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RESEARCH PAPER

STUDY ON THE STATE OF EMIS POLICY DEVELOPMENT AND IMPLEMENTATION IN KIX AFRICA 19 COUNTRIES

NOVEMBER 2025

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2. EXECUTIVE SUMMARY

Education Management Information Systems (EMIS) are the backbone of evidence-based planning and monitoring in education. Across the 19 countries of the GPE KIX Africa 19 Hub (covering parts of East, West, and Southern Africa), the status of EMIS policy development varies widely. Only a handful of countries have a dedicated national EMIS policy or similar regulatory framework in place – for example, Nigeria first adopted a National EMIS Policy in 2007 and issued a comprehensive revised policy in 2021. Somalia has just recently validated its first EMIS policy in 2023, a notable milestone achieved even in a fragile context. Another country, Sierra Leone, drafted a new EMIS policy in 2023 to guide its data systems.

However, most KIX 19 countries do not have a standalone EMIS policy. Many integrate EMIS objectives into broader education sector plans or ICT strategies (e.g. Ghana, Kenya, Rwanda, Uganda) rather than separate policies. A few countries (such as Eritrea, Liberia, South Sudan, Malawi, Mozambique) currently lack any formal EMIS policy framework at all, relying on ad-hoc guidelines or outdated plans. These differences in policy frameworks correlate with variations in EMIS implementation effectiveness, data quality, and institutional coordination.

Key Findings: Several common themes emerge across the 19 countries:

2.1. POLICY FRAMEWORK GAPS:

The absence of a formal EMIS policy is associated with unclear roles, fragmented data management, and inconsistent data collection practices. Countries with up-to-date EMIS policies tend to have clearer institutional arrangements (often establishing dedicated EMIS units or committees) and have begun addressing legal issues like data standards and privacy. For example, Nigeria's policy decentralized EMIS responsibilities across federal, state, and local levels, while The Gambia – lacking a formal policy – has managed EMIS through strong internal guidelines and leadership, though formalization is in progress.

2.2. DATA COLLECTION AND SYSTEMS:

All countries conduct annual education data collection (census), but the maturity of EMIS systems varies widely. Several have recently transitioned from paper-based surveys to digital EMIS platforms or pilots (e.g. Eswatini, The Gambia, Kenya, Lesotho, Rwanda, Uganda). At least five countries have introduced unique IDs for students/teachers to improve tracking (Kenya, Rwanda, Eswatini, The Gambia, Nigeria). Others still rely on manual paper forms that are later digitized, resulting in delays and data quality issues. COVID-19 disruptions further set back data collection in some cases. In general, data quality remains a universal concern, with common problems of incomplete or inaccurate school reports and only limited validation mechanisms in place.

2.3. DATA USE FOR DECISION-MAKING:

A weak culture of data use is noted in many countries. Even where data is collected, it is not consistently used to inform policy and resource allocation. There is often a gap between data collection and actual decision-making. For instance, officials report that annual statistical reports are produced but “sit on the shelf” without fully driving planning decisions in several countries. However, there are positive examples: The Gambia treats EMIS data as the “livewire” for education management, using it to allocate teachers and address issues like dropouts. Such cases show that strong leadership and demand for data can yield a high utilization of EMIS, even absent a formal policy. Overall, improving data use – especially at sub-national levels – is a priority across the board.

2.4. GOVERNANCE AND CAPACITY:

In all countries, the Ministry of Education (or equivalent) houses the EMIS function, typically in a Planning or Statistics unit. But the effectiveness of governance varies. Some countries have established EMIS coordination committees or working groups (often as part of their policy or sector plan) to improve cross-departmental coordination – though these are not universally active. In the absence of formal policy, roles can be ambiguous: multiple departments or agencies may collect

overlapping data, leading to inefficiencies. Human and technical capacity constraints are a pervasive barrier: EMIS units are often under-staffed and under-resourced.

Many rely on just a few individuals to manage nationwide data, which is becoming untenable as systems expand to more granular data. Training and retention of skilled staff is a challenge in almost every country. One EMIS coordinator noted that as systems move from aggregate to individual-level data, “our capacity is straining until more people are trained,” highlighting the urgent need for capacity building. Financial resources are likewise limited – few ministries have a dedicated budget line for EMIS operations, making them heavily dependent on donor projects.

2.5. ENABLING AND HINDERING FACTORS:

The study identified factors that enable or hinder EMIS policy development and implementation. Enablers include strong political commitment and champions for EMIS (e.g. cases where a Minister or Permanent Secretary actively supports data initiatives), regional peer pressure and frameworks (the AU’s EMIS Norms and Standards adopted by SADC, ECOWAS, etc., which spur countries to improve compliance), and external support such as GPE grants or World Bank/UNICEF projects that finance EMIS upgrades.

Barriers include insufficient and unsustainable funding, shortages of skilled personnel, high staff turnover, unclear institutional mandates, and technological challenges like poor internet connectivity in rural areas. Conflict and instability also severely disrupt EMIS operations in countries like South Sudan and (previously) Somalia. Despite these hurdles, many countries are striving to strengthen their EMIS – often leveraging donor support and regional knowledge exchange to do so.

2.6. CONCLUSIONS AND WAY FORWARD:

Robust EMIS policies and practices are foundational for achieving education goals (including SDG4) through data-driven decision-making. This comparative study reveals a clear need to develop or update EMIS policies in the majority of the KIX 19 countries and to ensure those policies are effectively implemented. Simply put, having a policy matters – it formalizes standards, roles, and accountability – but it must be accompanied by investments in systems and people to have impact.

Countries that lack a policy should prioritize creating one (several have this underway), and those with policies must focus on closing the gap between policy and practice (for example, ensuring the policy's provisions on data quality, reporting, and usage are actually followed on the ground).Across all contexts, strengthening human capacity and securing sustainable financing for EMIS emerge as top priorities to make data systems work.

Encouragingly, there is momentum: regional bodies (AU and the KIX hub) are actively promoting peer learning, toolkits, and standards to support countries, and national stakeholders increasingly recognize that "what gets measured gets managed." If the recommendations in this report are pursued, we anticipate that within the next few years all KIX Africa 19 countries will have in place solid EMIS policy frameworks and more robust, user-driven EMIS operations, enabling better monitoring of education progress and informed policymaking for equitable, quality education.

Topline Recommendations: This study offers detailed recommendations for three levels of stakeholders – national governments, the regional KIX/AU bodies, and development partners – summarized below. (Full recommendations are provided in the main report.) In brief, national ministries should develop or update EMIS policies (through consultative processes) where missing, establish strong inter-departmental governance mechanisms for EMIS, allocate dedicated funding and build staff capacity for data management, and institutionalize the use of data in decision-making.

The KIX Africa 19 Hub, AU-IPED, and regional actors should facilitate continued peer learning (so countries can share innovations and not "reinvent the wheel"), develop an EMIS policy toolkit aligned with African norms to guide national policy formulation, and coordinate regional training and technical assistance to bolster country capacities.

Development partners (GPE, UNESCO, UNICEF, World Bank, etc.) should mainstream EMIS strengthening components in education sector programs, provide technical support for policy development, invest in scalable EMIS technologies

(favoring sustainable, open-source solutions), and promote a culture of data use (e.g. by supporting annual statistical reporting and civil society's role in data analysis).

All stakeholders should align efforts with continental frameworks (AU CESA and EMIS Norms) to ensure coherence. By acting on these recommendations in a coordinated manner, the region can accelerate progress toward robust EMIS that underpin quality education planning.

(Detailed findings by theme, country group analyses, and full recommendations are presented in the sections below. Annexes provide the EMIS policy analysis template, tools used, stakeholder mapping, country typology matrix, and a draft Policy Brief intended for high-level policymakers.)

3. INTRODUCTION AND CONTEXT

Quality data is essential for quality education. Education Management Information Systems (EMIS) provide the data needed to plan, manage, and evaluate education systems – from tracking enrollments and teacher deployment to monitoring learning outcomes. In sub-Saharan Africa, however, many countries face persistent challenges in developing robust EMIS frameworks. This study – "State of EMIS Policy Development and Implementation in KIX Africa 19 Countries" – was initiated to fill a knowledge gap about how EMIS policies are formulated and executed across 19 GPE partner countries in Africa.

The focus is on Anglophone and Lusophone African countries in the KIX Africa 19 Hub, which facilitates cross-country knowledge exchange on education policy innovations. These countries *(Eritrea, Eswatini, Ethiopia, The Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Nigeria, Rwanda, Sierra Leone, Somalia, South Sudan, Tanzania, Uganda, Zambia, Zimbabwe)* represent a diverse range of contexts – from large federal systems (Nigeria, Ethiopia) to small island states (Eswatini) and post-conflict nations (Somalia, South Sudan). Understanding their EMIS policy landscapes is critical for identifying common needs and tailoring support.

Why EMIS Policy? A formal EMIS policy or strategy establishes the legal and institutional framework for education data management. It can define roles and responsibilities (who collects what data, who owns it, who can access it), set data standards and collection schedules, ensure data quality mechanisms, and mandate the use of data in planning and accountability. In short, a good policy provides a "rules of the game" for how the education data system functions. Without it, countries often rely on ad-hoc practices – which may lead to inconsistent data, gaps in coverage (for instance, non-formal education or private schools might be left out), and limited accountability for

Prior to this study, there was limited consolidated information on whether each KIX 19 country has an EMIS policy or not, and how well those policies (if they exist) are being implemented. Existing literature and project reports tended to address specific aspects (like EMIS technology upgrades or data quality issues) but not the broader policy framework and governance context. The African Union (through its Pan-African Institute for Education for Development, AU-IPED) and the GPE KIX initiative identified this as a priority knowledge gap.

Objectives and Scope: The consultancy's objectives, as set out in the Terms of Reference, were to provide a comprehensive overview of each country's EMIS policy

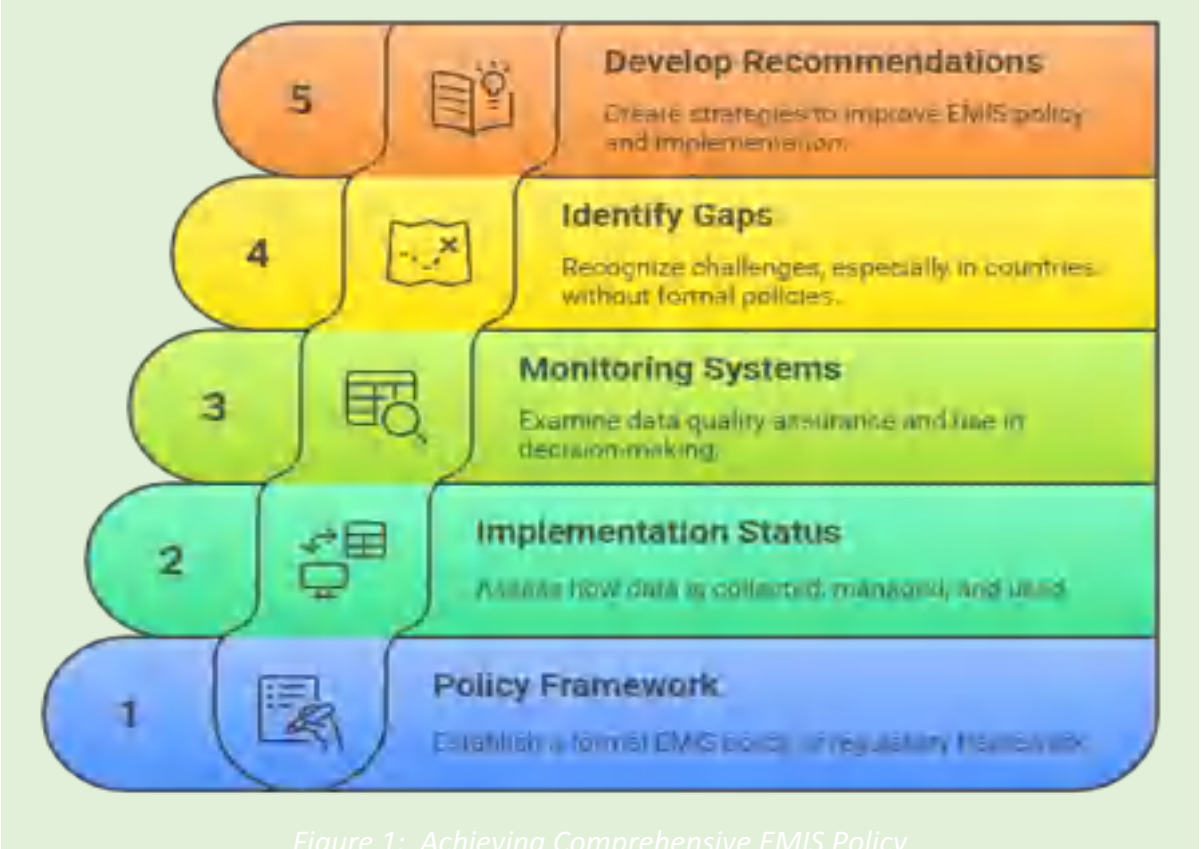


Figure 1: Achieving Comprehensive EMIS Policy

environment.

Specifically, the study set out to determine (a) whether each country has a formal EMIS policy or regulatory framework and describe its scope; (b) assess the implementation status of EMIS (how data is collected, managed, and used, and the functioning of any governance structures); (c) examine monitoring and reporting systems related to EMIS, including data quality assurance practices and the extent of data use in decision-making; (d) identify gaps and challenges, especially in countries without a formal policy; and (e) develop recommendations to improve EMIS policy development and implementation, including how the KIX Hub and partners can support these improvements.

In essence, the study not only documents the existence or absence of EMIS policies across the 19 countries but also evaluates how these policies (or lack thereof) translate into practice, and what factors enable or hinder their effectiveness. This study aligns with continental and global efforts emphasizing data for education. The African Union's Continental Education Strategy for Africa (CESA 16-25) highlights the need for reliable education statistics and monitoring; indeed, AU and the Regional Economic Communities (SADC, ECOWAS, EAC) adopted EMIS Norms and Standards a decade ago (circa 2010–2012) as guidelines for member states.

Figure 2: Continental–Global Alignment for Education Data: From CESA & EMIS Standards to SDG4 Monitoring

Those frameworks set benchmarks for areas like data accuracy, timeliness, and completeness. Similarly, the Sustainable Development Goal 4 (SDG4) agenda has put a spotlight on data for tracking progress on access, equity, and learning outcomes.

Yet, many KIX 19 countries struggle to regularly report even basic indicators. By benchmarking national policies and systems against such regional and global standards, this research aims to inform both country-level reforms and regional support strategies. The KIX Africa 19 Hub's mandate to foster knowledge exchange provides an avenue for disseminating these findings and facilitating cross-country learning.

In summary, this study provides an up-to-date comparative analysis of EMIS policy development and implementation in 19 African countries, filling a critical gap in knowledge. It offers insights into which policy approaches have been tried, what challenges persist, and how countries can learn from each other. The ultimate goal is practical: to generate evidence-based recommendations that policymakers, the AU, and development partners can use to strengthen EMIS – thereby enabling better educational planning and outcomes.

The following sections describe the methodology used, present detailed findings organized by key analytical themes, analyze patterns and groupings of countries, and finally outline conclusions and actionable recommendations.

4. METHODOLOGY

This study employed a mixed-methods approach combining extensive desk research with targeted stakeholder engagement, aligned with the work plan set during the Inception Phase. The methodology was designed to allow systematic cross-country comparison while accommodating the practical constraints (e.g. limited time and uneven data availability).

Desk Review of Documents: The research began with an in-depth desk review of secondary sources for all 19 countries. This included official documents such as national EMIS policies (where available), education sector plans, education law/regulations, annual education statistical reports, and relevant strategy documents (e.g. ICT in education policies).

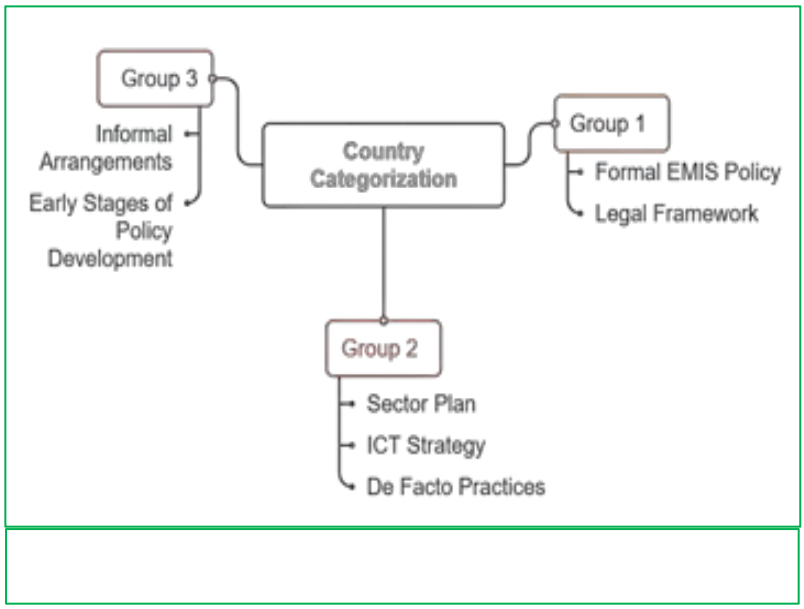
The study also reviewed global and regional data sources – for instance, UNESCO UIS submissions, GPE grant documents, and EMIS evaluation studies – to gather information on implementation status and indicators. Each country's profile was thus

built from multiple sources. Where a formal EMIS policy document was identified (e.g. Nigeria's 2007 and 2021 policies), it was reviewed in detail for content on governance, data management protocols, roles, etc.. If no policy was found, EMIS-related content was extracted from other sources (like mentions of EMIS in an Education Act or sector plan) to understand the implicit policy framework.

The Planipolis portal of UNESCO IIEP and ministry websites were systematically searched for any "EMIS policy" documents, supplemented by inquiries via the KIX network for unpublished drafts. For each country, data on EMIS infrastructure and practices (e.g. whether a digital EMIS exists, what data is collected, frequency of school census, etc.) were compiled from recent reports. For example, countries' Annual Education Census reports and diagnostic studies were cross-checked – such as Sierra Leone's 2019–2022 Annual School Census summaries and Liberia's EMIS review in a 2023 GPE report – to gauge implementation progress and challenges.

The desk review process was exhaustive up to August 2025 and information was triangulated across sources to ensure accuracy. Any discrepancies or gaps (for instance, difficulty obtaining recent data for Eritrea) were noted for follow-up.

Country Categorization: To facilitate comparative analysis the 19 countries into three groups are categorized based on EMIS policy status, using criteria from the project TOR. - ***Group 1:*** Countries with a formal, standalone EMIS policy or legal framework in place. - ***Group 2:*** Countries without a dedicated EMIS policy document but implementing EMIS through other frameworks (e.g. components of a sector plan, ICT strategy, or de facto practices). - ***Group 3:*** Countries with no formal policy or clear framework, relying only on informal arrangements or are in early stages of policy development.



Each country was assigned to one of these categories based on evidence gathered. This typology enables analysis of patterns – for example, do Group 1 countries perform better in certain areas than Group 3? Also key dimensions of EMIS policy implementation are assessed for each country, including: governance and institutional arrangements; human and technical capacity; data collection processes and tools; data quality assurance; data utilization in planning; and any monitoring/evaluation of the EMIS itself. These dimensions mirror the analytical themes of the study (policy existence, governance, implementation practices, data use, M&E, enablers/barriers).

Stakeholder Consultations: While the initial data collection was primarily desk-based, stakeholder input was incorporated through a brief survey and a validation workshop: - An online survey (questionnaire) was disseminated via AU-IPED to national EMIS focal points in each country. The survey contained structured and open-ended questions about the status of EMIS policies, governance structures, data challenges, and recent initiatives.

By the cut-off date, responses were received from a subset of countries (five responses were returned, representing a mix of Group 1, 2, and 3 countries – e.g. Lesotho, Kenya, South Sudan, Nigeria, The Gambia). These survey responses provided on-the-ground perspectives and examples, which have been integrated as testimonial evidence in the thematic findings (without attributing them to individuals or implying any count of respondents, per confidentiality). For instance, survey feedback highlighted issues like “lack of a dedicated budget for EMIS” and “overlap of roles between ministry departments” – reinforcing findings from the document review.

An online validation was conducted to present share findings to country representatives and experts and to refine conclusions. The objectives were to validate the desk review findings (confirm accuracy, correct any errors), collect contextual insights (e.g. recent developments not in the literature, such as a newly approved policy or system update), identify gaps and best practices through discussion, and build consensus on recommendations.

