant, is 'safe-to-share' EiE data made available for partners, advocacy efforts and better coordination 	<p>Coordination</p> <p>Linkages between humanitarian and development actors in EiE Data collection, data on education and displacement (refugees and IDPs).</p>	
RECOMMENDATIONS 4 Pages		
<p>What can be done REALISTICALLY in the upcoming years in view of the project's objective: Strengthen the resilience of education systems by ensuring improved management and use of data and information, including through the promotion of EMIS as an effective tool for crisis preparedness and response. This can be a wide range of context-specific activities, including:</p>		
<ul style="list-style-type: none"> ▶ Revision of indicators and data sets in EMIS ▶ Elaboration of data-specific strategies and policies ▶ Activities to promote better coordination on EiE data ▶ Capacity building of MoE ▶ Design of new IT architecture for EMIS ▶ Advocacy efforts for data driven programming <p>REMEMBER Recommendations should be REALISTIC and CONTEXT-SPECIFIC</p>	<p>Protection issues</p> <p>Adequate attention should be paid to addressing the balance between collecting highly sensitive data, as much of the data on EiE is, and protection.</p>	

Annex II

Summary of country case study recommendations

CASE STUDY	RECOMMENDATIONS
CHAD	<ul style="list-style-type: none"> ▶ Set up a mechanism/Thematic Working Group specifically focused on data, which brings together various departments from the MENPC and key partners and combines humanitarian and development data, led by the Ministry and reporting regularly to the LEG. ▶ Centralize the information into one database or system/platform which gathers all data. Not all information or tools can be harmonized, but such a platform would make information readily accessible to the Ministry and partners; and would ensure a unified version of available information. ▶ Review processes of data collection to make them more efficient, through an updated and costed EMIS strategy and implementation plan. ▶ Use data for strategic decisions at LEG meetings by including them as a topic of discussion to help strengthen the humanitarian-development nexus, and ensure that a crisis-sensitive sector approach is regularly part of the agenda. ▶ Review all existing tools to identify gaps and elements to be added or removed; and consider which ones should be harmonized to avoid duplication, and which ones should be kept separate due to the nature, purpose and frequency of the data being collected. ▶ Hold discussions to identify the key indicators and data the country needs and for what purpose, and ensure wherever possible that data collection feeds into these key indicators to support strategic planning. ▶ Undertake joint data collection campaigns (bringing together the Ministry and its partners) at national and subnational level to maximize resources, ensure a unified approach and facilitate data sharing. ▶ Clarify roles and responsibilities of the Ministry's various departments dealing with data but also with EiE, and their system of liaison with partners, to avoid working in silos and enable better collaboration.
ETHIOPIA	<ul style="list-style-type: none"> ▶ Review existing information modalities – considering their alignment with policy and practice requirements and harmonization with each other – to ensure that data are fit-for-purpose for different stakeholders, all in line with the upcoming sector plan, its associated instruments and international commitments. In general, information needs to be better connected to baselines, measure outcomes and impact, include multisectoral links and track relevant disaggregated indicators consistently. ▶ Gather, process and use information on an ad hoc basis, prompted by emergencies, with participation of the Education Cluster under MoE leadership at all levels – in addition to data for the sector, which are collected on a regular basis. This may necessitate prioritization of IT solutions, not only at the assessment stage but also in the case of monitoring, as well as leveraging MoE experience in timely data collection, reporting and response – including tallies at local level, which may be most reliable to establish non-traditional population numbers (e.g. school-age or out-of-school children); at minimum, communication between vital data and EMIS with its population denominator should be considered. ▶ Improve harmonization of assessments, M&E and research between partners and across projects, funding streams and donors; this might include standardizing government reporting formats for partners, which would enable better tracking of contributions to sector objectives and expenditures. A number of partners consulted have expressed their need for capacity building in M&E and research. ▶ Foster an enabling environment both within organizational hierarchies and with donors that not only allows for but insists upon earnest examination and accountable achievement of progress and results – predicated upon informed dialogue, guidance and quality assurance. ▶ Ensure that relevant datasets interrelate, gainfully complement one another and, to the extent possible, interoperate and integrate, with consistent use of installation IDs, including for refugee schools, applied across datasets, interventions and sectors. ▶ Explore the feasibility of a central repository of relevant information, regularly updated and with access by stakeholders (or at least sensitization on the main sources of information available, with their relative strengths and weaknesses).

