

RESEARCH PAPER AND POLICY BRIEF

WHAT AN EMIS POLICY SHOULD LOOK LIKE FOR KIX AFRICA 19 COUNTRIES

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INTRODUCTION AND RATIONALE

Education Management Information Systems (EMIS) form the backbone of evidence-based planning and monitoring in education systems. Yet across the 19 countries of the GPE KIX Africa 19 Hub, the state of EMIS policy development is highly uneven.

Only roughly one-third of these countries currently have a dedicated national EMIS policy or legal framework in place. Notably, Nigeria was among the early adopters, with a National EMIS Policy introduced in 2007 and a comprehensive revision issued in 2021. Somalia, even amid a fragile context, achieved a milestone by validating its first EMIS policy in 2023. Sierra Leone similarly drafted a new EMIS policy in 2023 to guide its data systems. These cases illustrate growing recognition of EMIS's importance, but they are the exception rather than the norm.

Most KIX Africa 19 countries do not have a standalone EMIS policy document. Instead, many integrate EMIS-related objectives into broader education sector plans, ICT strategies, or general education laws (examples include Ghana, Kenya, Rwanda, and Uganda). A few countries (such as Eritrea, Liberia, South Sudan, Malawi, Mozambique) lack any formal EMIS framework at all, operating with ad-hoc guidelines or outdated plans. The absence of a formal policy often leads to unclear roles, fragmented data management, and inconsistent data collection practices. By contrast, countries with up-to-date EMIS policies tend to have clearer institutional arrangements, often establishing dedicated EMIS units or steering committees, and have even begun to address legal issues like data standards and privacy in their frameworks.

Why an EMIS Policy? In practical terms, an EMIS policy provides a unifying vision and structure for how education data is *collected, managed, protected, and used*. It establishes a legal mandate for data activities, which is crucial in ensuring all schools and stakeholders participate fully in data collection and reporting. The policy sets out roles and responsibilities for various actors (from schools up to the ministry and beyond), reducing duplication and confusion, a common problem in countries without such guidance. It also signals high-level commitment, which can elevate the priority of EMIS within the education sector. As seen in Nigeria, formalizing EMIS in policy helped decentralize responsibilities across federal, state, and local levels, clarifying who does what. In The Gambia, even without a formal EMIS law, strong leadership and internal directives have kept the EMIS functioning well; however, efforts are underway to formalize these arrangements, recognizing that institutionalization is needed to sustain progress.

Overall, the rationale for an EMIS policy is to ensure that data systems are not left to ad-hoc arrangements, instead, they become reliable, well-governed infrastructure that supports decision-making at all levels.

GUIDING PRINCIPLES FOR EMIS POLICY

An effective EMIS policy for African education systems should be underpinned by a set of guiding principles that reflect both global best practices and the on-the-ground realities observed in the KIX Africa 19 countries. These guiding principles include:

Clarity of Purpose and Roles:

The policy should unambiguously define the purpose of EMIS (to support evidence-based planning, resource allocation, and monitoring) and delineate the roles of all actors involved. Clear role definition helps prevent overlaps and conflicts. For example, Nigeria’s EMIS policy explicitly assigns data collection and management duties to specific levels (school, local government, state, federal), reducing duplication. When roles are unclear, as seen in some countries, multiple departments may collect the same data in parallel, leading to confusion and inefficiency. A guiding principle is therefore to establish clear ownership and coordination mechanisms for EMIS from the start.

Accountability and Enforcement:

The principle of accountability must be built into the policy. This means creating obligations for schools and other reporting units to provide accurate data, as well as mechanisms to enforce these obligations. In practice, few countries currently have laws that explicitly require schools or districts to submit data. However, informal enforcement can be effective – for instance, The Gambia issues annual directives mandating all private schools to submit their data, effectively ensuring compliance even without a formal law. The policy should ideally formalize such enforcement (e.g. linking school registration or funding to data submission) and outline consequences for non-compliance. **Data accountability** at all levels helps create a culture where data reporting is taken seriously, not seen as optional.