The feedback was invaluable: for example, stakeholders from a few countries updated us that policy drafts are currently in cabinet awaiting approval (information

not publicly available yet) and highlighted best practices like community validation of school data in some locales. The online consultation also tested the relevance of our draft recommendations, ensuring they are realistic and cover priority issues. The result was a set of validated findings and recommendations that reflect both the documented evidence and the practitioner perspectives across the region.

Tools and Frameworks: Several standardized tools were developed during the Inception Phase to guide data collection and analysis. These are provided in the Annex and include: - An EMIS Policy Analysis Template, which is essentially a checklist of key policy elements (existence, scope, roles, data domains, funding provisions, etc.) used to systematically review each country's policy or equivalent framework. This ensured that for every country we noted whether, say, data quality standards are mentioned in their policy, or if not, that absence was recorded consistently.

A Stakeholder Interview Guide, designed for any follow-up interviews or detailed consultations with EMIS focal points (should they occur), covering thematic sections like policy existence, governance, data quality, implementation challenges, and data use. (In practice, given time constraints, formal interviews were limited, and the survey and online consultation were the primary stakeholder input mechanisms).

A Secondary Data Matrix, an Excel-based tool compiling quantitative indicators across countries (e.g. year of last census, % of schools reporting on time, existence of unique student ID system, UIS data submission status, etc.). This matrix allowed quick comparisons and helped identify outliers or data gaps. It also flagged where data needed validation – for instance, if a country's latest published stats were several years old, we marked that for inquiry.

Despite minor limitations (such as difficulty obtaining very recent info for a few countries and the challenge of low survey response in some cases), the approach yielded a rich, triangulated dataset. Ethical considerations were observed – stakeholder inputs were kept confidential and are presented without attribution, and findings were vetted with participants to ensure accuracy and buy-in. This robust methodology provides confidence that the study's conclusions are well-grounded in evidence and broadly validated by those working on EMIS in these countries.

Figure 4: EMIS Study Methodology Overview

5. FINDINGS BY ANALYTICAL THEME

In this section, we present the comparative findings organized by key analytical themes: (1) Existence of EMIS Policies and Frameworks; (2) Governance and Institutional Arrangements; (3) Implementation Status and Practices; (4) Data Use and Monitoring Systems; (5) Enablers and Barriers (Capacity, Resources, and Other Factors). Each theme draws on cross-country analysis, with examples and stakeholder insights to illustrate patterns. All claims are grounded in the desk review or validated stakeholder inputs, as cited.

Figure 5: EMIS Framework Analysis

5.1. EXISTENCE OF EMIS POLICIES AND REGULATORY FRAMEWORKS

Wide variation exists in whether countries have a formal EMIS policy. Only a minority of the KIX 19 countries have an official stand-alone EMIS policy or law in place. Specifically, as of 2025, about one-third of the countries have either a national EMIS policy or a comparable strategy/document, while the rest do not have a dedicated policy document. This finding confirms the initial hypothesis that EMIS policy development in the region is still nascent or incomplete in many cases.

- **Countries with Formal EMIS Policies (Group 1):**

These include Nigeria, which is a notable early mover with a National EMIS Policy first adopted in 2007 and comprehensively revised in 2021. Nigeria's policy (titled National Policy on EMIS, revised edition 2021) provides a detailed framework for EMIS across its federal system. Somalia has very recently joined this group – it validated a new EMIS Policy in late 2023 under a GPE-funded initiative. This is a significant achievement in a fragile context: the Somali policy aims to harmonize data

collection across federal member states and set common standards after years of fragmented approaches.

Sierra Leone finalized a draft EMIS policy in 2023, which is pending official adoption. While not officially approved at the time of writing, Sierra Leone's draft is comprehensive and seen as a potential model for others. Rwanda is sometimes cited as having an EMIS policy, though strictly speaking it does not have a standalone "EMIS policy" – rather, EMIS is strongly embedded in Rwanda's ICT in Education policies and its Education Sector Strategic Plan.

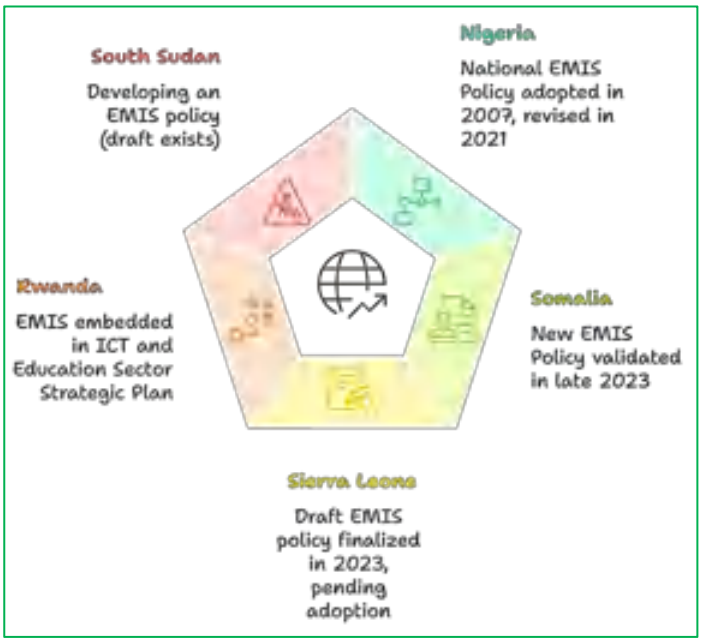


Figure 6: EMIS Policy Development in countries categorized as Group1

Rwanda's emphasis on ICT-based EMIS and data-driven education management serves the role of a policy (hence it's often considered to have an EMIS strategy). South Sudan is in the process of developing an EMIS policy (a draft exists as part of its GPE Partnership Compact), but it had not been finalized by 2025. To summarize, by late 2025 only a few countries – Nigeria, Somalia, (draft) Sierra Leone, and arguably Rwanda – clearly fall in Group 1 with formal policies, covering perhaps 4–5 of the 19 countries.

- **Countries with Partial or No Standalone Policy (Groups 2 and 3):**

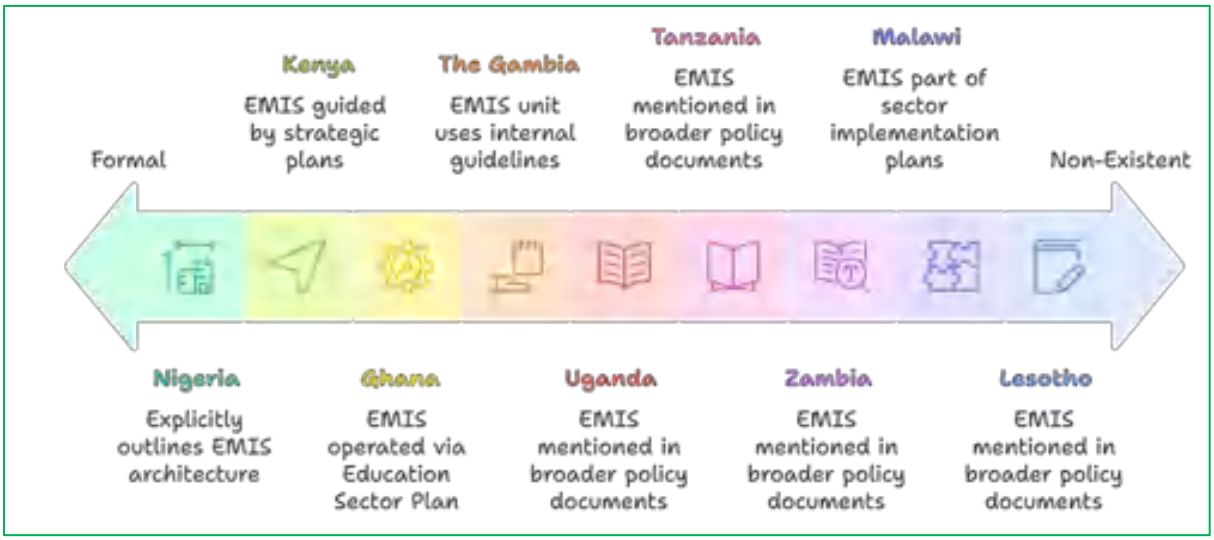
The majority of countries fall into these categories. Group 2 can be described as those that lack a dedicated EMIS policy document but have incorporated EMIS elements into other policies or plans. For example, Kenya does not have a specific EMIS policy law, but the EMIS (notably the NEMIS platform) is guided by strategic plans and an ICT in Education framework; various circulars also guide data collection.

Ghana likewise has no separate EMIS policy – EMIS is operated via the Education Sector Plan and the Ghana Education Service's procedures. The Gambia has no

standalone EMIS policy yet, but it has a well-established EMIS unit and uses internal "EMIS Guidelines" and ministerial circulars to mandate data collection. Indeed, The Gambia's Ministry of Basic and Secondary Education has treated EMIS as a priority through these informal means, and a formal policy is reportedly in progress.

Uganda, Tanzania, Zambia, Malawi, Lesotho, Liberia, Mozambique, Ethiopia, Zimbabwe – none of these had a published EMIS-specific policy as of 2025. In most of these cases, EMIS is mentioned in broader policy documents (for instance, Uganda's Education Act requires schools to provide data, Zambia's national education policy touches on data needs, etc.), or there may be draft policies under development.

Many of these countries have expressed intent to develop an EMIS policy; it is a standing recommendation in education sector analyses that "every country establish an EMIS policy to guide data collection, processing, and dissemination". Group 3



would be those with no formal policy or coherent substitute at all.

In practice, Group 3 overlaps with Group 2, as nearly all countries have something (even if just an informal practice) guiding EMIS. Perhaps the clearest Group 3 examples were Somalia and South Sudan until recently – Somalia had no policy or unified framework (now changed in 2023), and South Sudan currently lacks one (its EMIS has been run via project frameworks and the general sector plan).

Eritrea can be considered here too: it has no EMIS policy, and while its Education Sector Plan (ESP 2018–2022) included an EMIS component, there is no evidence of an overarching policy or strategy dedicated to EMIS. In Liberia, there is no EMIS policy; EMIS activities are project-driven (with donor support) and an ICT in Education policy under development may cover some data aspects, but a dedicated policy is absent. Malawi and Mozambique likewise do not have standalone EMIS policies; EMIS is part of their sector implementation plans.

These policy status differences have practical implications. Countries with a formal policy generally have clearer definitions of data standards, reporting requirements, and institutional roles. For instance, Nigeria's revised policy explicitly outlines the EMIS architecture (federal vs state responsibilities, data flow, etc.) and addresses issues like data quality assurance and dissemination.

By contrast, countries without a policy often rely on ad-hoc arrangements – e.g., a donor might introduce a data system, or a planning department might issue memos to provinces – without a unifying framework, leading to uneven practices.

A comparative analysis in our preliminary findings showed that while lacking a policy doesn't stop EMIS activities entirely, those countries tend to experience more fragmentation in their data systems. For example, in the absence of policy, multiple parallel data collection tools can emerge (as seen in some countries where different departments or projects created their own databases for specific programs).

Several stakeholders noted that "without an official policy, compliance relies on personal initiative rather than obligation" – meaning schools or districts send data if persuaded, but there is no legal requirement or consequence if they don't.

On a positive note: Policy development momentum is increasing. Many Group 2/3 countries are in the process of drafting EMIS policies or strengthening related frameworks, often supported by partners. South Sudan's Ministry of Education, for example, has identified EMIS policy formulation as a priority in its recent GPE Compact. Liberia's education sector analysis recommended developing an EMIS policy, and work is reportedly underway with UNICEF support.

The Gambia, as mentioned, is working on formalizing its successful EMIS practices into a policy document. This trend aligns with recommendations from various evaluations which “almost always include ‘develop an EMIS policy’” for countries that lack one. The drivers include recognition of EMIS’s importance, peer influence (seeing neighbors create policies), and donor encouragement.

In summary, having a formal EMIS policy is still the exception rather than the rule among KIX 19 countries, but change is on the horizon. Roughly 5–6 countries either have or are finalizing EMIS policies, and others embed EMIS in broader plans while planning to create standalone policies. The absence of policy in many countries constitutes a clear gap – one that leaves critical issues (like data standards, inter-agency coordination, and long-term funding commitments) insufficiently addressed.

This gap is further discussed under “Policy Gaps and Development Priorities” in a later section. Nevertheless, even where no formal policy exists, countries have not stood still – informal guidelines and workarounds have emerged (The Gambia’s internal “EMIS code of practice” as a case in point), proving that local ingenuity fills some void. Moving forward, the challenge will be to convert those informal practices into formal policies and laws that endure beyond individual champions.

5.2. GOVERNANCE AND INSTITUTIONAL ARRANGEMENTS FOR EMIS

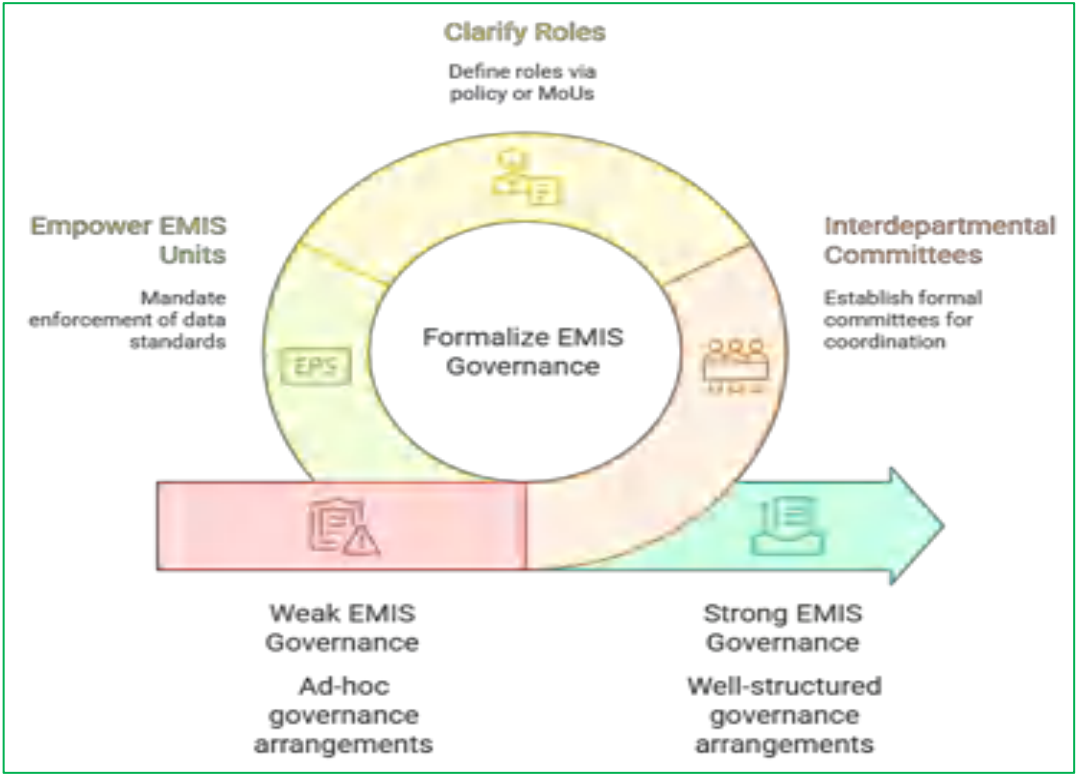


Figure 8: Strengthening EMIS Governance

Effective EMIS relies not just on having a policy, but on clear governance structures – i.e., which institutions and units are responsible for what, and how they coordinate. Our study found that all 19 countries have designated the Ministry of Education (or equivalent) as the lead agency for EMIS, typically within a Planning, Policy, or Statistics department. However, the governance mechanisms and inter-institutional coordination vary significantly:

5.2.1. PLACEMENT OF EMIS UNIT:

In most countries, the EMIS function is housed in a Planning or Statistics division of the Ministry of Education. For example, in Malawi the EMIS Unit sits under the Department of Education Planning within the MoE (with EMIS officers at division and district levels). In Ghana, the EMIS is managed by an EMIS Unit within the Strategic Planning, Research and M&E Division of the MoE, and closely linked with the Statistics and M&E division of the Ghana Education Service.

Ethiopia has an Education Analytics/EMIS Directorate under the State Minister for Planning, and each of its regional education bureaus has an EMIS unit to handle data collection in a decentralized system. In Nigeria, EMIS operations are under the Federal Ministry of Education's Department of Planning, Research & Statistics, but there are also EMIS coordinators in each State Ministry of Education, reflecting the federal structure.

Lesotho and Eswatini have EMIS units in their Ministry's Planning departments (Lesotho's EMIS is under the Planning Unit of MoET, Eswatini's EMIS Unit is in the MoET Planning Department). Generally, the pattern is a small central EMIS team in MoE with focal points at sub-national levels (provinces/regions, districts) responsible for collecting and forwarding data.

5.2.2. LEAD COORDINATION MECHANISM:

The presence of a formal EMIS coordination committee or task force is a differentiator. Some countries with EMIS policies explicitly mandate a multi-stakeholder committee. For instance, Nigeria's policy established a National EMIS Committee including federal and state reps to guide implementation (though its effectiveness is not well-documented). Sierra Leone's draft policy proposes an EMIS Steering Committee to oversee policy rollout.

Countries without policies often lack such formal bodies; however, they may have equivalent structures via broader education coordination forums. Example: The Gambia does not have an EMIS committee per se, but the Local Education Group (which includes ministry, donors, civil society) regularly discusses EMIS data in joint sector reviews. In Kenya, an inter-ministerial Data Steering Committee was formed under an ICT Masterplan to coordinate education data and link it with other systems (Ministry of ICT, Bureau of Statistics, etc.), although it meets irregularly.

In Ethiopia, an "EMIS Technical Working Group" brings together different departments and partners to advise on data issues. On the other hand, several countries have no dedicated EMIS coordinating forum – work happens within the Planning unit, and coordination with other departments (like inspectorate, ICT, or finance units) is informal. This often leads to silos: e.g., an examinations council might run its own database separately, or a teacher management system might not be linked to the EMIS, due to lack of an overarching coordination mechanism.

5.2.3. INVOLVEMENT OF NATIONAL STATISTICS OFFICES AND OTHER AGENCIES:

A notable aspect of governance is whether the National Statistics Office or equivalent is involved in education data. In some countries, the NSO plays an

advisory or integrative role. For instance, in Eritrea, the National Statistics Office has an advisory role for surveys and alignment of EMIS with national statistics standards.

Eswatini involves its Central Statistics Office to align EMIS with national data strategies. Zambia and The Gambia coordinate with their national statistics bureaus on population data for projections and school mapping. However, in many countries, NSOs are not directly engaged in EMIS operations – education ministries collect and manage data independently and only share final stats to NSOs for national yearbooks.

There are also instances of multiple ministries being involved in EMIS: for example, in countries where responsibility for different sub-sectors is split. Example: Sierra Leone has a Ministry of Basic and Senior Secondary Education and a separate Ministry of Tertiary/ Higher Education; the EMIS primarily sits with the basic education ministry, but data from higher education is handled separately (one of the reasons for developing a comprehensive policy was to bridge such gaps). Nigeria's federal structure means each state education ministry effectively has its own EMIS operations, with the federal ministry aggregating data – governance there is as much horizontal (federal-state) as vertical.

5.2.4. CLARITY OF ROLES AND AVOIDANCE OF DUPLICATION:

We found that countries with formal policies tend to articulate roles more clearly. For instance, Nigeria's policy delineates data responsibilities at each administrative level and addresses data flow from school to local to state to federal. In contrast, in some countries without a policy, there have been issues like duplicative data collection. For example: A stakeholder from one country noted that "both the Ministry's Planning Unit and the Inspectorate were sending separate forms to schools," indicating overlap and lack of clarity on who should collect what – a problem a policy or guideline could resolve.

Indeed, fragmentation was cited in multiple sources: countries without formal frameworks "tend to experience fragmented data management and inconsistent practices, as seen where multiple parallel data systems emerged due to lack of a unifying policy". This was the case in a few countries where donor-driven initiatives

created parallel databases (e.g. an EMIS vs. an Education Management Finance Information System) that weren't well-integrated.

5.2.5. ACCOUNTABILITY AND MANDATES:

Legal mandates for data submission and reporting are part of governance. Few countries have education laws that explicitly require schools to submit data or parents to register children, etc. However, some informal mandates exist. The Gambia, for example, issues annual circulars instructing all private schools to submit EMIS data, effectively enforcing participation in the absence of a law. This has worked reasonably well, though it relies on consistent leadership attention. Uganda included a requirement in a 2020 Education Information Policy (a draft policy framework) that schools not providing data could face administrative sanctions – but it's unclear if that's enforced.