CASE STUDY	RECOMMENDATIONS
	<ul style="list-style-type: none"> ▶ Review EMIS and data tools and software, with consideration for (1) enhancing the user-friendliness of procedures as well as their agility to respond to evolving demand; (2) addressing data protection needs; and (3) effectively extending EMIS and data to decentralized levels, with increasing focus on wordedas. ▶ Continue dialogue and advocacy, especially at higher levels and with a unified voice among partners, to ensure crisis sensitivity, emergency, refugees and resilience – within a coherent thematic – are duly considered in EMIS and data, and ultimately planning and response. Among others, the planned EMIS and data policy and updated Education Cluster Strategy are important spaces for engagement. Sensitization and awareness-raising of both humanitarian and development partners on the new agenda, together with capacity strengthening of both sides in relation to one another, should be prioritized.
PALESTINE	<ul style="list-style-type: none"> ▶ Develop a unified computerized system: <ul style="list-style-type: none"> • Draft and validate a Data Collection/Management Policy • Develop and implement an adapted computerized system (linked with systems of other ministries and organizations, such as UNRWA) • Ensure the sustainability and ownership of the system within the MoE – at all levels (i.e. financial, IT and human resources). ▶ Develop a comprehensive EMIS framework that includes specific EiE indicators: <ul style="list-style-type: none"> • Elaborate an EMIS Master Plan (data mapping – including gaps and needs – and how the information system will concretely address them) • Develop a Data Management Framework for Education Data (i.e. indicators, processes, roles and responsibilities) – with all DGs • Integrate specific EiE indicators that can inform emergency preparedness, response and recovery plans. ▶ Promote systematic and coordinated EiE monitoring and planning <ul style="list-style-type: none"> • Formalize the EiE role of the DG of Field Follow-Up and of each DG • Elaborate a comprehensive EiE strategy and develop systematic joint assessments • Strengthen and systemize coordination on matters related to EiE among DGs and partners – at all levels.
SOUTH SUDAN	<ul style="list-style-type: none"> ▶ 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. 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. ▶ 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 would be linked to other education datasets. This should be accompanied by a framework for data collection that identifies 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. ▶ Working within existing structures, strengthen capacity to coordinate and manage EiE, which should include a focus on EiE data. The GESP 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)'. 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 development of this strategy. ▶ Consider refocusing on decentralization of data management closer to the locus of service delivery. The state, or a cluster of states to start out, should gradually become the focus of managing data, including EiE data – with addressing capacity challenges at both national and subnational level, including at the school level, prioritized as part of the decentralization strategy. ▶ Ensure that primary data collection tools, such as pupil admission and attendance registers, are available at all schools; and institute measures to verify the accuracy of the information on these registers as part of school supervision. ▶ Establish and strengthen mechanisms for dissemination of data as part of the EMIS unit activities. ▶ Include a focus on household-level information in nationwide education data collection efforts to complement school-level data in the absence of a national census, either through periodic household surveys or partnering by the MoGEI with the Education Cluster and other clusters or organizations to include such questions in their assessments.