Quality and Integrity of Data:

A core principle is that data must be **accurate, complete, and reliable**. The policy should institutionalize data quality assurance processes as a priority, recognizing that decision-makers will only use data they trust. Building trust involves improving data accuracy (through training, verification, and audits) and being transparent about data quality issues. For example, if there are known issues with inflated enrollment figures, the policy might mandate annual data verification exercises or community validation pilots (as Eswatini and The Gambia have trialed by involving local PTA members to verify school enrollment counts).

A guiding principle is **“quality over quantity”** – better to have slightly delayed but verified data than fast data that is unreliable. This principle drives provisions in some existing policies; Nigeria’s 2021 policy, for instance, requires each state EMIS unit to validate a sample of school data for accuracy. By embedding quality checks into the routine (such as head teacher sign-offs and district inspector validations as tried in Uganda), the policy makes quality assurance an integral part of EMIS operations, not an afterthought.

Data Privacy and Security:

As education systems modernize, **protecting sensitive data** (on students, teachers, etc.) becomes paramount. An EMIS policy should align with broader data protection laws and include principles of confidentiality and privacy. Some countries in Africa have begun considering or enacting data privacy legislation that covers education data. Nigeria and Rwanda, for example, have started to look at data privacy in connection with EMIS as they modernize their systems.

A principle of **“do no harm” with data** ensures that while data is widely used, it is also safeguarded – access should be role-based, personal data anonymized when published, and strict rules in place to prevent misuse of information. This is particularly important as EMIS expands to collect individual-level data (student IDs, learning outcomes, etc.).

The African Union’s EMIS Norms and Standards also emphasize data security as a key standard, underlining that this principle is recognized regionally.

Inclusiveness and Equity:

The policy should commit to collecting and using data that covers *all* learners and learning settings, to ensure **no one is left behind** in education planning. In practice, many EMIS have gaps in data on marginalized groups – for instance, children with disabilities or those in non-formal education are often not fully captured. A guiding principle is to broaden EMIS coverage to include *all education sub-sectors and populations*, such as pre-primary education, non-formal education programs, private schools, and special needs education.

Some countries have begun moving in this direction: Uganda’s new data system added fields to capture disability status in response to equity goals under SDG4; Rwanda and Kenya have expanded EMIS to include pre-primary and TVET data. By making inclusiveness a principle, the EMIS policy ensures data is disaggregated (by gender, region, disability, etc.) and that every type of learner is represented in the statistics. This aligns with continental commitments like the AU’s CESA which stresses equitable education monitoring.

Use-Driven and Demand-Driven Data Culture:

Perhaps the most important principle is that EMIS exists not just to collect data, but to **enable action**. An EMIS policy should promote a *culture of data use* within the education system. This means encouraging feedback loops (e.g. sharing analysis back with schools and districts), insisting that planning and budget decisions be backed by data, and making data accessible to stakeholders (including the public) to create wider demand for quality data. In The Gambia, for example, the Ministry regularly shares EMIS data with Local Education Groups and other stakeholders, fostering transparency and use. Kenya has even developed an open education data portal (though with mixed success on updates).

The guiding principle is that **data has value only when used** – policies should include strategies for dissemination, training on data-driven decision-making, and perhaps mandates that certain decisions (like resource allocation or policy reviews) explicitly reference EMIS findings. Over time, this helps shift the mindset from compliance (“we collect data because we have to”) to utility (“we collect data because it helps us improve”).

Sustainability and Continuous Improvement:

Finally, an EMIS policy must be guided by the principle of sustainability – both financial and institutional. This means planning for local funding, capacity development, and technology updates so that the EMIS can evolve and endure beyond donor-funded projects or individual champions. The policy should frame EMIS as *core infrastructure* for education, worthy of regular investment like any other essential service. It should also establish that the EMIS will be continuously assessed and improved (e.g. through periodic reviews or incorporating new indicators and technologies).