In general, a lack of enforcement mechanisms was noted as a governance weakness in many countries. Even where EMIS units send forms, they often have no means (or authority) to compel responses from non-compliant schools. That said, in some locales local officials step in – e.g., district education officers might follow up with schools; in a few cases, communities have been involved in verifying enrollments (to avoid schools inflating figures for funding).

5.2.6. SUB-NATIONAL GOVERNANCE:

The role of provinces, districts, and schools in EMIS governance is also important. Most countries have a decentralized data collection process: schools fill questionnaires, district or regional offices aggregate and validate, then forward to the national EMIS unit. Governance challenges here include varying capacity at sub-national offices. Some countries (e.g. Kenya, Ethiopia) have sizeable sub-national teams or even devolved data systems. Others rely on one officer per district who has many other duties. An example of strong sub-national governance is Rwanda, where every sector (cluster of schools) has an education officer who ensures data is entered into the School Data Management System, and data quality checks happen at district level before submission to central.

In federal Nigeria, each state's EMIS can be considered a sub-system with its own governance; the federal ministry must coordinate 37 entities – a complex governance task which Nigeria's policy tries to formalize. Meanwhile, in smaller countries like Lesotho or The Gambia, the small size means the central EMIS unit works more directly with schools or through a handful of regional officers, which can be efficient but also means a lot rests on a few individuals.

Overall, governance effectiveness is mixed. The presence of an EMIS unit in ministries is universal, but the strength of coordination mechanisms is uneven. In countries where an EMIS committee or clear multi-department governance structure exists (or where the EMIS unit has high clout within the ministry), there tends to be better integration of data activities.

Figure 9: Governance strength impacts data integration

For example, stakeholders from Rwanda and The Gambia reported relatively good coordination: in Rwanda, the push for ICT in education came from the top and various agencies (REB, etc.) worked together on EMIS; in The Gambia, the Planning Directorate (where EMIS is located) works closely with both ministry management and external partners, and data is openly shared with Local Education Group members. By contrast, in some other countries data-related responsibilities are spread across units that rarely meet together – for instance, planning unit collects EMIS data, inspectorate collects separate compliance data, and the statistics bureau might do household surveys on education, all with little coordination.

A telling insight was that political and administrative leadership matters: in countries where a high-level official champions EMIS, governance tends to tighten.

Illustration: The Gambia's Minister of Education has been a vocal champion for EMIS improvements in recent years, which has elevated the EMIS unit's authority and inter-departmental cooperation. Similarly, Rwanda's leadership in pushing ICT

integration in governance meant EMIS got cross-departmental support and significant resources. On the other hand, where leadership is indifferent, EMIS units often operate in a silo, struggling to get other departments to comply with data requests or to implement changes.

In conclusion, while every country has an institutional “home” for EMIS (within MoE), the governance arrangements range from well-structured to ad-hoc. Clear definition of roles and coordination mechanisms is a work in progress in many countries, especially those lacking formal policies. Strengthening governance could involve formalizing interdepartmental committees, clarifying roles through policy or MoUs (e.g. between Education Ministry and Statistics Office), and empowering EMIS units with the mandate to enforce data standards. These topics feature in our recommendations, as improved governance is fundamental to making any EMIS policy effective.

5.3. EMIS IMPLEMENTATION STATUS AND DATA COLLECTION PRACTICES

This theme examines how EMIS operates in practice: the systems and tools in use, data collection processes, coverage, and the extent of implementation of EMIS reforms. We found that all countries conduct some form of annual education census or data collection (no country is without any EMIS activity), but the sophistication and reliability of these systems vary widely.

5.3.1. DIGITAL VS. PAPER-BASED SYSTEMS:

There has been a clear trend in recent years of moving from paper-based EMIS to computerized systems, though countries are at different stages: - Several countries have implemented or piloted digital EMIS platforms: - Kenya: Launched the National EMIS (NEMIS) in 2017/18, an online system where schools upload data directly. Kenya’s NEMIS assigns unique identification numbers to students and has modules for enrollment, school information, etc. It’s a custom-built system integrated with national ID for learners. Despite initial challenges (internet connectivity in rural areas, data quality issues), NEMIS represents a significant modernization. - Rwanda: Uses

a School Management Information System (SMIS) which is an online data system covering all schools. Rwanda is known for near-universal usage of this system and even integrates learning assessment results into the EMIS. - Eswatini: Rolled out an EMIS based on DHIS2 (a health information system adapted for education) in 2022–2024. The new system allows for digital data entry at school or district level and real-time dashboards. - Lesotho: Adopted OpenEMIS, an open-source EMIS platform (initially supported by UNESCO) around 2015.

However, usage has been somewhat limited due to connectivity and training gaps, with Lesotho at one point reverting to collecting data via Excel and then uploading to OpenEMIS (i.e., not fully real-time usage). - Sierra Leone: Piloted a DHIS2-based National EMIS around 2021–2022 with support from University of Oslo; it is in

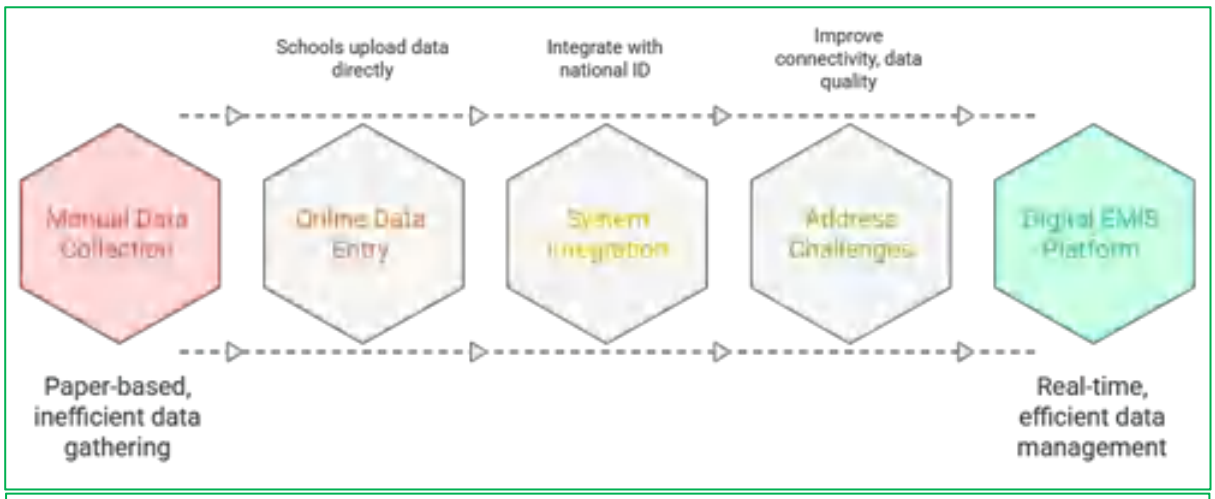


Figure 10: Transitioning to Digital EMIS Platforms

transition from traditional methods to this new system. - The Gambia: Implemented various digital initiatives (such as electronic report cards and a database linking school and student data) though still collects annual census data largely by questionnaires that are then digitized.

The Gambia has been integrating its tools and moving toward online collection. - Nigeria: Developed a national EMIS (NEMIS) but given the size, many states still use their own systems or Excel, and data is aggregated. However, Nigeria's 2021 policy calls for a strengthened integrated EMIS platform. Some states (e.g., Lagos) have advanced data systems of their own. - Uganda: Very recently (2021) introduced an online Education Management Information System with support from partners, aiming to allow digital data entry at district level.

However, as of 2025, it's not fully nationwide and some districts still use paper forms. - Zambia & Malawi: Both have had computerised systems (Zambia had an older system called EdAssist, and later tried OpenEMIS; Malawi has an EMIS database at central level). They still distribute paper forms to schools, then data is entered into the database centrally. - Ethiopia: Uses a hybrid – paper forms collected by regions, then data entered into a central database (which is Excel/Access-based). Plans are underway to deploy a new web-based EMIS as part of a World Bank project (GEQIP-E). - Mozambique: Uses a system called SigE (Sistema de Informação de Gestão da Educação), which is a digital data collection tool, but coverage is incomplete.

Many remote schools still fill paper. - Liberia: Historically collected via paper, but as of 2023 launched an initiative (with GPE and EU support) to develop a digital OpenEMIS – rollout is in early stages. - Somalia & South Sudan: Until recently, extremely rudimentary systems. Somalia had an offline database tool (maybe Excel-based) compiled by the federal ministry from member states.

With the new policy, Somalia is now rolling out a more robust EMIS software (early stages, possibly DHIS2 or OpenEMIS adaptation). South Sudan likewise collects data via an Annual Education Census (paper) and compiles in spreadsheets; a new system development is planned under donor support.

In summary, roughly half of the countries have begun using dedicated EMIS software or online systems, at least in part. The others rely on manual data collection that is later digitized in simple databases or spreadsheets.

5.3.2. PAPER-BASED ANNUAL CENSUS:

Many countries still distribute paper forms to schools each year (usually at beginning or end of school year) to collect data on students, teachers, facilities, etc. Eritrea is one example: it conducts an annual census via paper questionnaires; data is then entered into a "basic EMIS database" in the Ministry. Eritrea's system needs upgrading as noted (they have frequent delays in producing reports).

Liberia until recently also did this, with often significant delays and incomplete returns (some remote areas not reporting). Malawi similarly had an annual census

with paper forms (though they piloted an SMS-based collection for some indicators). Zimbabwe collects data through the Annual School Census forms, which are then processed into an Education Statistics Yearbook (though their timeliness has varied).

5.3.3. FREQUENCY OF DATA COLLECTION:

In all countries, the cornerstone is an annual data collection (usually aligned to school year). Some countries augment this with additional collections. For example, Kenya attempted to track enrollment in near real-time through NEMIS (so theoretically continuous updating, though in practice annual updates are most common). Tanzania collects a Basic Education census annually and a smaller survey each term for key indicators. The Gambia has annual census and, in some years, conducts sample-based surveys on specific issues (like learning assessment participation). None of these countries has yet moved to a fully continuous data collection model (where schools update data throughout the year online) – most are annual snapshots, with perhaps termly partial updates in a few cases.

5.3.4. DATA COVERAGE (WHAT DATA IS COLLECTED):

EMIS in all countries covers basic data on student enrollment (by grade, gender, etc.), number of teachers, and school facilities.

However, there are gaps in more complex data:

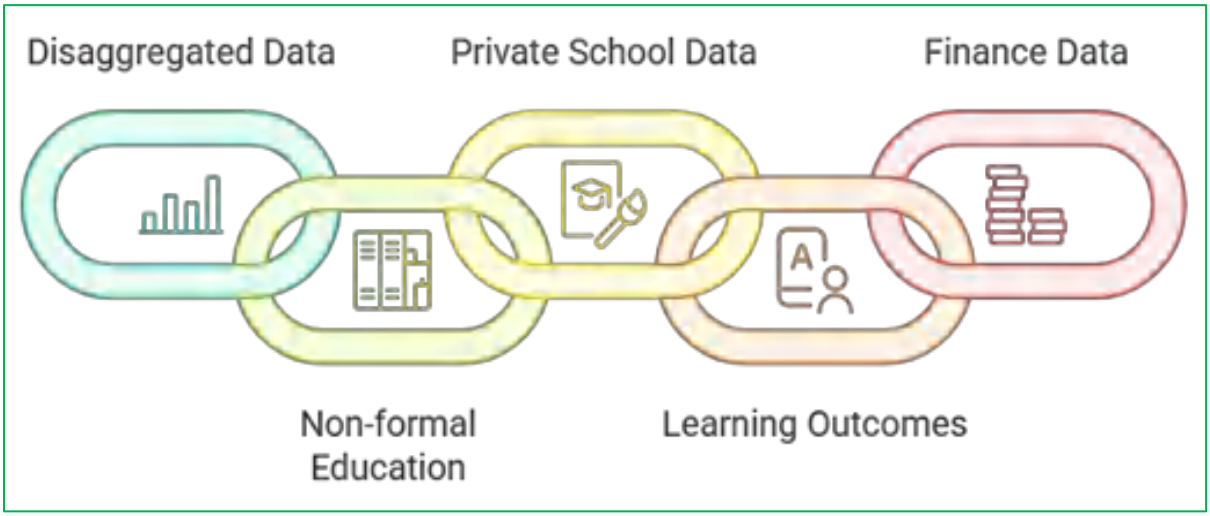


Figure 11: Most Comon Data Gaps

- ***Disaggregated data on marginalized groups:*** Many EMIS still do not comprehensively capture data on children with disabilities, for example. Some have started to (the AU EMIS Norms encourage it). Uganda's new system includes fields for disability status; Ghana's ESP monitoring also tries to track it. But generally, this is an area needing improvement.

- ***Non-formal and pre-primary education:*** Often under-reported. Eritrea's EMIS includes non-formal literacy centers to some extent, but others don't. Pre-primary is sometimes collected by separate agencies (e.g., social welfare ministries) or not fully integrated. Countries like Rwanda and Kenya are now including pre-primary and TVET data in their EMIS as they integrate systems.

- ***Private schools:*** Ensuring data from private schools is a challenge everywhere. The Gambia, Lesotho, Ghana among others have significant private school enrollment and they use coordination with associations or proprietor organizations to get data. Still, private schools are often less compliant, which affects completeness.

- ***Learning outcomes*** and exam results: Typically handled by examinations councils separately from EMIS. A trend is emerging to link these. Rwanda's EMIS, for example, can incorporate exam results. Some countries plan to use unique student IDs to connect EMIS data with exam performance data (Kenya is working on

this). But in most cases, EMIS focuses on inputs and access indicators, and learning outcomes are reported separately.

- ***Finance data***: EMIS traditionally doesn't capture finance, but some now include certain finance indicators (like school grants received, etc.). Still, financial and budgeting systems are usually separate, which means EMIS data isn't always linked to spending or outcomes, a noted gap.

5.3.5. DATA QUALITY AND COMPLETENESS:

Data quality remains a universal challenge, as highlighted by virtually all sources. Common issues include:

- ***Late submission of data*** by some schools or districts, leading to delays in national reporting. E.g., Eritrea's statistical bulletins are "often delayed" due to slow data aggregation.

- ***Inaccurate reporting:*** Some schools inflate enrollment to attract more resources or simply miscount due to capacity issues. Without robust verification, these errors persist. A few innovative practices were noted: in Eswatini and The Gambia, they have piloted engaging local community or PTA members to validate school enrollment figures to ensure accuracy. This remains pilot-level but is a promising approach to tackle inflated numbers.

- ***Missing data:*** Certain fields often left blank (e.g., textbook counts, or sensitive data like repetition rates which schools may not report accurately).

- ***Data auditing and verification is weak*** in many countries. While some ministries conduct field verification on a sample of schools after data collection, resource constraints limit this. Uganda introduced a mechanism where head teachers had to sign off on data and district inspectors verify a percentage of schools, but it's not clear how fully this is done. Nigeria's policy mandates each state EMIS unit to validate data from at least 10% of schools, but capacity to do so varies by state.

- ***Data quality also ties to technology:*** where data is entered manually multiple times (school to paper, paper to computer), errors can creep in. Digital systems that allow direct school entry (like in Kenya or Rwanda) can reduce transcription errors but introduce others (like schools unfamiliar with system making mistakes, or network issues causing incomplete submission).

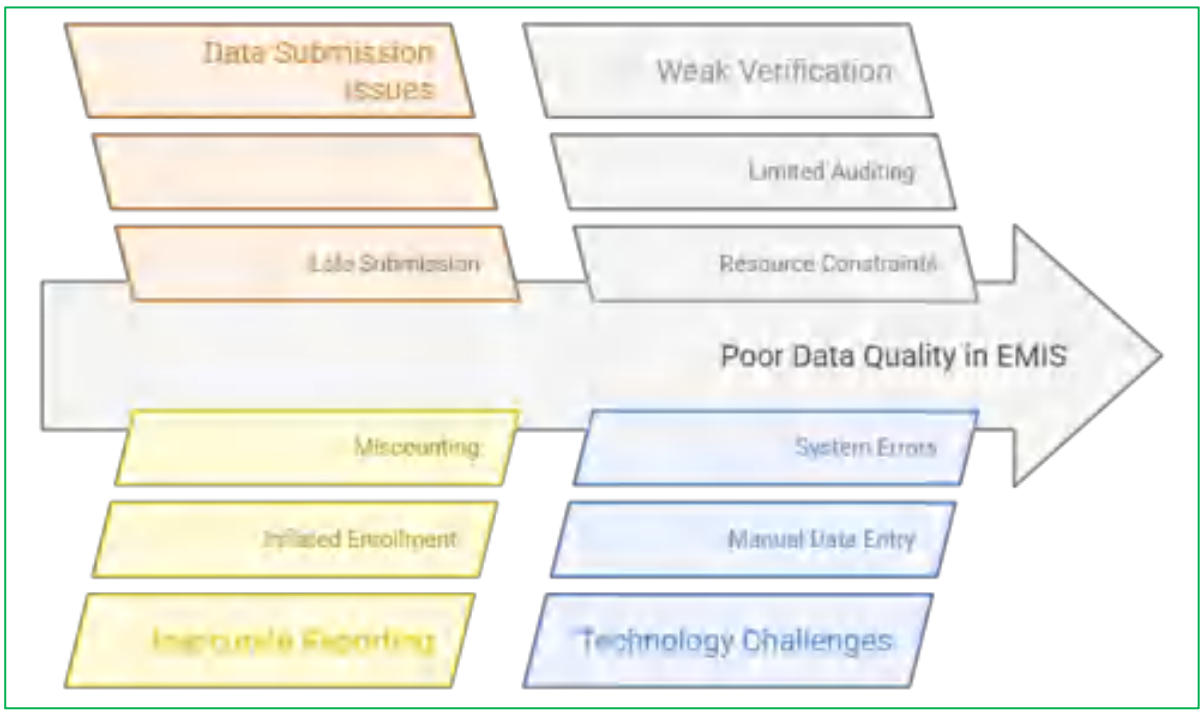


Figure 12: Challenges in EMIS Data Quality

5.3.6. IMPLEMENTATION EFFECTIVENESS AND GAPS:

It was evident that some countries have more effectively implemented their EMIS plans than others:

- ***High implementation cases:*** Rwanda and Kenya were highlighted as having made strides in automating data collection and achieving high coverage of their annual census. Rwanda typically achieves near 100% school response and publishes an annual yearbook fairly promptly. Kenya's NEMIS, despite issues, brought together data for millions of students and is used to inform resource distribution (for example, disbursing capitation grants based on NEMIS enrollment numbers). The Gambia has consistently produced annual education statistics and is cited for relatively reliable data, due in part to the small size and diligent EMIS unit; Gambian officials emphasize that EMIS data is actively used to track issues like regional enrollment disparities.

- ***Moderate implementation:*** Countries like Uganda, Tanzania, Ghana – they do carry out annual data collection and produce stats, but often with delays or data quality concerns. For instance, Ghana's latest education statistics report was delayed and had some data gaps due to certain districts not reporting on time. Tanzania historically had good compliance (thanks to a culture of head teachers submitting data on the official "census day"), but quality checks are still a concern. Uganda struggled with years where data collection was skipped (e.g., around 2020 due to COVID), resulting in outdated figures.

- ***Low implementation / struggling cases:*** South Sudan – due to conflict and displacement, data collection has been very incomplete (some counties unreachable). The last few years saw improvement in getting basic numbers with UNICEF help, but huge gaps remain (a reason an EMIS policy and capacity building are part of its new education sector plan). Somalia – prior to 2023, each Federal Member State had its own data process, and the federal ministry aggregated what it could; coverage was inconsistent and some regions had parallel NGO data systems for education.

With the new policy and an ongoing EU/GPE project, Somalia is attempting a more unified EMIS now. Liberia had issues with consistency; an external review noted that despite collecting data, Liberia's EMIS data was under-utilized and had quality issues, prompting a revamp through the GPE-funded ITAP (Improving Education Management Information). Eritrea had difficulty obtaining timely data from regions, potentially due to limited ICT infrastructure; the latest published stats are often a couple of years old by time of release (indicating slow data processing).