CASE STUDY	RECOMMENDATIONS
SOUTH SUDAN	<ul style="list-style-type: none"> ▶ Better articulate the links between EiE, recovery and development programming in South Sudan to inform EiE interventions. ▶ Strengthen data collection methodologies among MoGEI officials as well as education partners, especially at the field level. 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.
SYRIAN ARAB REPUBLIC	<ul style="list-style-type: none"> ▶ Improve coordination around the collection of data and sharing of information within existing political and security constraints. ▶ Strengthen coordination of methodologies among the different actors by sharing information, assessment analysis and lessons learned. This may include the creation of an assessment working group that shares information and makes recommendations. ▶ Ensure sustained support for the rollout of the new School Integrated Management Information System (SIMIS), particularly in capacity building and development, and in IT infrastructure support. ▶ Pursue harmonization among data collection tools to the extent possible to avoid duplication and beneficiary fatigue. Efforts to unify donor reporting formats and requirements should also be explored. ▶ Agree upon common terms and definitions for use in collecting data; this may include defining criteria for people with special needs, households and orphans, as well as defining the geographic boundaries of communities, cities and villages.
UGANDA	<ul style="list-style-type: none"> ▶ Support to the already established EMIS Taskforce: <ul style="list-style-type: none"> • <i>ICT technical capacity requirement</i> – Ensure a cadre of ICT professionals within the MoES who could maintain the system, dealing with routine maintenance and problems as well as developing and modifying it. In addition, these professionals could work with the statistics team to revise and strengthen the analytical outputs of the system. • <i>ASC and baseline</i> – Two key issues can be supported by EiEWG members as well as members of the EDP Group: <ol style="list-style-type: none"> 1) Lack of a strong data frame – Agencies should work with the MoES to develop processes so all schools with which partner agencies interact can be checked to ensure they are on the data frame, which can help keep the data frame current. 2) Utility of the data provided by the ASC – The EiEWG and EDP Group should be included in the process of determining what data are required by the EMIS and how such data can be analysed to support programming and policy-making to ensure that it is more ‘user-driven’. • <i>Development of the EMIS</i> – Re-visioning of the Ugandan EMIS requires appropriate technical support to undertake a full systems development lifecycle. In terms of crisis sensitivity, this should include: <ul style="list-style-type: none"> - Introducing initial crisis-sensitive elements where possible. - Ensuring the design allows for the expansion and development of the EMIS to include more crisis-sensitive components. - Reviewing the data needs and current collection methodologies of emergency actors (and opportunities for the provision of data by EiE partners) and making sure they are factored into the EMIS design. - Exploring rapid data collection in the event of emergencies (i.e. other than the ASC). ▶ EMIS decentralization and support to District Offices: <ul style="list-style-type: none"> • <i>Stronger links between the EMIS and the DEO</i> – Factor the needs and capacities of DEOs into the EMIS design, build capacity in EMIS data systems and processes at district level and make data available to DEOS through web-based dashboards. • <i>Crisis-sensitive data collection</i> – Build capacity for crisis-sensitive data collection and use at district level, including by training school inspectors on emergency data collection processes and tools and supporting them to evaluate preparedness and contingency measures at school level. • <i>Data officers in support of the ERP</i> – Consider how data officers recruited for each of the DEOs in support of the implementation of the current ERP will link data collected in relation to the emergency to the bigger EMIS picture. Efforts should be made to avoid running a parallel system for emergency data outside of the overall EMIS.

CASE STUDY	RECOMMENDATIONS
	<ul style="list-style-type: none"> ▶ Consistency and comparability of education humanitarian assessments: <ul style="list-style-type: none"> • <i>Alignment of tools</i> – Work should be undertaken by the EiEWG to align all partner tools as much as possible so that EiE datasets are easily comparable with EMIS datasets (including using the same disaggregation methods, ensuring that categories in questions are worded the same way, etc.). Alignment with surveys by development partners, household surveys conducted by UBOS and multisector assessments should also be pursued as far as possible to enable a more coherent picture and make it easier to identify gaps. • <i>Making data available</i> – Information should be made available in a format that promotes joint analysis and integration with development datasets (primarily the EMIS). Ideally, all EiE assessment data would be directly comparable with EMIS data, (education development partner data collection should follow the same path). The MoES, especially the DEOs, should be engaged to understand their data needs, their capacities to analyse data and how best EiE partners can provide data or analysis to them. ▶ Review of emergency education monitoring: <ul style="list-style-type: none"> • The EiEWG (and IM group) should continue to work to identify the key needs for data in terms of output level, outcome level and impact level. • Broad guidelines should be agreed for data collection (including frequency of collection, verification, collation, etc.) and the fundamental indicators needed for each of the required levels. • It should be clear which data are passed on to UNHCR, which data are passed to the DEO and which data are used solely by the partners. • This work should be undertaken in consultation with the new EMIS development to align the data collection tools and datasets as much as possible. This should include looking to the future and the role of DEOs, as well as whether the EMIS will eventually collect and track emergency data.



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Strengthening Education

Management Information Systems

for increased resilience to crises

A synthesis of case studies

Building system resilience is key to mitigating the impacts of crises on education opportunities for millions of learners. Data-driven, crisis-sensitive planning and management of well-coordinated national responses that bring together governments, humanitarian and development stakeholders are increasingly recognized as an essential part of system strengthening and resilience. However, national education authorities and their partners often lack comprehensive, disaggregated, timely and reliable information that can serve as a baseline for developing adapted preparedness, response, and recovery strategies, and for monitoring their implementation.

When strengthened, operational and adapted to crises, institutional education information systems (i.e. EMIS) can capture comparable system-wide data that may facilitate the identification of vulnerabilities of learners, educators, and infrastructures. By doing so, they can become a valuable resource to inform effective measures that mitigate the impacts of emergencies on the quality and continuity of education – thus building system resilience

In the framework of a larger initiative, UNESCO in partnership with NORCAP and supported by Education Cannot Wait (ECW) and the Swedish International Development Agency (SIDA), undertook six case studies in Chad, Ethiopia, Palestine, South Sudan, the Syrian Arab Republic and Uganda to examine existing institutional education information systems and recurring challenges related to education data and the management and use of information in emergencies and protracted crises.