Few countries formally monitor their EMIS’s own performance (like data timeliness or usage rates), but a sustainable approach would include such meta-monitoring to drive ongoing enhancements. In essence, the policy’s principles should commit to learning and adapting: using internal evaluations, peer reviews, and technology opportunities to refine the EMIS over time. This future-oriented principle ensures the EMIS stays relevant and robust in changing times (including responding to crises that disrupt data collection, or harnessing innovations like mobile data gathering when feasible).

These guiding principles set the foundation for what an African EMIS policy should encompass. With them in mind, we now turn to the core components that operationalise these principles within a policy framework.

CORE COMPONENTS OF AN EMIS POLICY

An EMIS policy document typically contains several core components or sections that together provide a comprehensive framework. Based on the findings from the KIX Africa 19 study, the essential components of an EMIS policy for African countries should include at least the following:

Legal Mandate and Policy Foundation

A fundamental component is the legal mandate for EMIS operations. This section of the policy establishes the authority of the Ministry of Education (or relevant agency) to collect education data and manage the EMIS. It should clearly articulate that all education institutions (public, private, at all levels) are required by law or policy to submit timely and accurate data to the EMIS. By giving EMIS a legal footing, the policy moves data collection from an informal request to an official obligation.

Education Law or Policy Reference

In some countries, this mandate is embedded in an Education Act or Statistics Act. For instance, a few nations have clauses in education law requiring schools to provide data or parents to register children in school. The EMIS policy should either reference such existing legislation or propose new regulations to fill gaps. If no law exists, the policy itself serves as the directive that defines EMIS responsibilities.

Scope and Coverage

The legal mandate section should define the scope of EMIS – which sub-sectors of education are covered (primary, secondary, tertiary, TVET, non-formal, etc.), and the types of institutions (including private and community schools). Lack of formal mandate often leads to patchy coverage, such as omission of private schools or non-formal centers. The policy must close these loopholes by stating clearly that *all* providers of education must report data. For example, The Gambia's practice of issuing circulars to private schools ensures their inclusion; a policy can codify this by requiring that operating licenses for private schools be tied to data reporting compliance.

Data Standards and Definitions

A robust policy includes a legal or official endorsement of standardized definitions and indicators used in EMIS. Common statistical standards ensure consistency across the country and over time. By adopting or referencing standards (like UNESCO's definitions for dropouts, completion rates, etc., or the AU EMIS Norms & Standards), the policy gives them weight of authority. This component might also mention data privacy provisions, especially if a data protection law exists nationally.

In summary, the legal mandate and foundation component legitimizes the EMIS, compelling participation and setting the broad rules of the game. Without this, as observed in some KIX countries, EMIS activities can be easily ignored or under-prioritized due to lack of formal standing. A clear legal mandate thus addresses that gap by formally anchoring EMIS in the education governance framework.

Governance and Institutional Arrangements

This component outlines governance structures for EMIS and how it is embedded in institutional arrangements. Good governance is critical to avoid fragmentation, duplication, and mismanagement of data processes. Key elements include:

Lead Agency and EMIS Unit Placement

The policy should specify which entity has overall responsibility for EMIS. In all KIX 19 countries, this is typically the Ministry of Education (MoE) or an equivalent national education authority. Within the MoE, EMIS often resides in the Planning or Policy department or sometimes under an ICT unit. The policy should confirm the *organizational home* of EMIS and ideally elevate its status (e.g. establishing a dedicated EMIS department or unit if not already

existing). The creation of an EMIS division, as Sierra Leone did as part of its draft policy implementation, is a good example of formalizing the unit responsible.

EMIS Steering Committee or Coordination Forum

Effective EMIS requires coordination across different departments (e.g., planning, inspectorate, ICT, finance) and sometimes across ministries. The policy should establish an **EMIS Steering Committee** or a similar high-level committee that brings together key stakeholders regularly. Such committees have been recommended and, in some cases, implemented: Ethiopia convenes an EMIS Technical Working Group with various departments and partners to advise on data issues; Nigeria’s policy also called for a national EMIS Steering Committee to improve interdepartmental coordination.