- ***Impact of COVID-19:*** The pandemic in 2020–2021 disrupted EMIS exercises in many countries. School closures meant annual census schedules were thrown off. Some countries (e.g. Uganda, Liberia) did not conduct a full annual school census in 2020. Others did a partial data collection focusing on post-reopening. This caused breaks in data trends and increased the backlog of updating EMIS databases. It also highlighted the need for real-time data – e.g., to track school re-openings, dropout surges, etc. This has since spurred interest in more agile data systems (like mobile monitoring tools for emergencies) but integrating those into EMIS is still in early

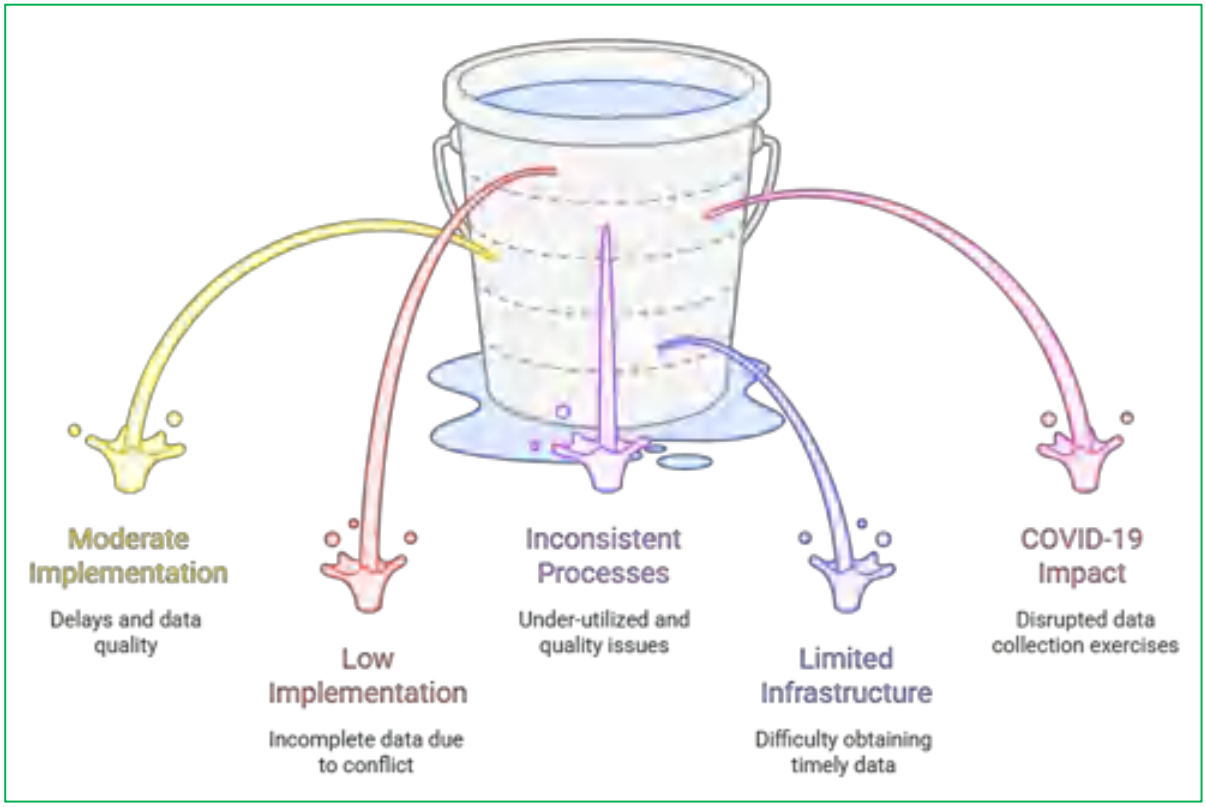


Figure 13: EMIS Implementation Challenges in Various Countries

stages.

In synthesis, EMIS implementation across the KIX 19 countries shows a spectrum: from fairly advanced digital systems to basic paper-based ones. The common challenge is ensuring the data collected is complete, accurate, and timely. One key observation is that technology alone is not a silver bullet – Kenya's and Rwanda's successes with digital EMIS also required training, continuous troubleshooting, and buy-in from schools, whereas a few other countries that installed new software without sufficient training saw limited use (e.g., Lesotho's OpenEMIS initially under-

used, Liberia's earlier EMIS attempts). So, implementation effectiveness is as much about human factors and process as about the tools.

Another cross-cutting point: Unique Identifiers and Data Integration. As noted, at least five countries introduced unique IDs for students or teachers. This is a best practice that helps track cohorts and reduces duplication. For instance, Kenya issues each student a unique NEMIS ID used through their school life. Nigeria has a National Identification Number program that they aim to link to EMIS. Rwanda uses student IDs. This is gradually becoming standard, but challenges remain in countries without robust civil registration systems.

Finally, the annual reporting cycle is important in judging implementation. Most countries aim to produce an annual Education Statistical Abstract or Yearbook. The study noted whether those were up to date: - Countries like Rwanda, The Gambia, Nigeria (some states) manage to publish annual stats within a year of data collection. - Others like Malawi, Zambia often have a 1–2-year lag. - Some, like Somalia or South Sudan, have had irregular reporting (with external partners stepping in to compile data snapshots in lieu of a comprehensive yearbook). Improving this cycle is an ongoing effort, as timely data is crucial for planning (e.g., budgeting for the next school year).

In conclusion, while all countries have functioning EMIS processes, the level of modernization and reliability differs. Many are in transition from paper to digital, and even those with digital systems face issues of data quality and coverage.

Encouragingly, innovative practices (like community validation of data, use of unique IDs, integration of EMIS with other systems such as national ID or GIS mapping of schools) are emerging in the region, often as pilots that can be scaled. These implementation experiences feed into the recommendations on how to strengthen EMIS going forward, especially regarding capacity building and resource allocation to fully operationalize the systems countries have started to build.

5.4. DATA USE AND MONITORING & EVALUATION SYSTEMS

A core purpose of EMIS is to enable data-driven decision making – whether for policy formulation, resource allocation, or monitoring progress. This section examines to what extent data collected by EMIS is actually used, and what systems exist to monitor the EMIS's own performance (M&E of data quality, timeliness, etc.). Across the 19 countries, utilization of EMIS data remains one of the weakest links in the information chain. Many stakeholders admitted that while they gather a lot of data, using it effectively for planning and management is still a work in progress.

5.4.1. CULTURE OF DATA USE:

In multiple countries, there is a gap between data collection and actual policy decision-making. This manifests as: - Planning and Budgeting: Education sector plans and budgets in some cases do not fully reflect EMIS findings. For example, if EMIS data shows low pupil-textbook ratios in a region, is that data driving textbook distribution? Often not systematically. One senior planner frankly noted that "We collect the data, but planning is still done by precedent or political push, not by numbers." This highlights that having data doesn't automatically mean it's used – it requires a deliberate effort to integrate data into decision processes. - Routine Management: At district and school levels, the use of data for management (like identifying schools with teacher shortages or high dropout) depends on local capacity.

Some countries produce district education profiles (e.g., Uganda and The Gambia both have in recent years prepared regional or district profiles showing key indicators). These can help local managers see their situation. However, not all countries do this regularly. - Evidence in Policies: We reviewed recent education policy documents to see if they cite EMIS statistics. In better cases, yes: Rwanda's education strategy references EMIS data on enrollment and transition rates; Ghana's ESP cites EMIS-based indicators for baseline. But in some instances, policy documents or even funding proposals rely on separately collected survey data or ad-hoc figures, indicating gaps in trust or availability of EMIS data.

5.4.2. POSITIVE EXAMPLES OF DATA USE:

There are notable bright spots: - The Gambia is often highlighted regionally for data utilization. The EMIS unit provides data that is actively discussed in the Ministry's management meetings and donor coordination meetings. Gambia's education managers have been quoted saying EMIS data is the "livewire" of management, meaning they use it to inform decisions on teacher postings and school grants. For instance, when data showed high dropout in certain regions, the Ministry launched initiatives targeting those areas (according to a Gambia case study).

This demonstrates a relatively strong data use culture, despite having no formal EMIS policy yet. - Rwanda similarly uses data intensively in its results-based management approach. Districts in Rwanda are given targets (e.g., increase retention by X%), and EMIS data is used to measure progress on those targets, creating a feedback loop that encourages use. - Kenya's adoption of NEMIS was driven in part by the need to eliminate "ghost students" from capitation grant rolls.

By linking funding to NEMIS enrollment numbers (students had to be registered in NEMIS to be counted for funding), Kenya directly tied data to resource allocation. This is a strong incentive for data accuracy and use (though it also caused initial controversies when many students were missing from the system, forcing improvement in data capture). - Peer Reviews and Reforms: At the regional level, AU's peer review mechanisms and initiatives like KIX allow countries to compare data. This has spurred some countries to use data more. An example from SADC: after the adoption of EMIS Norms & Standards, member states including some of our study countries engaged in assessments that produced scores on their EMIS performance.

Those results created a push to address weaknesses and also to celebrate areas of strength, which inherently means using data about the data systems themselves. Several countries in East and Southern Africa (like Uganda, Eswatini, Zambia) participated in an EMIS peer review around 2016–2018 and since then have implemented some recommendations, such as establishing data quality assessment frameworks.

5.4.3. COMMON WEAKNESSES IN DATA USE:

According to our findings: - In most countries, data use remains limited to basic reporting. Ministries produce annual statistics and perhaps an education sector review presentation, but then decisions (like budgeting, teacher deployment, school construction planning) are often made with insufficient reference to the EMIS evidence.

This was explicitly noted in preliminary findings: “data use remains one of the weakest links... even where policies exist that mandate evidence-based planning, changing organizational culture to routinely use data is a slower process.”. - Feedback to schools: Many head teachers submit data but receive little analysis back. If schools or local offices don’t see data being used or don’t receive analytical feedback (like comparisons, or identification of issues in their data), they may not value the process.

This perpetuates a cycle of compliance mentality (“we submit because we have to”) rather than intrinsic motivation (“we submit because it helps us manage”). - Data in public domain: Only some countries publicly disseminate their EMIS data widely.

A few, like Kenya, have an open data portal for education data (though Kenya’s portal is not always up to date). The Gambia shares data with stakeholders like the Local Education Group. But others treat EMIS reports as internal or only for donors. Increasing public access to data could encourage greater use (by researchers, CSOs, etc., which in turn can influence policy). - Trust and data quality link: One reason data isn’t used is lack of confidence in its accuracy.

Decision-makers might not fully trust the EMIS figures if they know there were issues in collection. For example, if a minister believes enrollment data might be inflated, they may hesitate to use it for high-stakes decisions. Building trust in data by improving quality (and transparently communicating about quality) is crucial. As one observation in the discussions: “For data to be used, stakeholders must trust its accuracy and relevance”. This implies that part of building a data use culture is also improving and showcasing data quality processes.

5.4.4. MONITORING & EVALUATION OF EMIS PERFORMANCE:

Beyond using data for education outcomes, do countries monitor how well their EMIS itself is functioning (i.e., an M&E system for EMIS)? - Very few have formal indicators or frameworks to evaluate EMIS performance regularly. South Africa (not in our list) had a scorecard for data timeliness, but among our countries this is rare. - However, through external assessments (like the UIS's assessment of SDG4 data readiness, or GPE's results framework which includes an indicator for whether a country has quality data), some monitoring exists. For example, GPE's requirement for countries to have a functional EMIS has led to some self-assessment. Liberia under a GPE evaluation scored low on EMIS functionality and that became an impetus for reforms. - Internal audits: Some EMIS units do internal tracking – e.g., number of schools that did not report, number of errors found in data entry, time taken to release the annual statistics, etc. But this is generally ad-hoc and not published. - Quality assurance mechanisms: We already touched on, but to reiterate from an M&E perspective: standard data quality checks (like field verification or computerized error checking) are part of EMIS operations and monitoring.

A few countries have instituted formal data quality audit exercises with support from UIS or donors (for instance, Mozambique underwent an EMIS data quality audit a few years ago; The Gambia had an ADEA peer review that examined its data processes). - Benchmarks: The AU EMIS Norms provide a checklist which effectively is an M&E tool – countries can rate themselves on each norm (e.g., is data published within 6 months of collection? Is there a maintenance plan for EMIS infrastructure? etc.).

There is evidence that some countries in our list engaged with this Norms checklist around 2018. It might not be institutionalized annually, but it's a reference for measuring progress. We recommend later that the region consider a regular "State of EMIS" report or scorecard – currently absent, but that appears as a recommendation in our analysis.

5.4.5. DATA USE AT SUB-NATIONAL AND SCHOOL LEVELS:

Another dimension of utilization: - At the district level, does the local education office use its data? Some countries (e.g., Nigeria in some states, Kenya) have introduced district or county ranking by performance indicators, using EMIS data to foster competition or accountability. For instance, publishing which districts have the highest enrollment growth or lowest dropout can prompt local action. However, care is needed to not misinterpret data (if quality issues exist). - At the school level, very few EMIS provide schools with analytic outputs.

One good practice is to give each school a summary of their data vs previous year or vs national average, so they see meaning in the data. This is not common, except where specific projects have done so (maybe some pilot in The Gambia with school report cards). - Some suggestions from stakeholders include creating simple dashboards or report cards for head teachers, and training school managers to analyze their own data (like spotting gender gaps in enrollment). This is part of instilling a culture of data use from the ground up.

In summary, the utilization of EMIS data for decision-making is improving slowly but remains insufficient in many KIX 19 countries. Many decisions are still not fully evidence-based, and data often plays a retrospective reporting role rather than a real-time planning tool. However, awareness of this issue is high – as indicated by numerous references in country documents and stakeholder statements calling for “strengthening the culture of data use.”

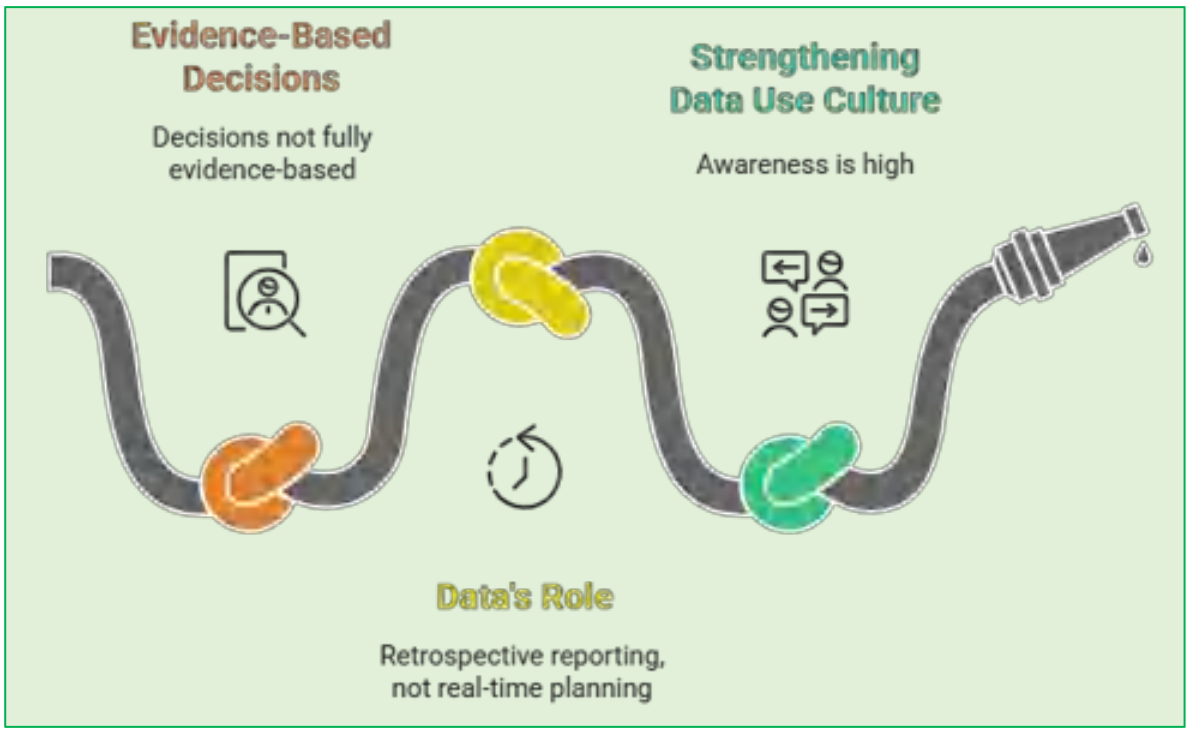


Figure 14: EMIS Data Utilization for Decision-Making

Our findings reinforce that it's not enough to build systems and collect data; a parallel effort must ensure data is actually applied to drive improvements. This includes capacity development for data analysis and interpretation among policymakers, creating demand for data by linking it to resource allocation or accountability measures, and ensuring data is accessible and user-friendly for various stakeholders.

Encouragingly, we see pockets of progress (e.g. Gambia's usage, Kenya's linking data to funding, etc.) which provide models that can be emulated by others.

5.5. ENABLERS AND BARRIERS: CAPACITY, RESOURCES, AND OTHER FACTORS

Finally, we analyze cross-cutting enablers (facilitating factors) and barriers that affect EMIS policy development and implementation. Many have been touched upon in previous sections, but here we synthesize them:

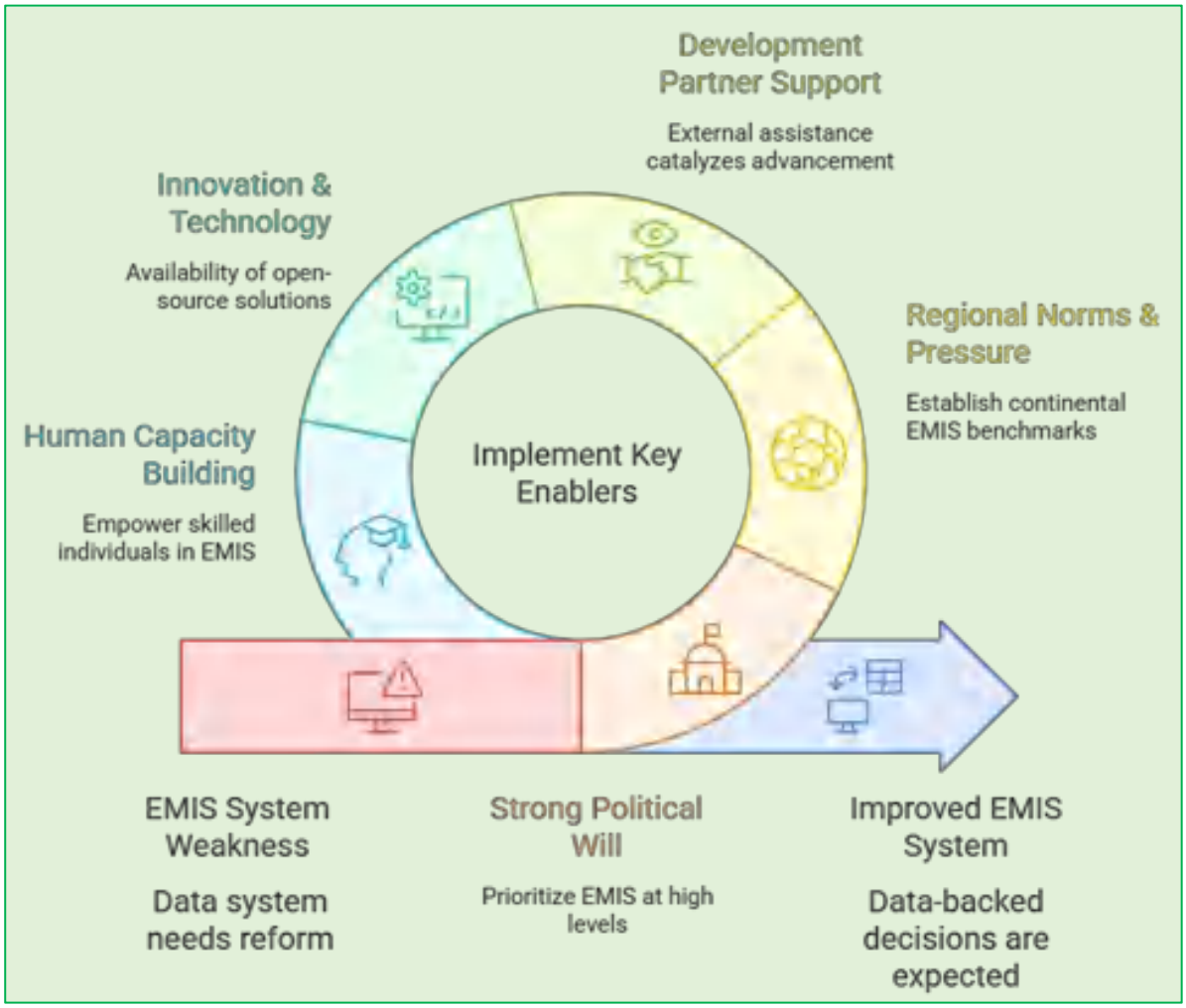


Figure 15: Enabling Factors for EMIS Advancement

5.5.1. KEY ENABLING FACTORS OBSERVED:

- ***Strong Political Will and Leadership:*** Perhaps the most decisive factor is when high-level officials prioritize EMIS. Several instances illustrate this: The Minister of Basic and Secondary Education in The Gambia championed EMIS upgrades and data usage, which led to tangible support (e.g., securing funds for ICT equipment) and an expectation within the Ministry that decisions be backed by data. Rwanda's government-wide emphasis on ICT and data innovation created an environment where the education sector had backing to invest in EMIS and use it. In Nigeria, the revision of the EMIS policy in 2021 was driven by federal leadership recognizing that the old data system needed reform to align with national targets.

Such leadership can mobilize resources and break institutional inertia, serving as a major enabler.

- ***Regional Norms and Peer Pressure***: The role of the African Union and Regional Economic Communities in establishing EMIS Norms & Standards (circa 2010-2012) provided a continental benchmark. Many countries reference these norms when arguing for improvements. For example, SADC's adoption of EMIS standards meant ministries in Southern Africa had to report on certain quality aspects, nudging them to develop policies or guidelines. Moreover, KIX Hub activities and other peer learning events create a sense of "not wanting to be left behind."

Countries observe neighbors developing policies or digitizing EMIS and feel pressure to do likewise. This healthy competition or peer inspiration is an enabler; it spurred, for instance, Somalia to accelerate its policy development when hearing that other fragile states (like South Sudan) were planning theirs, and it encourages better-performing countries to share knowledge (South-South learning exchanges have been organized to show how one country tackled EMIS challenges).

- ***Development Partner Support:*** External assistance has been a catalyst for EMIS advancement in numerous instances. Donor-funded projects often include EMIS components – for example, the World Bank's education projects in countries like Ethiopia, Mozambique, The Gambia, Uganda have funded EMIS hardware, software, and training; UNICEF in many countries supports data collection and EMIS staff training (e.g., providing tablets for data entry, training on data analysis); UNESCO UIS and IIEP have given technical assistance (like workshops on data quality, or developing simulation models using EMIS data).

The Global Partnership for Education (GPE) has also been instrumental: GPE grants and requirement of data strategies have pushed countries to invest in EMIS. Illustration: Liberia's GPE grant in 2019–2020 specifically focused on improving EMIS and resulted in an updated system plan. Somalia's new EMIS policy was developed under a GPE-funded project with consultant support. These inputs provide not just funding but also expertise – a significant enabler given that drafting a policy or setting up a new system often requires know-how that may be limited in-country.

- ***Innovation and Technology Availability:*** The increasing availability of open-source EMIS solutions (like OpenEMIS, DHIS2 for education) and cheaper technology (cloud services, mobile data collection apps) is enabling countries to leapfrog some traditional hurdles. Ten years ago, building an EMIS might require custom software development and expensive servers; today, a country can adapt an open-source platform at lower cost. This has enabled smaller countries or those with fewer resources (Lesotho, Sierra Leone, etc.) to consider modern EMIS without starting from scratch. Mobile phone penetration also allows new approaches (like SMS data submissions or tablet-based school surveys). While technology alone doesn't solve problems, it's an enabler when coupled with training – it makes implementing solutions feasible within tight budgets.

- ***Human Capacity – pockets of strength:*** Though capacity gaps are large, we found every country has at least a few skilled individuals who drive EMIS work (often unsung heroes in EMIS units). Where these individuals are empowered, they can foster innovation. For example, Eswatini's EMIS team proactively partnered with the University of Oslo's DHIS2 team to adopt that system – a case of local capacity seeking a solution. Kenya's Director of ICT (EMIS) has been a vocal advocate and innovator (the NEMIS success is in part due to a committed team). Building up a cadre of EMIS professionals (via training, as recommended later) will further create enabling human capital, but even the current limited capacity, when strategically utilized, has enabled progress in certain technical tasks.

5.5.2. KEY HINDERING FACTORS (BARRIERS) IDENTIFIED:

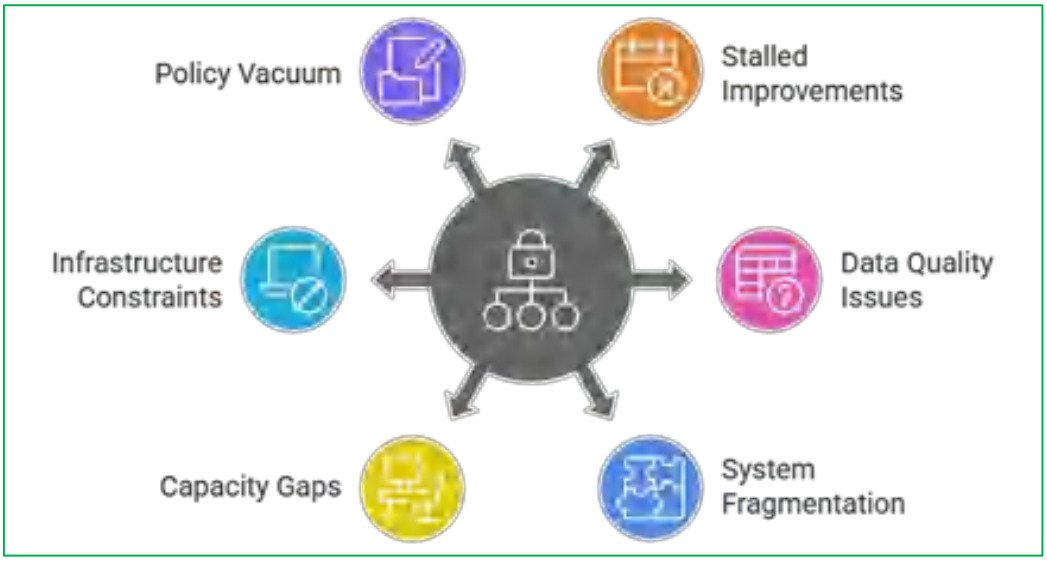


Figure 16: EMIS Challenges and Outcomes

- ***Insufficient Funding and Sustainability of Resources:*** Almost all countries struggle with inadequate funding for EMIS operations. EMIS activities (printing forms, conducting trainings, maintaining databases) are often under-budgeted. Few countries allocate a dedicated budget line for EMIS in their education budgets – it's usually a sub-item under planning or statistics, and often reliant on donor funds. This leads to scenarios where if a donor project ends, the EMIS improvements stall (a not uncommon story, e.g., a project provides tablets for data collection but after project closes, there's no money to replace batteries or cover transport for data collection).

Financial constraints were frequently mentioned by stakeholders as a reason why, for instance, data verification visits are not done ("no fuel to go to schools") or why system upgrades are slow. The lack of predictable domestic funding is a major barrier to sustaining any reforms.

- ***Human Capacity Gaps:*** While there are some skilled individuals, overall shortage of trained EMIS personnel is a critical barrier. Many EMIS units are understaffed – sometimes just 2-3 people handling an entire country's data. In larger countries, there may be more staff but spread thin and sometimes lacking advanced skills (like database management, statistical analysis). Frequent staff turnover exacerbates this; capable staff may leave for better opportunities, and institutional knowledge is lost. For example, Liberia's EMIS suffered when key staff left around 2018, creating a gap that took time to fill.

Another aspect is the limited IT skills at school and district levels, which hinders rollout of digital systems (teachers or officers may be uncomfortable with new software, requiring extensive training that isn't always available). In short, capacity constraints exist at all levels – data collection, data management, data analysis – and they hinder everything from data quality to usage.

- ***Organizational and Coordination Challenges:*** Earlier we discussed governance; the flip side is that unclear roles and poor coordination are barriers. Fragmentation – e.g., different departments or parallel systems not talking to each other – leads to inefficiency and gaps. In some countries, a lack of clear mandate (no policy to say "Department X leads EMIS") causes hesitancy or turf tussles. For instance, if an ICT department and a planning department both think they manage EMIS tech, there might be conflict or duplication. Without formal coordination structures, even well-meaning agencies can work at cross purposes. This barrier often manifests in data fragmentation (multiple databases) and inconsistent standards.

- ***Infrastructure and Technology Constraints:*** Many areas, especially in rural parts of these countries, lack reliable internet connectivity and electricity. This makes online EMIS reporting difficult. Countries like *Malawi, South Sudan, Liberia* have significant portions of schools off-grid or out of network coverage. Even Kenya faced this in remote counties – some schools couldn't directly use NEMIS online due to poor signal; they had to find workarounds (like taking forms to an internet café in town).

Additionally, equipment like computers or tablets are in short supply in many schools/offices. These infrastructural issues hinder implementation of modern EMIS and can result in hybrid systems that are more complex (paper in remote areas, electronic in others, which then must be merged). Furthermore, maintaining equipment (servers, networks) is a challenge if IT support is limited, so technical breakdowns can disrupt data processes.

- ***Data Quality Issues and Trust:*** As noted, persistent data quality problems create a lack of trust in the EMIS output, which in turn can become a barrier to further investment in EMIS (a vicious cycle: because data quality is low, decision-makers ignore it; because they ignore it, they don't invest in improving it; thus it stays

low). Breaking this cycle is tough. The barrier is partly technical (lack of robust quality assurance methods) and partly cultural (if inaccuracies have been tolerated long, people assume EMIS is always flawed).

- ***Contextual Factors (Conflict, Crises):*** In countries that have faced conflict (Somalia, South Sudan) or other crises (Ebola outbreak in Liberia/Sierra Leone earlier, Cyclone in Mozambique, COVID-19 globally), EMIS development was severely set back. Destroyed infrastructure, displaced populations, or diversion of government attention to emergency response can halt progress on data system reforms. Rebuilding EMIS in such contexts takes time and external support, making progress uneven. Stability and peace are often prerequisites for sustained work on something like a national data system; where these are in flux, EMIS understandably suffers.

- ***Policy and Regulatory Vacuum:*** In countries with no EMIS policy or outdated ones, the lack of a formal mandate or standards is itself a barrier (hence our emphasis that those need addressing). Without a policy, EMIS might not be legally recognized as essential, which affects prioritization. Also, related policies (like data protection laws, or requirements for civil registration) could impact EMIS. For example, where there is no national ID and no requirement for birth registration, establishing unique student IDs is harder. Or if there's no policy requiring private schools to report data, you rely on goodwill. So, absence of a strong regulatory framework for data is a hindrance we observed, especially in contexts with many non-government providers.

It's worth noting that these factors often interact. For instance, donor support (enabler) can mitigate funding and capacity gaps (barriers), but if not coordinated, it can inadvertently contribute to fragmentation (e.g., each donor building a separate

In summary, the landscape of EMIS development in these countries is shaped by a set of enabling forces: (*leadership, peer learning, external support)*, and enduring challenges (*funding, capacity, infrastructure*). Any effort to strengthen EMIS must leverage the enablers (build on political commitment where it exists, harness donor investments efficiently, etc.) and directly tackle the barriers (increase domestic financing for EMIS, train and retain staff, clarify institutional roles, invest in ICT infrastructure, and nurture a data-use culture). The recommendations section will address these points specifically, aiming to flip more of these factors into the "enabling" side of the

system). Political will can overcome funding shortages by reallocating resources, whereas lack of it leaves even provided equipment unused. We also observed that some factors can be either enabler or barrier depending on circumstances: Decentralization, for example, can be an enabler if local governments are empowered and resourced to manage EMIS (bringing data closer to the source), but a barrier if central coordination is lost and local capacity is lacking.

(Survey responses and stakeholder comments consistently echoed these findings: e.g., one respondent emphasized that "without strong government backing, EMIS initiatives struggle to gain traction," underscoring the importance of high-level support, while another pointed out that "there are only two people in our EMIS unit to handle data for the whole country," illustrating the capacity constraint. These on-the-ground perspectives reinforce the need to address political, human, and financial dimensions together.)

6. COUNTRY GROUPINGS AND PATTERNS

To provide a structured comparison, we grouped the 19 countries by their EMIS policy status and examined patterns within and across these groups. The three groups, as defined earlier, are: Group 1 – countries with formal EMIS policies; Group 2 – countries without a standalone policy but with partial frameworks; Group 3 – countries with no formal policy and largely informal arrangements. This grouping reveals certain trends in implementation and outcomes, while also highlighting exceptions to general patterns.

6.1. GROUP 1: (FORMAL POLICY IN PLACE)

Formal Policy in Place – Nigeria, Somalia, Sierra Leone (draft), Rwanda (policy-like strategy), and potentially South Sudan (draft in progress). These are countries that recognized the need for an EMIS policy and took steps to establish one.

6.1.1. POLICY CHARACTERISTICS:

Their policies typically delineate EMIS governance clearly and include comprehensive provisions. For example, Nigeria's policy (2021) addresses data collection schedules, roles at each government level, data management standards,

and even touches on data privacy. Sierra Leone's draft 2023 policy similarly provides a holistic framework for data across basic and secondary education, and it draws from best practices (the draft was informed by UNESCO recommendations, hence likely aligning with international standards). Rwanda's inclusion here is debatable since it lacks a single document titled "EMIS policy," but the country's strong ICT in Education Policy and data strategies function in lieu of one – effectively, Rwanda's practices align with what a good EMIS policy would prescribe. Somalia's new policy (2023) stands out as a case of building an EMIS framework from scratch in a fragile environment; it is expected to serve as a foundational document for coordinating donors and federal states on data.

6.1.2. PATTERNS IN IMPLEMENTATION:

These countries generally show better-organized EMIS structures. As mentioned, they often have established EMIS units and sometimes committees. We see a trend that having a policy correlates with clearer institutional arrangements and possibly more government commitment to EMIS. For instance, countries with formal policies often have dedicated EMIS budgets or staff increases (Nigeria's federal budget now includes a line for EMIS activities post-policy, small but notable; Rwanda allocates significant resources to ICT in schools which includes EMIS; Sierra Leone's ministry created an EMIS division as part of policy implementation). They also begin to tackle advanced issues: Nigeria and Rwanda have started considering data privacy legislation in connection with EMIS (something no Group 3 country is discussing yet).

6.1.3. DATA AND USAGE:

Group 1 countries typically have more regular data reporting internationally. Nigeria, Rwanda regularly report to UIS databases (they have recent data on many SDG4 indicators). Sierra Leone's data reporting improved with donor help even pre-policy. These countries also tend to have pilot innovations – Nigeria and Rwanda with unique IDs, Sierra Leone and Somalia with DHIS2 EMIS pilots, etc. However, it's not universally rosy: having a policy doesn't automatically fix challenges. For example, Nigeria despite its policy still grapples with state-level data discrepancies and capacity gaps. But the policy provides a framework to address them. On data use, Rwanda excels, Nigeria uses data in pockets (some states better than others), Sierra

Leone and Somalia are too early to tell but having a policy was itself a response to historically low data usage.

6.1.4. CONCLUSION FOR GROUP 1:

The existence of a policy in these countries seems to be both a result of and a contributor to improved EMIS maturity. They often serve as examples or at least sources of lessons for others. Notably, they show that political will and external support aligned to produce a formal framework – something Group 2 and 3 could emulate. A caveat: one should watch that policies don't remain on paper; implementation is the next step (which Nigeria and Rwanda have pursued, and others must follow through).

6.2. GROUP 2: (NO STANDALONE POLICY, PARTIAL FRAMEWORKS)

No Standalone Policy, Partial Frameworks – This is the largest group, including Ethiopia, The Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe, Eswatini. These countries manage EMIS through other means – e.g., sector plans, internal directives, or draft policies not yet approved.

6.2.1. COMMON APPROACHES:

Many have an EMIS embedded in an Education Sector Plan (ESP). For instance, Ghana's Education Strategic Plan outlines EMIS strengthening activities (though Ghana has no EMIS law) – the ESP acts as a de facto policy, but lacks legal force. Uganda had a draft EMIS policy prepared but never officially adopted; in practice, they use guidelines from the Planning unit. Kenya uses a combination of government circulars and ICT strategy to run NEMIS. Lesotho and Eswatini follow ministry orders and project guidance (Lesotho's OpenEMIS introduction was guided by a donor project rather than a national policy). Zambia has included EMIS objectives in its National Implementation Frameworks for education. Thus, in Group 2, there is typically recognition of EMIS importance, but it hasn't been codified into a dedicated policy.

6.2.2. PATTERNS IN IMPLEMENTATION:

This group is varied, but generally they are in the middle in terms of performance. They have functioning EMIS (some better than others) but also notable gaps. For example:

- Kenya and The Gambia (Group 2 members) actually perform quite well in many EMIS aspects – Kenya's digital NEMIS and the Gambia's strong data use culture are impressive despite the lack of formal policy. This indicates that strong implementation can occur if leadership and capacity are present, even without a formal policy (though as noted, formalizing these successes could further institutionalize them).

- Uganda, Tanzania, Ghana, Zambia – these have reasonably established EMIS processes but suffer from inconsistent data quality and underutilization. They are also exactly the kind of countries that regularly express intent to develop EMIS policies but haven't completed the task. A comparative observation is that lacking a policy did not prevent them from, say, rolling out some new systems (Uganda's new EMIS, Zambia's adoption of OpenEMIS, etc.), but it might be related to slower progress in governance and accountability for data.

- Liberia, Malawi, Mozambique – these are on the lower end, struggling with EMIS effectiveness. They have had multiple donor interventions; the absence of a policy may have contributed to a lack of continuity (e.g., each new project re-starts capacity building, etc.). Interestingly, these countries have identified EMIS policy as a gap: Malawi's recent education sector review recommended developing one; Liberia's ongoing GPE program includes policy and strategy development for EMIS as a component.

6.2.3. CROSS-COUNTRY PATTERNS:

Many Group 2 countries share historical and systemic factors: they might have had EMIS since the 1970s-80s in some form (as part of education ministries' planning units) but never isolated it as its own policy domain. They often rely on legacy systems and incremental improvements. As a result, they sometimes have a lot of

data but less structure. Additionally, these countries might be more subject to staff turnover (without a policy anchoring roles, staff positions in EMIS can be more fluid). Group 2 also contains a lot of the “average” size countries (not the smallest, not the largest, moderate resources) – perhaps why they didn’t pioneer policy but also aren’t completely without frameworks.

6.2.4. NOTABLE PATTERN – PERFORMANCE NOT STRICTLY BINARY:

Group 2 shows that performance is not strictly binary with policy status. Some, like The Gambia and Kenya, challenge the notion that a formal policy is a prerequisite for good practice (they manage well through informal means). Conversely, others highlight the vulnerabilities of not having a policy (e.g., changes in leadership can derail EMIS focus, because nothing in law mandates it). So within Group 2, the commitment of key individuals or presence of indirect frameworks (like a strong sector plan) can make a big difference. It implies that if those countries did get formal policies, it could cement and enhance the gains they have, and in weaker cases, provide a needed jolt of reform.

6.3. GROUP 3: (NO FORMAL POLICY, INFORMAL ARRANGEMENTS)

No Formal Policy, Informal Arrangements – Eritrea, (previously Somalia and South Sudan), possibly Liberia/Malawi if classified strictly. In practice, as mentioned, Group 3 overlaps with Group 2 as all countries have some minimal framework. But Eritrea stands out as having neither a policy nor robust alternative – EMIS is very low-profile there.

- Eritrea has integrated EMIS under its Research & HRD department, and uses the sector plan as a guide, but there is no dedicated policy or strong donor engagement. Information on Eritrea’s EMIS is sparse (they haven’t participated in many regional initiatives). The lack of a formal framework likely contributes to EMIS being under-developed (delayed reports, outdated methods). It’s a clear candidate for needing foundational policy development.

- South Sudan and Somalia were in this category but are transitioning out (Somalia now Group 1 with policy; South Sudan likely to join Group 1 once its draft is finalized). Their experience in Group 3 has been marked by heavy reliance on NGOs

or external actors to gather data and a near absence of government-led standards. For example, prior to current efforts, Somalia's regions collected data in different formats, and no national statistical yearbook was consistently produced – a consequence of no unifying policy in a complex federal setup. Only when the Ministry, with donor help, made a push was a policy drafted. This underscores that being in Group 3 often corresponds with very weak EMIS functionality (not surprising: no policy reflects a generally low system capacity/priority).

- Liberia and Malawi can arguably be seen as Group 3 because they lack formal policies and their "substitutes" have been quite weak. However, they do have EMIS mentioned in sector plans, so maybe they straddle 2 and 3. Regardless, their performance issues (data gaps, irregular reporting) suggest that not having a formal framework or legal mandate has been detrimental.

6.4. CROSS-GROUP COMPARISONS AND PATTERNS:

Link between policy status and EMIS performance: The analysis suggests a positive correlation between having a formal policy and certain measures of EMIS performance (like clarity of roles, possibly data consistency), but it is not a strict causation and there are outliers (Kenya, Gambia performing well sans policy; conversely, a country like Nigeria has a policy but still needs to improve actual usage of data – though things improved after policy).

Nonetheless, as a general rule, countries with formal policies (Group 1) appear to be moving towards more standardized and integrated systems, whereas those without (Groups 2/3) often face fragmentation. - *Regional patterns:* We might notice some sub-regional trends. West African Anglophone countries (The Gambia, Ghana, Liberia, Sierra Leone, Nigeria) – among them, Nigeria and Sierra Leone have or drafted policies, the others do not yet. Southern African ones (Eswatini, Lesotho, Zambia, Zimbabwe) – none of these had formal policies, but all had at least EMIS in their sector plans; they also benefited from SADC norms early on, which might be why even without policies, they had some minimum functionality (e.g., all produce yearly stats reports).

East African ones (Kenya, Uganda, Tanzania, Rwanda, Ethiopia, Somalia, South Sudan) – a mixed bag, with Rwanda and now Somalia with policies, others not. The

impetus to formalize seems to be hitting each sub-region at its own pace. - Historical context patterns: Some countries historically had an EMIS strategy or plan which expired. For example, Tanzania had an EMIS Development Plan 2004–2007, after which no new standalone plan came – so it regressed to group 2/3 with just ESP guidance. This shows that a one-time plan isn't enough; continuous policy framework is needed. Zimbabwe (though not heavily covered in our sources, except a KIX brief) likely similar – an old strategy and now mostly running on inertia.

Resource and size patterns: Larger countries (Ethiopia, Nigeria) may need formal policies more to manage complexity. Nigeria did that; Ethiopia hasn't yet (and struggles coordinating regions). Smaller countries with cohesive systems (Gambia, Lesotho) could get by informally for a while, but as they adopt more complex data (individual-level records, etc.), even they feel the need for formal structures (hence Gambia working on policy now). So complexity and scale push need for formalization.

In conclusion, the grouping analysis indicates that while formal EMIS policies are not yet universal, they are generally associated with more structured and potentially effective EMIS environments. Countries lacking such policies can and do run EMIS, but often face challenges that a policy could help mitigate (like clarifying roles, ensuring sustainability). There are exceptions, demonstrating that strong commitment can compensate in the short term for lack of policy, but even those exceptions are moving toward formal policies to safeguard and systematize their gains.

Implications: These patterns informed our recommendations. Essentially, all countries not in Group 1 should consider moving there (i.e., develop or finalize an EMIS policy) – a common recommendation echoed in analyses. Meanwhile, those in Group 1 need to ensure their policies don't remain on paper but are implemented and updated as needed. Group 2 countries can learn from both sides: the necessity of policy from Group 1 and the pitfalls to avoid from Group 3. Additionally, group analysis suggests tailored approaches: e.g., for Group 3, basic capacity building and donor support to create a policy is step 1; for Group 2, leveraging existing frameworks to formalize them might be the strategy; for Group 1, focusing on implementation and perhaps peer mentoring others (as some Group 1 countries can serve as champions in the region).

6.5. CROSS-COUNTRY DISCUSSION

Beyond the specific themes and groups, it's valuable to discuss cross-cutting insights and comparative perspectives that emerged from examining all 19 countries together. This section synthesizes how these countries collectively illustrate broader trends, differences, and lessons for EMIS policy and practice in the region.

Continental and Global Alignment: One notable discussion point is how national EMIS efforts align with continental frameworks like the AU's CESA and Norms & Standards, as well as global SDG4 requirements. Most countries are aware of these external frameworks, but the degree of alignment varies. Countries like Rwanda and Kenya, which are highly engaged in international reporting, have ensured their EMIS collects data needed for SDG4 indicators (for example, tracking of out-of-school children, learning assessment participation).

Many others have gaps in SDG4 reporting – typically on indicators like learning outcomes or education finance – reflecting limitations in EMIS coverage. However, the push to meet international commitments has spurred some improvements. For instance, after the adoption of SDG4, Uganda introduced new data fields on disability to better report on equity, and Lesotho expanded its EMIS to include early childhood education data because SDG4 monitoring required it.

The AU EMIS Norms & Standards (2018) evaluation found that several of our KIX countries partially met the criteria but needed improvement in timeliness and data use. This external benchmarking has helped identify weaknesses and set goals. A recommendation we make is for the AU/KIX to regularly monitor and publish progress on EMIS across countries (like a scorecard) – something that could strengthen cross-country accountability and learning.

Federal vs. Unitary Systems: The dataset includes large federal countries (Nigeria, Ethiopia, Somalia (federal structure), South Sudan to an extent) and unitary ones. A cross-country insight is that federal countries face unique EMIS challenges: they must coordinate data across state or regional authorities, which requires stronger governance and sometimes results in slower policy implementation.

Nigeria managed to implement a national policy by bringing states on board and decentralizing EMIS roles, but it took years and is an ongoing process. Ethiopia hasn't had a national EMIS policy; regions operate somewhat independently, leading to inconsistencies (some regions might be timely, others lagging – a challenge flagged in Ethiopia's reviews). Somalia's new policy specifically aims to solve the federal coordination issue by creating a unified framework for Federal Member States.

Meanwhile, unitary states (like Rwanda or The Gambia) can more easily enforce one system nationwide. Thus, context of governance structure matters: any policy or system must adapt to federal realities if applicable (e.g., by assigning clear roles at sub-national levels and establishing data-sharing protocols). In recommendations, we've noted that federal countries should ensure EMIS policies delineate federal vs state responsibilities and promote interoperability, learning from Nigeria's example.

Small States vs. Large States: There is also a difference in scale between small states (like Eswatini, Lesotho, even The Gambia) and large populous ones (Nigeria, Ethiopia). Small states often have the advantage of simpler administration (fewer schools to cover, often a tighter team that can directly communicate with all schools). This can lead to relatively better data coverage (Eswatini and The Gambia both achieve high response rates from schools) but also means vulnerability if that small team is not well-supported (a few departures can cripple the system, as noted for Gambia/Lesotho capacity strain).

Larger countries benefit from economies of scale in some cases (they can justify bigger budgets, etc.), but also face complexities in reaching remote areas and standardizing across a huge system. The cross-country observation is that tailored strategies by country size are needed: small countries might focus on building redundancy (not over-relying on one person) and can maybe implement innovations faster; large countries must invest in robust IT infrastructure and decentralized capacity (like training hundreds of district officers). Peer learning could be fostered between similar-sized countries (e.g., Gambia, Lesotho, and maybe Liberia could share solutions for small systems; Nigeria, Ethiopia, Tanzania for large systems).

Role of External Partners – Coordination vs. Fragmentation: Almost every country is a recipient of multiple education projects or donor supports. A cross-country trend has been that where donor coordination is strong (usually through a Local Education Group or similar), EMIS support is more coherent. For example, in The Gambia, the Local Education Group (LEG) which includes key donors actively discusses EMIS priorities, and donors aligned behind ministry-led initiatives (UNICEF and World Bank both supporting different aspects of digital EMIS).

In contrast, in some countries historically, donors ran parallel data efforts (like separate project monitoring systems that weren't integrated). Liberia had instances where NGOs collected data parallel to the Ministry, leading to multiple figures. There's now an attempt to consolidate this. The cross-country lesson is that strong government leadership and donor coordination mechanisms help channel support into the EMIS rather than around it. That informs our recommendation for KIX/AU to help align donor support and avoid fragmentation – a recurrent theme.

Innovations and Good Practices to Share: Each country offered some unique practices that others could learn from. We highlight a few cross-country: - Community Validation (Eswatini, Gambia): As mentioned, involving communities in verifying school data to enhance quality. - Integrated ID Systems (Kenya, Nigeria): Using national ID or creating unique student IDs that link to other services. Nigeria's policy references linking EMIS with national identity management, and Kenya's NEMIS is tied to birth certificate

This integration can greatly improve accuracy and tracking of students (avoid double-counting). - Use of DHIS2 platform (Eswatini, Sierra Leone, Zanzibar, etc.): Adapting a health system for education has pros (robust data visualizations, etc.). Countries sharing these experiences can accelerate learning curve for others interested. - Data Use Initiatives (Rwanda's Imihigo, Gambia's LEG data reviews): Rwanda uses a performance contract system ("Imihigo") where districts commit to targets (some education targets drawn from EMIS).

This approach could be replicated or at least considered by others to foster accountability for data. The Gambia's practice of sharing EMIS results in Joint Sector Reviews to spark discussion is another simple yet effective practice. - Capacity Building Programs (The Gambia's proposed M.Sc in EMIS, Uganda's data management training for district officials): Investing in formal education programs for EMIS professionals is a model for institutionalizing capacity. Only a couple of countries have done that (the Gambia's University has apparently started a master's program for EMIS officers, which is quite innovative; if true, that merits attention regionally).

Common Challenges – Data Quality, Timeliness, Use: It became clear that some challenges are essentially universal, just in varying degrees. Data quality issues (incomplete, inaccurate data) were reported by all countries – even the best ones have areas to improve (Rwanda has high completeness but still works on quality; Nigeria varies by state; etc.). Timeliness – few countries get data out within 6 months of collection; many take 12-18 months, by which time data is a bit old. Data use – as extensively discussed, remains low to moderate in most cases.

Recognizing these common challenges suggests that regional collaboration can target these areas. For instance, developing a regional data quality toolkit or training that all countries can use might be efficient, or KIX facilitating countries to share strategies on how they reduced turnaround time for reports. Additionally, benchmarking data use (maybe via a survey on how decisions were informed by data) could help identify which countries are making headway (like Gambia, Rwanda) and share their approaches.

Importance of Formalizing Gains: A theme in discussion was that many improvements happening now (digitalization, new data practices) need to be formalized in policy or regulation to ensure sustainability. For example, Kenya's NEMIS was launched by executive initiative, but making it sustainable might involve enacting regulations that require all schools (public and private) to register in NEMIS – thus giving it legal backing. Likewise, countries where donor projects pilot a new approach should incorporate that into official policy or guidelines once proven successful.

Emerging Trend – Integration and Holistic EMIS: There's a cross-country movement towards more integrated education information systems, going beyond traditional EMIS boundaries. Countries are increasingly trying to link EMIS with: - Finance systems (for budgeting, like tying school grant allocations to EMIS data), - Human resource systems (teacher payroll linked to teacher deployment data), - Learning assessment data (embedding exam results into the EMIS to analyze outcomes), - GIS and mapping (to visualize school locations and out-of-school populations).

This reflects a global trend of building Education Management Information Platforms that serve multiple functions. Some of our countries are taking first steps – e.g., Mozambique's Ministry developed an Education Portal that combines EMIS stats, school mapping, and some report card features. Nigeria's policy encourages using EMIS data for budgeting processes. These integrative approaches are promising and may define the next generation of EMIS in Africa. However, they require solid foundational data (garbage in, garbage out) and inter-ministerial cooperation,

Fragility and Resilience: Another cross-cutting theme is building resilience into EMIS. Countries prone to crises (be it conflict, natural disasters, epidemics) need EMIS that can adapt – e.g., mechanisms to track displaced students, or quickly assess school damages. Some lessons can be drawn: Sierra Leone, after Ebola, invested in better data for emergency preparedness; Mozambique, after cyclones, started to integrate school geo-coordinates to quickly identify affected schools.

This aspect is an important cross-country discussion especially as climate change increases disaster risks. EMIS policies and systems should incorporate disaster risk mitigation (like backup of data, alternative data collection methods when normal schooling is disrupted – as seen during COVID school closures when some countries tried SMS-based monitoring of student re-engagement).

Cross-country Support Mechanisms: Currently, support tends to be bilateral (donor to country) or through general networks. The KIX Hub itself is a platform for cross-country exchange. This study and its validation process is an example of that: countries learned what others are doing. The value of direct country-to-country technical assistance emerged in discussion – e.g., Rwanda's EMIS team could advise others on rolling out unique IDs; Nigeria's experience updating a policy could inform those drafting new ones. A recommendation is formalizing such exchanges (KIX could sponsor a "peer mentorship" as mentioned in recommendations). The Africa 19 Hub is well-placed to coordinate this.

In summary, the cross-country discussion affirms that while each country is unique, they face shared challenges and can leverage shared solutions. The momentum for improving EMIS is region-wide, spurred by continental goals and the obvious need for data-driven decision-making to improve education outcomes.

Countries can learn from one another's successes (and mistakes) – whether it's how Kenya implemented NEMIS, how The Gambia cultivated data use, how Nigeria structured its policy, or how a small country like Lesotho handled limited capacity.

By aligning efforts and supporting each other through regional initiatives (AU, KIX, ADEA, etc.), these 19 countries can collectively uplift the standard of EMIS in the region, avoiding the need to "reinvent the wheel" individually. This cross-pollination of ideas is already happening and should be intensified.

The findings across themes and countries lead logically into the recommendations, which aim to address identified gaps and build on enablers at national, regional, and international partnership levels.

7. CONCLUSIONS

The assessment of EMIS policy development and implementation across the 19 KIX Africa 19 Hub countries leads to several overarching conclusions:

7.1. EMIS POLICIES ARE A CRITICAL MISSING PIECE IN MANY COUNTRIES:

Despite the recognized importance of EMIS for education planning, a majority of the countries still lack a formal EMIS policy or updated framework, and this absence is correlated with fragmented responsibilities, inconsistent practices, and gaps in data quality. In only a few cases (e.g. The Gambia, Kenya) has strong leadership compensated for the lack of a policy by enforcing discipline through informal means – but even those countries acknowledge the need to institutionalize an EMIS policy to sustain progress.

Countries that have invested in developing an EMIS policy (Nigeria, Somalia, Sierra Leone's recent draft) are already seeing the benefits in clearer governance and strategic direction. Thus, formalizing EMIS in policy is concluded to be a foundational step for every country that hasn't yet done so. It provides not just a document, but a mandate: signaling that education data is a national priority with standards to uphold.

7.2. 2. IMPLEMENTATION OF EMIS VARIES, BUT KEY CHALLENGES ARE SHARED:

All countries have some form of EMIS in operation – annual data collection is a norm, but the effectiveness of these systems ranges from robust and modern to rudimentary and struggling. Encouragingly, several countries (around half) have begun digitalizing their EMIS and adopting innovations like unique IDs, which is a positive trend. However, common challenges persist across the board: data quality issues, delayed reporting, and under-utilization of data for decision making are reported universally.

Even the most advanced systems need improvements in these areas, while less advanced ones need major capacity boosts. A crucial conclusion is that technology alone is not enough – countries that simply installed new software without investing in people and processes saw limited gains. Successful implementation requires parallel investments in human capacity, process re-engineering, and continuous

quality assurance. The countries that have made notable progress (e.g. Rwanda, Kenya) did so by combining tech rollout with training, stakeholder buy-in, and iterative refinement of processes.

7.3. DATA UTILIZATION REMAINS WEAK – A CULTURAL CHANGE IS NEEDED:

One of the stark findings is that data is still not driving decision-making to the extent envisioned. There is often a disconnect between data collection and usage: annual statistical reports are produced, but policy decisions (budgets, interventions) often do not systematically reference EMIS data. Changing this requires more than technical fixes; it requires a cultural shift in education management.

Leadership must demand data in planning discussions, and systems must make data accessible and digestible to policymakers (e.g. via dashboards, briefs). The conclusion is that each country needs to foster a “culture of data use” – through accountability mechanisms (e.g. requiring evidence for proposals), capacity building for data interpretation, and demonstrating the value of data by linking it to tangible outcomes (for example, showing that districts which used data managed to reduce dropouts). Without this shift, investments in EMIS technology or policy risk not translating into improved educational decisions on the ground.

7.4. CAPACITY AND RESOURCE CONSTRAINTS ARE THE PRIMARY BOTTLENECKS:

The evaluation highlighted that almost every technical or operational shortcoming traces back to limitations in human capacity and financing. Many EMIS units operate with minimal staff and rely on project funds for even basic tasks – an unsustainable situation. A clear conclusion is that addressing these capacity and resource gaps is paramount. This means not only training more personnel (and retaining them with career incentives) but also creating dedicated budget lines for EMIS in national education budgets (to cover regular data collection costs, system maintenance, etc.).

Several countries under review would benefit from a significant capacity uplift at all levels: training headteachers and district officers in data management, professionalizing the EMIS cadre at the national level, and having IT support staff to keep systems running. Likewise, moderate but steady domestic funding (even 0.5–1% of the education budget allocated to EMIS) could dramatically improve

operations. International partners can catalyze improvements, but ultimately domestic commitment in staffing and funding EMIS is crucial for long-term sustainability.

7.5. REGIONAL COLLABORATION AND STANDARDS ARE DRIVING PROGRESS, BUT COULD BE LEVERAGED FURTHER:

The study finds that regional initiatives – such as the AU's Norms & Standards and the KIX Hub's knowledge exchange – have indeed played an influential role in many countries, either by providing standards to aspire to or platforms to learn from peers. Countries have benefited from these (for example, some only began drafting policies after regional workshops emphasized it). Yet, there is room to deepen regional cooperation.

Countries should not operate in isolation when solutions and expertise exist among neighbors. The conclusion is that mechanisms for systematic peer learning, technical assistance exchange, and harmonization of best practices will accelerate EMIS strengthening. This could include regional toolkits (as recommended), more frequent data benchmarking and peer reviews, and south-south assistance (e.g., sending an EMIS expert from one country to help another).

The KIX Africa 19 Hub can be a pivotal platform for this, and the AU and RECs can incentivize political commitment (e.g., via recognition or gentle "naming and shaming" through scorecards).

7.6. EMIS IMPROVEMENT IS FOUNDATIONAL TO ACHIEVING EDUCATION GOALS AND MUST BE HOLISTICALLY SUPPORTED:

A high-level conclusion is that strengthening EMIS is not a peripheral technical task; it is central to achieving broader education sector goals (access, equity, quality). Without reliable data, countries cannot accurately monitor progress on enrollment drives, identify inequities (e.g., gender or regional disparities), or evaluate the impact of interventions on learning outcomes. Thus, investing in EMIS yields high returns in terms of informed policy and efficient use of resources.

Stakeholders in validation echoed that often “what gets measured gets done,” hence measuring well (through EMIS) is half the battle for reforms. Consequently, support to EMIS should be integrated into all major education initiatives – whether national reforms or donor programs, EMIS strengthening should be a component.

The study reinforces that EMIS is the backbone of education planning: countries that neglect it do so at the cost of blind or misinformed policymaking. Conversely, those that prioritize EMIS lay a strong foundation for systematic improvements in education

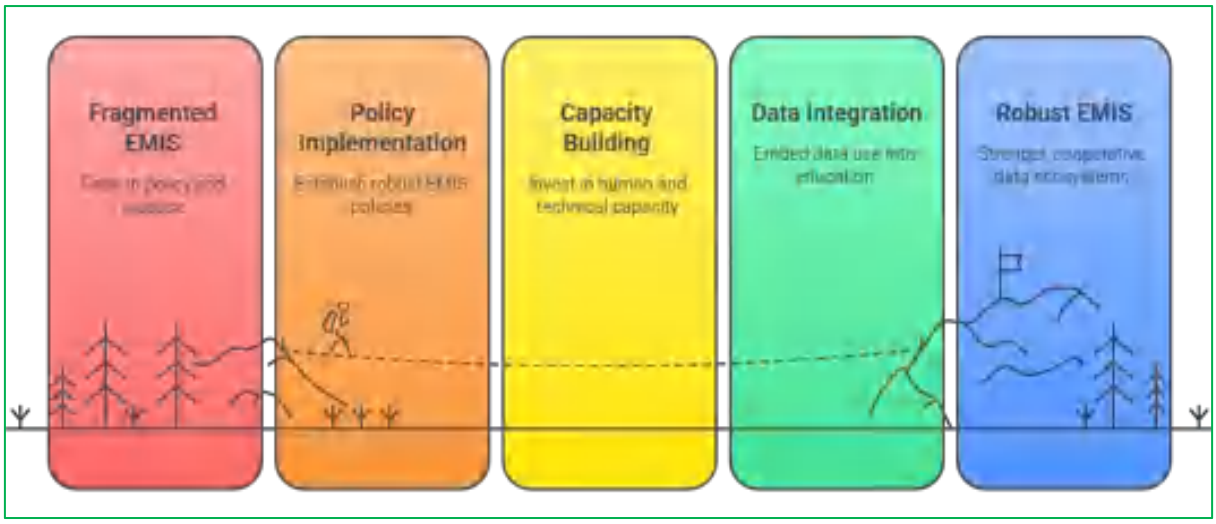


Figure 17: Strengthening EMIS Ecosystems

outcomes (since they can baseline, target, track, and adjust strategies effectively).

In closing, the comparative analysis shows a region at a crossroads: Countries are increasingly recognizing the importance of EMIS, and some have made commendable strides, yet significant gaps remain in policy, practice, capacity, and utilization. The findings validate the initial premise that consolidating information on EMIS frameworks would uncover both exemplary practices and critical gaps – which it has. These conclusions underscore a call to action: to transition all countries to having robust EMIS policies, to invest in human and technical capacity, and to embed data use into the education sector's DNA. They also stress that this is a shared journey; through cooperation and mutual support, the KIX 19 countries can collectively move toward stronger EMIS ecosystems. The next section translates these conclusions into detailed recommendations for specific stakeholder groups – national governments, the KIX regional hub/AU bodies, and development partners – to guide practical steps forward.

8. RECOMMENDATIONS

Drawing on the study's findings and validation feedback, the following recommendations are proposed to strengthen EMIS policy development and implementation across the KIX Africa 19 countries. The recommendations are organized by target stakeholder: National Governments, Regional Bodies (KIX Hub/AU-IPED), and Development Partners. They are interlinked and mutually reinforcing – progress by one group will support the others. Each recommendation includes a rationale referencing the issues identified, to ensure traceability to the study's evidence base.

8.1. RECOMMENDATIONS FOR NATIONAL GOVERNMENTS (MINISTRIES OF EDUCATION AND RELEVANT AGENCIES IN EACH COUNTRY):

8.1.1. DEVELOP OR UPDATE EMIS POLICY/STRATEGY DOCUMENTS:

Every country without a formal EMIS policy should initiate a consultative process to create one, using existing templates and regional norms as guides. This policy (or strategy) should clearly outline institutional roles, data collection cycles, data management standards, and address gaps like data integration and privacy. Countries with older or draft policies should prioritize reviewing and updating them to reflect current challenges (e.g., incorporating provisions for digital data collection, EMIS use during crises).

Target: Have at least a draft EMIS policy adopted at ministerial or cabinet level in each currently policy-lacking country within the next 1–2 years.

Rationale: Formalizing EMIS frameworks will institutionalize good practices, ensure continuity beyond individual personnel, and signal high-level commitment to data-driven education management. This addresses the identified gap in policy absence which leads to unclear standards and accountability. (For example, Somalia's newly validated policy in 2023 provides a blueprint for harmonizing data across its federal states, a step that other policy-lacking countries can emulate.)

8.1.2. ESTABLISH (OR REVAMP) HIGH-LEVEL EMIS STEERING COMMITTEES:

Ministries should create a multi-stakeholder EMIS Steering Committee or Working Group if one does not exist or strengthen the mandate of existing ones. This body should include key departments (Planning/Policy, ICT, Teacher Management, Inspectorate) and, where applicable, representatives from sub-national education offices and the national statistics bureau. It should meet regularly (e.g., quarterly) to oversee EMIS policy implementation, coordinate data collection across units, resolve data issues, and champion data use within the ministry.

Rationale: A formal committee breaks institutional silos and keeps EMIS high on the agenda. Our findings show that unclear coordination is a barrier leading to fragmented systems. A functioning committee (like those set up in Nigeria or proposed in Sierra Leone's draft policy) ensures continuous attention to EMIS across all relevant actors, improving governance and responsiveness when issues (like low response rates or discrepancies) arise.

8.1.3. SECURE SUSTAINABLE DOMESTIC FUNDING FOR EMIS:

Governments should allocate a dedicated budget line for EMIS within the education sector budget (if not already in place) and incrementally increase funding to ensure core EMIS operations are covered. We suggest aiming for at least 0.5–1% of the education recurrent budget to be dedicated to EMIS and data management activities over the next few budget cycles.

This funding should cover routine data collection (printing or digital survey costs, transport for enumerators or training workshops), EMIS hardware/software maintenance, and periodic system upgrades. Ministries of Education should work with Ministries of Finance to justify these allocations by presenting the case that investing in data yields returns in efficiency and effectiveness (e.g., better targeted resources, reduced waste). If needed, include EMIS investments explicitly in Education Sector Plan budgets to legitimize the ask.

Rationale: Lack of funding is a fundamental constraint identified in all countries. Reducing over-reliance on donor funding for EMIS will ensure continuity of operations and enable proactive improvements (rather than waiting for external grants). A modest increase in spending on EMIS (fractions of a percent of total education spend) could significantly improve data quality and timeliness, as evidenced by cases where dedicated funds were available (e.g., Kenya's government funding of NEMIS operations helped its rollout; countries with GPE grants for EMIS saw immediate improvements). It also embeds EMIS as a regular part of the education system's costs – reflecting its status as essential infrastructure, not a one-off

8.1.4. INVEST IN HUMAN CAPACITY DEVELOPMENT AND STAFF RETENTION:

Ministries should formulate a capacity building plan for EMIS personnel at all levels. Key actions:

1. Conduct regular training for EMIS staff (national and sub-national) on data management, analysis, and new EMIS tools (at least one major training annually, plus continuous on-the-job mentoring).

2. Implement a "Training of Trainers" approach to cascade skills: e.g., national EMIS experts train provincial/district officers, who in turn train school data staff, ensuring knowledge percolates to the school level.

3. Collaborate with local universities or institutes to develop certification courses or even advanced degrees in EMIS or education data science (for example, supporting or expanding programs like the M.Sc. in EMIS reportedly launched in The Gambia – such academic programs can produce a pipeline of skilled professionals).

4. Establish career incentives to retain EMIS officers: create clear career pathways/promotions for data staff, provide recognition (awards for high data quality or innovative data use), and consider bonding agreements for those sent for advanced training (i.e., they commit to serve in EMIS roles for a certain period after training).

5. Address staffing gaps by recruiting additional EMIS officers where workload has grown (particularly if moving to individual-level data systems, which require more support). Even deploying one IT/database specialist per ministry's EMIS unit and one data officer per region/district can make a significant difference in managing the system.

Rationale: Human capacity is the linchpin for effective EMIS – our study showed pervasive shortages of skilled staff and high turnover hamper data quality and utilization. By institutionalizing regular training and creating professional recognition for EMIS roles, ministries can build a skilled, motivated workforce to maintain and innovate their data systems. For instance, countries like The Gambia have taken steps to professionalize EMIS (anecdote: introducing a specialized Masters program is a forward-looking model) – others should follow suit. Retention strategies are essential to avoid loss of talent (we noted many countries lose EMIS staff to other opportunities, undermining continuity). Investing in people ensures that even as technology evolves, the system will be effectively managed and data actually analyzed and used, not just collected.

In sum, a well-trained and stable EMIS cadre will operationalize the policies and tools and drive the data-use culture needed.

8.1.5. ENHANCE DATA QUALITY ASSURANCE MECHANISMS:

Ministries should institute formal data quality protocols as an integral part of EMIS operations. This can include:

1. Developing and disseminating data collection manuals and training for school and district personnel on how to fill forms or enter data correctly (standard definitions for indicators, etc.).

2. Implementing systematic data validation procedures: e.g., require that each district or regional office verify a sample (say 10%) of schools on-site or via phone for reported figures, and cross-check certain data points (like enrollment vs. number of teachers) for logical consistency using the EMIS software's error checks.

3. Utilizing technology for validation: for instance, employ GIS coordinates to spot schools that may be missing (if a locality has population but no school data, investigate), or use outlier detection in the database to flag unusually high/low values for review.

4. Encouraging community and stakeholder validation where feasible: engage school boards or parent committees to review and confirm school data, an approach piloted in some countries (Eswatini, The Gambia) to improve credibility.

5. Setting benchmarks for data completeness and accuracy (e.g., aim for 100% of schools reporting, <5% error rate on key indicators) and monitor these annually. If certain districts lag, target them with support the next year.

6. As part of policy, establish accountability: e.g., head teachers sign off on the accuracy of their data; district education officers certify their district returns. If significant errors are later found, provide feedback and require corrections.

Rationale: Our findings underscore that data quality issues (incomplete, inaccurate data) are widespread and erode trust in EMIS. Instituting rigorous quality assurance will improve the reliability of data, which in turn encourages its use. Countries that have adopted such practices (for example, Kenya's Ministry directed validation of a sample of schools during NEMIS rollout, and The Gambia uses cross-verification with exam data to check enrollment) have seen improvements. Quality assurance needs to be proactive and built-in, not an afterthought. These measures will help move EMIS data from being questioned to being accepted as "official statistics" suitable for planning.

Moreover, the discipline of verification can catch and correct issues like over-counting of students or under-reporting of dropouts, thus directly addressing some challenges noted in our study. In short, robust QA mechanisms will increase confidence in EMIS data, allowing it to genuinely guide policy.

8.1.6. INSTITUTIONALIZE DATA UTILIZATION IN DECISION-MAKING:

Ministries should take concrete steps to embed the use of EMIS data into routine management and policy decisions:

1. Integrate data review in planning and budget cycles: For each annual planning or budgeting exercise, require a presentation or report of the latest EMIS statistics to identify needs (e.g., areas with overcrowded classrooms should get priority in infrastructure budget). Make it a norm that proposals for new initiatives reference EMIS evidence (for example, a proposal for building new schools must cite enrollment and capacity data from EMIS).

2. Produce user-friendly analytic outputs: In addition to hefty statistical yearbooks, produce concise briefs or dashboards on key indicators (enrollment trends, PTR, etc.) and ensure they reach decision-makers in a digestible form. For instance, create a one-page “Education Data Highlights” for the Minister and senior management after each annual census, and an interactive dashboard for provincial officers to explore their data.

3. Encourage sub-national data use: Provide each district/region with an annual profile of their education indicators compared to national averages, and train local managers to use this for their planning. Then, during annual performance reviews, ask district education officers to report on how EMIS data informed their local actions (e.g., “we allocated extra teachers to schools X and Y because EMIS showed high STR there”).

4. Accountability for data use: Consider including data utilization metrics in management performance contracts (e.g., require that each region holds an annual data review meeting, or that each department in the ministry cites data in at least X% of policy documents). It could even be symbolic actions like the Minister publicly launching the annual EMIS report and highlighting key findings, signaling that leadership pays attention to the numbers.

5. Promote transparency and wider access to data: Publish EMIS data (non-sensitive aggregate data) on ministry websites or open data portals for researchers and CSOs to use. This external use can create positive pressure – e.g., civil society might create scorecards using EMIS data, which further encourages government to act on problem areas. Several countries have done this (for example, Uganda’s plan to have an online dashboard for SDG4 indicators, or Ghana making certain EMIS data available to local education groups).

Rationale: Simply put, data has no value if not used. Our study revealed a weak data use culture as a fundamental issue. The above measures aim to hard-wire data into the decision process. They address the "last mile" of EMIS – turning information into action. Institutionalizing data-driven decision making will help overcome resistance or habit of ignoring data. Over time, these practices will shift norms: officials will expect data to be presented for any issue, and planners will automatically refer to EMIS before allocating resources. This cultural change is vital and must be led by example from the top (hence recommendation of Ministerial engagement).

A particular focus on sub-national use ensures decentralization doesn't mean data gets lost at lower levels. When local officers use data to address issues (e.g., identifying a school with low enrollment and investigating causes), it can lead to targeted interventions that improve education outcomes. Moreover, public transparency in data can mobilize community support and trust (and also allow external validation or insights, as independent analyses of EMIS data might highlight trends the Ministry hadn't noticed). In summary, making data use a formal expectation at all levels will gradually transform how the education system is managed – from intuition- or politics-based to evidence-based.

8.1.7. STRENGTHEN EMIS-SECTOR COORDINATION AND INTEGRATION:

Ensure that the EMIS is not an isolated unit but well-integrated with other information and management systems in education and beyond. Specifically:

1. Link EMIS with Education Sector Monitoring: Align EMIS indicators with education sector plan targets and monitoring frameworks. The EMIS unit should provide regular updates on sector plan indicators. If new reforms are launched (e.g., a reading program), incorporate relevant data points into EMIS to track its coverage and results.

2. Integrate or inter-operate with other databases: Work towards interoperability between EMIS and other key databases, such as the teacher management/payroll system, examination results database, or population registry. For example, if a country has a separate HR system for teachers, ensure teacher IDs match between systems so that EMIS can easily be linked to teacher qualifications or payroll data. Likewise, coordinate with the Health ministry if there's overlap (like school health data).

3. Adopt common identifiers: Continue or commence the use of unique identifiers for students, teachers, and schools across all systems (as some have started). This allows data from various sources to be merged for richer analysis. For instance, a unique school code should be used by EMIS, the finance system, and any donor project to avoid confusion and enable unified school profiles.

4. Plan for crisis-resilience: Coordinate with disaster management and others to include contingency plans for data collection during crises (like alternative data submission methods when schools are closed, using mobile technology, etc., drawing lessons from COVID-19). Also ensure EMIS data (like school locations, enrollments) is shared with emergency response bodies to help target relief (e.g., after a cyclone, knowing which schools are large and could serve as shelters, etc.).

5. Engage in cross-sector data initiatives: Participate in national statistical system activities – e.g., if a national data portal or SDG monitoring platform exists, feed EMIS data into it. Work with National Statistics Offices to get education data included in national household surveys or to validate EMIS figures against census data. Essentially, embed EMIS within the national data ecosystem.

Rationale: Education does not happen in a vacuum – aligning EMIS with broader systems leads to efficiency and more powerful data use. We found that fragmentation (like separate teacher or exam systems not talking to EMIS) is a barrier; integration addresses that by creating a single source of truth or at least harmonized datasets. This recommendation is about systemic coherence: it will reduce duplication (no multiple data requests to schools for similar info) and improve data richness (imagine analyzing how teacher deployment (HR data) correlates with learning outcomes (exam data) – possible only if systems link).

The use of unique IDs and interoperability standards is a technical enabler that some countries have pioneered (Kenya, Rwanda, etc. with student IDs) and others should accelerate. Also, as noted in cross-country discussion, resilience and inter-sectoral use of data (education with health, etc.) are emerging needs – integrating EMIS in such cross-sector initiatives ensures education data contributes to broader development efforts and benefits from them (e.g., linking to a civil registry can help track out-of-school children by comparing EMIS and census data). Ultimately, a well-integrated EMIS enhances its value proposition and ensures it remains a central component of government data infrastructure.

By implementing these seven recommendations, national governments will address the core gaps identified – establishing solid policies, funding and staffing EMIS adequately, improving data quality, and – crucially – making sure the data is actually used to improve education management and outcomes. These steps will collectively move countries towards more effective, evidence-driven education systems.

8.2. RECOMMENDATIONS FOR THE KIX AFRICA 19 HUB, AU-IPED, AND REGIONAL PARTNERS

Regional actors (the KIX Africa 19 Hub secretariat, the AU's education bodies, and associated regional networks like ADEA, RECs, etc.) have a key role in supporting and incentivizing countries. The study suggests that leveraging regional cooperation can accelerate progress, by sharing knowledge, setting standards, and pooling

resources. The following recommendations target these collective actions at the regional level:

1. Facilitate Knowledge Exchange and Peer Learning on EMIS Policies and Systems: The KIX Africa 19 Hub, in collaboration with AU-IPED, should continue to expand forums and modalities for cross-country learning. Concretely:

2. Organize an annual (or biennial) “KIX Data Systems Summit” that brings together EMIS managers and policymakers from all 19 countries. Each country can showcase progress, innovations, and challenges – e.g., how Nigeria updated its policy, how Kenya implemented NEMIS, how The Gambia uses data for planning – and discuss common issues. Themes could include topics identified in this study: policy development experiences, digital EMIS solutions, data quality improvement, data use success stories.

3. Establish a peer mentorship or twinning program: Pair countries that have strengths in certain areas with those seeking improvement in that area. For example, Nigeria or Sierra Leone (with policy experience) could mentor Liberia or Malawi in drafting a policy; The Gambia (strong data use) could mentor others on creating data dashboards; Rwanda/Kenya (digital systems) could share with Ethiopia/Uganda transitioning to new systems. Facilitating study visits or virtual clinics where one country’s EMIS team advises another’s on specific technical issues would be highly beneficial.

4. Maintain and enrich the KIX digital repository or community of practice for EMIS (if not existing, create one): a platform where countries can post their EMIS policy documents, guidelines, tools, and datasets for others to access. This library, curated by KIX/AU-IPED, would prevent duplication of effort (countries can adapt templates from others instead of starting from scratch) and serve as a continuous knowledge base.

5. Host periodic thematic webinars or knowledge cafes focusing on targeted issues (e.g., one on EMIS for tracking inclusive education data, another on integrating EMIS with finance systems, etc.) and invite both country practitioners and global experts.

Rationale: Peer learning has shown tangible benefits; countries often prefer to learn from peers who faced similar constraints. Our analysis found multiple examples where cross-country knowledge influenced actions (like Somalia learning from other countries' policies, or many countries adopting DHIS2 after seeing it in neighbors). Formalizing and regularizing these exchanges will "accelerate adoption of best practices and avoid reinventing the wheel". Also, it builds a supportive community, as noted – EMIS teams can often feel siloed, but knowing they're part of an Africa-wide network boosts morale and motivation to improve. In sum, KIX and AU can amplify one country's success into regional gains through structured peer learning, making overall progress faster and more cost-effective.

8.2.1. DEVELOP A REGIONAL EMIS POLICY TOOLKIT AND GUIDELINES:

AU-IPED, in partnership with KIX and UNESCO (and perhaps UIS), should spearhead the creation of a comprehensive EMIS Policy Development Toolkit tailored to the African context. This toolkit should include:

1. A model EMIS policy template or outline, capturing essential components (definitions, roles, data standards, M&E, etc.) – basically a generic policy that countries can adapt. It can draw on the best of existing policies (e.g., Nigeria 2021, Sierra Leone draft 2023, etc.).

2. A checklist of essential EMIS policy elements (governance structure, financing, data quality protocols, open data provisions, alignment with AU norms, etc.) to ensure completeness.

3. Case studies or mini "best practice" write-ups from African countries for each key section (for instance, how one country addressed data privacy in policy, how another set up an EMIS steering committee, etc.).

4. Guidance on consultative policy development – how to engage stakeholders (teachers, local governments, etc.) in drafting an EMIS policy so that it's context-appropriate and implementable.

5. Once developed, translate this toolkit into major languages of the region (English, French, and Portuguese) and disseminate widely (both online via an EMIS knowledge hub and physically to ministries).

6. Offer orientation workshops on using the toolkit for ministry teams. Possibly integrate it into AU's capacity-building programs (e.g., a session in AUC workshops where countries plan how to use the toolkit in their context).

Rationale: Many countries express need for guidance in creating or updating EMIS policies. Right now, each country is somewhat on its own, which can be daunting and inefficient. A toolkit condenses lessons learned and provides a de facto standard that aligns with continental expectations (AU Norms & Standards, SDG4). This will fast-track policy formulation – instead of starting from zero, countries can use the toolkit as a starting point. It also helps ensure consistency and quality: policies will more likely cover all key areas if they follow the template checklist.

The translation and wide dissemination ensures accessibility (many technical guidelines exist only in one language and don't reach all). Essentially, this toolkit will be a practical instrument to operationalize Recommendation 1 (for governments to develop policies) by giving them the "how-to" and examples. By aligning it with Norms & Standards, it also subtly encourages countries to adopt those norms within their national frameworks.

8.2.2. PROMOTE ALIGNMENT WITH AU CONTINENTAL EDUCATION STRATEGIES AND NORMS:

The African Union, through IPED and the Department of Education, should use its convening and normative power to push EMIS higher on the political agenda and ensure coherence with continental goals:

1. In upcoming AU strategy documents (for instance, if CESA 16-25 is succeeded by a new strategy), include explicit targets related to EMIS – e.g., "By 20XX, all member states have an approved EMIS policy and meet AU EMIS Norms & Standards at least at basic level".

2. Continue to update and disseminate the AU EMIS Norms & Standards and encourage member states to formally adopt them at national level. Perhaps integrate reporting on Norms compliance into the AU's monitoring (so ministers know they will be asked about their EMIS status at AU meetings).

3. Establish some form of recognition or incentive: e.g., an annual African Education Data Award or acknowledgment for countries making significant EMIS improvements. This could be presented at the Conference of Education Ministers, giving political leaders something to strive for (and positive reinforcement when achieved).

4. Have AU-IPED coordinate with RECs (SADC, ECOWAS, EAC, etc.) to keep EMIS on regional meeting agendas and share progress updates, ensuring synergy rather than overlap of efforts.

Rationale: High-level endorsement and peer pressure from the AU can galvanize national political will. Our study noted that regional norms and peer reviews in early 2010s had spurred some policy drafting, but momentum waned. By integrating EMIS targets into continental frameworks and regularly discussing them, the AU can maintain momentum. A recognition program leverages leaders' desire for prestige; it can help turn what might seem a technical chore into a visible accomplishment (e.g., a minister being able to claim their country got an AU award for data improvement). This addresses a barrier identified – lack of sustained political focus – by injecting accountability and incentive at the continental level. Aligning EMIS with CESA and SDG4 also ensures that EMIS development isn't siloed but seen as foundational to achieving all education targets (no data -> no effective monitoring of any target). In short, these actions by AU and KIX will embed EMIS advancement into the core education development narrative of Africa, rather than a side issue.

8.2.3. SUPPORT REGIONAL CAPACITY BUILDING INITIATIVES FOR EMIS:

AU-IPED, KIX, and partners like UNESCO UIS should collaborate to strengthen human capacity through regional programs:

1. Organize a periodic EMIS Training Program or Summer School for member states' EMIS staff. This could be a 1-2 week intensive course covering topics such as advanced data analysis (maybe using real regional data sets), GIS mapping of schools, managing big data (like individual student records), and strategy development for EMIS. It should target both national EMIS managers and promising sub-national officers. This not only builds skills but also fosters a network among participants.

2. Consider establishing a regional pool of EMIS experts/consultants that can be deployed to countries on short-term assignments. For example, if a country is rolling out a new software or drafting a policy, KIX/AU can send an expert (perhaps a seasoned EMIS manager from another country or a regional consultant) to provide hands-on assistance. KIX could maintain a roster of such experts and coordinate requests.

3. Encourage south-south internships or exchanges: e.g., allow an EMIS officer from one country to spend a month with the EMIS team of a more advanced country to learn by immersion. KIX can facilitate and perhaps fund these exchanges.

4. Host specialized workshops on emerging areas: e.g., one on integrating EMIS with learning assessment data, another on data visualization and communication for policymakers, etc., inviting country teams that are focusing on those developments.

Rationale: While national capacity building is crucial (as recommended to governments), there's also efficiency in regional training – not all countries have domestic training programs for EMIS, so pooling resources to train multiple countries' staff together creates economies of scale. It also standardizes skills and approaches, which helps in regional data initiatives. A regional pool of experts can address the gap that many countries individually noted: lack of technical expertise. Instead of each waiting for international consultants, a regional pool (including African experts) can be more cost-effective and ensure context familiarity.

This will foster south-south cooperation, reducing reliance on outside consultants over time. It also builds a sense of collective mission – participants of a regional training or exchange often become champions and trainers back home, multiplying the effect. Essentially, this leverages regional collaboration to uplift the baseline capacity across countries, ensure new methodologies (like GIS mapping or advanced analytics) are understood widely, and mitigate the brain drain by creating a regional community of EMIS professionals.

8.2.4. PILOT AND PROMOTE CROSS-SECTOR DATA INTEGRATION AND INNOVATION:

The KIX Hub can act as an incubator for innovative projects that link education data with other sectors or new technologies:

1. Initiate a few cross-sector pilot projects where interested countries volunteer. For example, link education EMIS data with health data on children (to identify out-of-school children via immunization records) in a couple of countries, or integrate EMIS with civil registration to track school-age population not in school. KIX can provide technical and modest financial support, document the process and outcomes, then share the tools/results with all members for possible scale-up.

2. Explore establishing interoperability frameworks at regional level – e.g., developing standards for student IDs that could, in theory, be recognized regionally

(useful for tracking refugees or migrant students across borders). While ambitious, KIX can start dialogue on something like a common approach to unique IDs or data standards in Africa (building on existing initiatives around digital ID).

3. Compile and share “innovation spotlights” – e.g., if one country uses AI or machine learning to predict school dropout from EMIS data, or uses SMS for data collection in remote areas – share that story and possibly facilitate adoption in other contexts.

4. Encourage inclusion of EMIS components in multi-sectoral programs (such as those addressing child wellbeing, which involve education, health, social protection) – ensure KIX Hub links with other KIX hubs or initiatives to raise education data’s profile as part of holistic approaches.

Rationale: Many education challenges overlap with other sectors (child labor, health, demographics). Our study suggests innovation is happening (though slowly) in integrating EMIS with other systems. KIX, with its innovation mandate, is well placed to pilot and demonstrate high-impact integrations that any single country might not undertake alone due to risk or technical complexity. By leading a couple of demonstration projects, KIX can produce proof-of-concept that then can be adopted widely. This is aligned with the idea of a “data revolution” that many countries aspire to – KIX can help operationalize it by showing practical examples. For instance, if linking EMIS with civil registration dramatically improves identification of out-of-school children in two pilot countries, others will be keen to try. This proactive stance on innovation ensures the region not only catches up on basics but can leapfrog or address persistent problems in new ways. It also strengthens the case for EMIS, showing its value beyond just education ministry usage, reinforcing why governments and partners should invest in

8.2.5. MONITOR AND REPORT REGIONAL PROGRESS ON EMIS DEVELOPMENT:

The KIX Hub and AU-IPED should set up a mechanism to regularly track how countries are progressing on EMIS strengthening and publish these findings to maintain momentum:

1. Create a biennial “State of EMIS in Africa 19” report or scorecard. This document would summarize each country’s status on key indicators: existence of policy (yes/no, date), data coverage (e.g., % of schools reporting), data timeliness (how soon stats are released), data use (maybe qualitative assessment or proxy metrics), etc. It could incorporate the AU Norms & Standards evaluation results if updated, and any other relevant benchmarks (like SDG4 data availability).

2. Give each country a simple rating or dashboard (not to rank punitively, but to highlight areas of strength and weakness) and note improvements or regressions since the last report.

3. Disseminate this report widely: at AU meetings, KIX events, and publicly online. Encourage countries to use it domestically (e.g., it can feed into sector reviews or inform donor dialogues).

4. Use it as a tool to identify which countries need extra support (if a country is consistently lagging on, say, data timeliness or has no policy when others do, KIX/AU can prioritize technical assistance to them).

Rationale: "What gets measured gets done" applies to EMIS itself. Regular monitoring by a neutral body (KIX/AU) will keep EMIS on the radar of ministers beyond the lifespan of this study. Publicly reported comparisons can create a friendly competition and accountability – countries will be aware that their efforts (or lack thereof) are visible, which can motivate them to improve. It also helps direct resources: the KIX Hub can tailor its support based on the identified needs (scorecard shows most countries struggle with X, so KIX focuses on X in the next workshop). This approach parallels initiatives in other sectors. A biennial cycle is frequent enough to keep track but gives time for changes to occur. Ultimately, such a report would institutionalize this study's comparative analysis function – creating continuity and an evidence base to show whether regional efforts are making a difference (hopefully seeing the scores improve over time).

8.2.6. COORDINATE DONOR SUPPORT AND INVESTMENTS IN EMIS:

The KIX Hub and AU can play a convening role to improve coordination among development partners focusing on EMIS:

1. Establish or revive an Education Data technical working group at regional level (possibly under the umbrella of GPE or RECs) where major donors (GPE, World Bank, UNICEF, UNESCO, bilateral agencies) and government reps discuss their plans for EMIS support. The aim is to map who is funding what and ensure complementary efforts.

2. Encourage transparency and sharing of countries' EMIS improvement plans among donors. KIX could maintain a repository of country EMIS strategies and any assessments so that partners can align their project designs to these plans.

3. Through KIX events or communications, gently advocate that donors harmonize their indicators with national EMIS (for example, if multiple donors do separate surveys, push them to instead help strengthen the EMIS to get that data).

4. Possibly develop a common results framework for EMIS investments that donors could use (so all EMIS-related grants measure success similarly, making it easier to aggregate impact).

5. Encourage donors to funnel support to identified gaps and avoid duplication: e.g., if one donor is already providing hardware, another might focus on training, etc., under government coordination.

Rationale: We found that while donor support is an enabler, lack of coordination can lead to inefficiencies or parallel systems. By playing an honest broker role, KIX/AU can reduce fragmentation of efforts and ensure external funds are maximally effective. In practice, partners often welcome such coordination (it lowers their risk and ensures sustainability). The Education Data sub-group concept is not new (some existed under GPE Local Education Groups), but a regional push can revitalize it where dormant. If donors align with the regional frameworks (like Norms & Standards, the toolkit, etc.), countries will face consistent expectations and support. This addresses the barrier of piecemeal, project-bound progress by promoting a more programmatic, nationally-led approach to EMIS

By implementing these recommendations, the regional actors will create an enabling environment and direct support structure that reinforces and amplifies country-level efforts. It addresses systemic issues best tackled collectively – knowledge gaps, tool development, political prioritization, training capacity, innovation trials, monitoring, and donor alignment. This regional push is crucial to ensure that improvements happen not just in isolated pockets but across the board, and that no country is left behind due to lack of access to expertise or resources.

(Note: Many of the above regional actions are already partially in motion under KIX and AU initiatives – these recommendations seek to bolster and target them to the specific needs identified in this study.)

8.3. RECOMMENDATIONS FOR DEVELOPMENT PARTNERS (GPE, UNESCO, UNICEF, WORLD BANK, BILATERAL DONORS, AND OTHER EDUCATION PARTNERS):

Development partners play a significant role through funding, technical assistance, and policy dialogue. To ensure their efforts effectively support EMIS development

(and avoid unintended fragmentation), the following recommendations are directed at aligning partner support with country needs and our study's findings:

1. Integrate EMIS Strengthening into Education Sector Programs and Grants: Donors should systematically include dedicated components for EMIS/data system strengthening in the education projects and grants they support. For example:

2. GPE grants and World Bank projects should allocate a portion of funding specifically for EMIS – whether it's updating policy, upgrading software, training staff, or improving data quality processes.

3. Even projects not primarily about data (e.g., a girls' education project or a learning improvement project) should include activities to ensure data on those focus areas are captured in EMIS (instead of building standalone monitoring systems).

4. Humanitarian or vertical programs (like those for refugees or specific regions) should plan to feed into and use the national EMIS rather than create parallel databases.

5. Partners should coordinate with government to make sure these EMIS investments align with the country's own EMIS strategy or gaps (following the coordination recommended above).

Rationale: This mainstreams EMIS development as part of overall education improvement, avoiding the pitfall of treating EMIS as a separate silo. Our study showed that many improvements occurred when there was targeted donor support, but often that support was time-bound and not integrated with sector plans. By ensuring every major program also strengthens the data systems, partners help create lasting capacity beyond the life of individual projects. It also ensures that new initiatives (e.g., on quality or equity) have data to measure their progress by strengthening EMIS accordingly. As noted, not creating parallel systems is crucial – integration into EMIS from the start prevents fragmentation. Ultimately, this makes improvements more sustainable and scaling easier (since enhancements funded by one project remain useful for others).

8.3.1. PROVIDE TECHNICAL ASSISTANCE FOR EMIS POLICY FORMULATION AND REVISION:

Agencies like UNESCO (UIS and IIEP), UNICEF, and bilateral technical assistance programs should proactively offer support to countries in drafting, reviewing, or operationalizing EMIS policies. This can include:

1. Deploying or financing experts to work closely with ministry teams on policy development (as some have done in Somalia and Sierra Leone).

2. Facilitating inclusive policy consultation workshops (partners can fund and provide expertise in running these, ensuring sub-national voices, etc.).

3. Reviewing draft policies and providing feedback or sharing international examples for reference.

4. Helping translate complex concepts (like data privacy, open data) into feasible policy language relevant to the local context.

5. In countries with language barriers or limited capacity, actually drafting sections in collaboration with officials, and then building local understanding of them.

Rationale: Many ministries have limited experience crafting such policies, as evidenced by delays or reliance on outdated frameworks. External TA can accelerate policy development while also building local capacity (if done participatorily). Our study indicates this is a need – partners often wait to be asked, but a recommendation is to be more forward in offering this TA, given the importance of policies.

Ensuring policies are well-crafted and locally owned will provide a strong foundation for all other improvements. It also ties with partner goals (since a good policy will help coordinate future support more effectively). This assistance has shown success in examples like Nigeria (the 2021 revision had inputs from UNICEF and others) and Sierra Leone's draft (with external expert help). Continuing and expanding such support is critical especially for those countries in our list still lacking policies or with very old ones. Partners should view policy support as a capacity-building exercise, leaving behind enhanced skills in policy analysis among ministry staff.

8.3.2. INVEST IN SCALABLE EMIS TECHNOLOGIES AND INNOVATIONS:

Donors and international organizations should fund and support the piloting and scaling of appropriate EMIS technologies and innovative solutions, focusing on sustainability:

1. Provide financing and expertise to deploy open-source EMIS platforms (like OpenEMIS, DHIS2, etc.) where suitable, including covering initial hardware needs (servers, tablets) and customization of software. But ensure that along with tech delivery, there is training and a maintenance plan.

2. Support innovations for hard-to-reach areas, such as SMS or USSD-based data reporting from schools with no internet, or solar-powered devices for data entry in off-grid schools.

3. Fund the integration of GIS mapping into EMIS (e.g., providing GPS devices or training to geotag schools and create interactive maps).

4. Introduce analytic tools like dashboard software, and possibly AI tools for data analysis, with the caveat of building local capacity to use them.

Rationale: Technology, when well-implemented, can greatly enhance efficiency and data timeliness. Many countries want to modernize EMIS but lack upfront capital or expertise – donor investment can bridge that gap. We saw positive impact where such support happened (e.g., donor-funded introduction of NEMIS in Kenya, OpenEMIS in several countries). However, the recommendation emphasizes open-source and sustainability – we observed past instances of expensive solutions that fell apart after project ended. Partners often have a comparative advantage in knowing "what works elsewhere" and can help countries avoid costly mistakes by sharing lessons (e.g., problems with certain proprietary software in other regions).

By focusing on scalable and maintainable solutions, partners ensure their investment doesn't become shelfware. The push for innovation (like mobile data collection or GIS) addresses some specific data gaps identified (e.g., difficulty capturing data from remote areas, lack of spatial analysis of education data). As technology evolves, partners should help countries leapfrog where possible (but responsibly), for instance supporting moves to cloud-based systems which can reduce infrastructure burden if appropriate. The key is aligning tech with country capacity – donors should provide initial support but also ensure transfer of knowledge so countries own the technology post-project.

8.3.3. EMPHASIZE DATA USE AND CULTURE CHANGE IN PROGRAMS:

Development partners should go beyond hardware and software, and design their support to also foster a culture of data use within ministries:

1. Include activities such as leadership training on data-driven decision making for senior education officials in the projects they fund. This might involve workshops or even study tours for policymakers to see how data is used effectively elsewhere.

2. Support the creation of annual education sector performance reports that use EMIS data (perhaps funding a consultant to help ministry analyze and publish user-friendly reports) and encourage that these are discussed in Joint Sector Reviews.

3. Encourage transparency initiatives, such as helping governments publish data online or in citizen-friendly formats (infographics, summary briefs).

4. Sponsors south-south learning where officials from one country see another country's data use in action (e.g., fund a visit for planners from Country A to observe how Country B conducts an evidence-based annual review).

5. In policy dialogue (like GPE's requirements or World Bank's disbursement indicators), integrate metrics or conditions that encourage data use – e.g., a requirement that the Ministry produce a statistical yearbook and use it in planning as a trigger.

Rationale: Changing organizational culture around data is a slow but vital process. Partners, through both funding and policy influence, can accelerate it by making data use not an afterthought but a core part of what they emphasize. Our study noted weak data utilization as a major issue; even with good systems, if they aren't used, the ROI is lost. Donor projects often focus on outputs (policy drafted, software installed) rather than outcomes (data actually informing decisions).

By shifting some focus to outcomes like "annual review held using EMIS data" or "education data published and discussed publicly," partners can encourage governments to follow through beyond data collection. Also, donors engaging in dialogue can model data use – e.g., referring to EMIS stats in meetings with government – subtly signaling its importance. Encouraging a culture of data use aligns with donors' own focus on results

8.3.4. ALIGN SUPPORT WITH CONTINENTAL AND REGIONAL FRAMEWORKS:

Donors should ensure their assistance reinforces the African Union's EMIS norms and regional initiatives and contributes to regional knowledge sharing:

1. When planning EMIS-related support, reference the AU EMIS Norms & Standards as a checklist – e.g., if funding an EMIS project, ask “does this cover all key areas AU recommends – data quality, utilization, etc.?”.

2. Encourage that results from donor-funded pilots or research be shared via the KIX Hub or AU platforms (e.g., if a donor sponsors a new tool in one country, ensure the findings and tool are presented regionally).

3. Support AU-IPED or KIX secretariat as needed (financially or technically) so they can carry out their coordination and capacity-building roles (e.g., donors might fund the creation of the toolkit or sponsor the annual data summit).

4. In countries, donors should try to speak with one voice about data: e.g., at a Local Education Group meeting, multiple partners should back the message “we need an EMIS policy” if that’s a known gap, reinforcing its importance.

Rationale: This fosters coherence and avoids fragmentation from the top down. Our study saw that external support sometimes follows global templates that might not fit local context – aligning with African frameworks ensures relevance and continental buy-in. It also means partners are not imposing separate agendas but are seen to be supporting the continent’s own priorities. Strengthening regional institutions (like AU-IPED’s observatory role for EMIS) through donor support is an investment in long-term indigenous capacity to maintain EMIS improvements after donor projects end. Ultimately, alignment increases impact: if all partners channel efforts in a coordinated way, covering all needed aspects as per Norms & Standards, countries get a comprehensive support package rather than piecemeal help. It also sends a consistent message to governments, which helps in prioritization. Coherence at the regional level built by donors translates to stronger, unified encouragement for countries to do the right things (like policy, capacity building, etc. that we have recommended).

8.3.5. BUILD STRONG M&E FOR EMIS INVESTMENTS:

Development partners should apply rigorous monitoring and evaluation to their own EMIS support efforts, focusing on outcomes:

1. Include indicators not just for immediate outputs (e.g., “EMIS policy drafted” or “system installed”) but for outcomes like “education statistics published within X months of census” or “annual statistical report utilized in Joint Sector Review”.

2. Regularly review with government why certain targets might not be met (if EMIS improvements stall, identify whether due to lack of training, etc.) and adjust support accordingly.

3. Encourage joint government-donor evaluation of EMIS strengthening initiatives to ensure lessons are learned and disseminated.

4. Essentially, hold both donors and governments accountable for the results of EMIS investments – make it a two-way accountability (donor provides resources, government implements and together they check if goals were achieved).

Rationale: This ensures that investments lead to tangible changes and keeps focus on continuous improvement. Often, once hardware is delivered or training done, projects consider it done; but if data completeness or timeliness doesn’t improve, then objectives haven’t been met. M&E that tracks those kinds of outcomes will highlight if support needs reorientation. It also sends the message to governments that donors are serious about seeing improved data and not just doing a checklist activity. Given our study’s emphasis on outcomes (like better data use), this approach by donors would reinforce that shift (partners would be looking for evidence of data use as success). It will also contribute to the regional monitoring recommended – if donors publicly share their M&E results, that feeds into the bigger picture of where progress is being made or not and why.

8.3.6. CIVIL SOCIETY AND ACADEMIA IN EDUCATION DATA INITIATIVES:

Partners should consider supporting non-governmental actors to utilize EMIS data for social accountability and research:

1. Provide small grants or capacity-building to civil society organizations (like national education coalitions, NGOs) to analyze and use EMIS data in their advocacy and oversight roles. For example, an NGO might produce a citizens' education report card using EMIS stats on teacher deployment or infrastructure gaps, highlighting equity issues.

2. Support academic research using EMIS data, possibly through funding education policy research centers or universities to conduct studies (this not only yields insights but often points out data quality issues which can be fed back into system improvements).

3. Encourage (and perhaps fund) initiatives that disseminate EMIS data to communities, like local language summaries of key indicators, or public forums where data is discussed.

Rationale: A vibrant ecosystem of data use beyond the ministry creates bottom-up demand for data quality and transparency. Our analysis suggests that trust in data and a culture of use benefits when multiple stakeholders engage with the data. If communities and CSOs start using and expecting data, governments will feel pressure to maintain and open up EMIS (and are less likely to neglect it). Partners supporting CSO involvement aligns with broader governance goals (social accountability). Some countries have examples (e.g., Uganda's civil society did an analysis on private schools using EMIS data to argue for policy changes; in other places, NGOs monitor budget vs. enrollment to flag resource disparities).

Encouraging these roles complements the formal system's efforts by providing feedback loops and innovative uses of data. Also, academic involvement can spur innovation (e.g., a university might pilot a predictive model on EMIS data to identify dropouts, which the ministry can adopt). Ultimately, this addresses sustainability of data use – making EMIS not just a government tool but a public good that others use and value,

In conclusion, the recommendations above form a comprehensive approach: national governments are urged to create enabling policy and institutional conditions and invest in capacity and data use; regional bodies are to provide tools, standards, peer learning opportunities, and monitoring; and development partners are to align their support to fill gaps, promote innovation, and reinforce a culture of data-driven decision-making. If implemented in concert, these actions will transform the EMIS landscape in the KIX Africa 19 countries over the coming years.

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