In countries without a formal committee, work often happens in silos, which leads to problems like separate databases (for exams, teacher management, etc.) that don’t talk to each other. The policy should therefore mandate a coordination mechanism (with clear terms of reference and meeting frequency) to break these silos. This ensures that, for example, the statistics office, inspectorate, and education planners are aligning their data efforts instead of duplicating them.

Roles & Responsibilities of Various Bodies

Building on the legal mandate, the governance section should detail who is responsible for what in the EMIS process. This includes the role of schools (collecting and reporting data), district or regional education offices (compiling and validating data from schools), the central EMIS unit (managing the national database, analysis, reporting), and any cross-cutting bodies like a National Statistics Office (NSO) or other ministries.

For example, if the Ministry of Finance or Local Government has roles in funding or overseeing schools, their data responsibilities should be articulated. We learned that involving the NSO can help align education data with national statistical standards. Some countries already practice this: Eritrea’s NSO advises on survey alignment; The Gambia and Zambia work with their statistics bureaus for population data used in projections and mapping.

The policy should institutionalize such collaboration, perhaps via an MoU between the Education Ministry and NSO (as recommended to formalize roles). In federal or decentralized systems, the policy must clarify the distribution of EMIS responsibilities between central and sub-national governments. Nigeria’s policy, for instance, delineates responsibilities at federal, state, and local levels explicitly, recognizing the need for state EMIS units to feed into a national system. Without clarity, turf wars or gaps emerge (e.g., if both a planning department and an ICT department think they should manage EMIS tech, causing conflict). Thus, the governance section should leave no ambiguity on “who leads and who supports” each part of the data chain.

Accountability and Oversight

To ensure the governance structures function, the policy can assign oversight roles. For example, it might state that the EMIS Steering Committee will report annually on EMIS performance to senior ministry officials or even Parliament. It could empower the EMIS unit with authority to enforce data standards and deadlines across departments. Where multiple ministries are involved in education (e.g., separate ministry for higher education as in Sierra Leone or TVET), the policy should set a framework for coordination among them to produce a **unified education data system**.

Sierra Leone identified this need – its policy aims to bridge data gaps between basic and higher education authorities. In summary, governance provisions ensure that there is an **institutional backbone** supporting EMIS – clear leadership, a forum for coordination, defined roles for each actor, and oversight mechanisms to keep everyone accountable. Countries with such arrangements (often those with formal policies) tend to have more organized and effective EMIS, whereas those lacking them report fragmentation and inefficiencies.

Data Quality Assurance

Given that data quality is a universal challenge, a sound EMIS policy must explicitly include data quality assurance (QA) measures. This component details how the education system will ensure that the data collected is accurate, complete, consistent, and timely. Key sub-elements include:

Standardized Data Collection Procedures

The policy should mandate the development and use of standard data collection instruments (forms or digital templates) and accompanying manuals/training. All schools and districts should follow the same definitions and procedures when reporting data. For example, the policy might require annual training on how to fill out EMIS forms and define indicators (so everyone understands what counts as “dropout” or “textbook availability” uniformly). This reduces variability in understanding and common errors. Many countries already produce EMIS guidelines; the policy can formalize this practice and ensure it is continuous.

Data Verification and Audit Mechanisms

A critical policy element is to institutionalize data verification, not leaving it to ad-hoc efforts. This could involve **sample audits** where a percentage of schools’ data is cross-checked each year. For instance, Nigeria’s EMIS policy mandates that each state EMIS team validate data from at least 10% of schools in their jurisdiction. The policy component can stipulate that every district or region conducts on-site or phone verification for a sample of schools, and that findings are reported (e.g., discrepancies must be corrected).

Some innovative approaches can be encouraged: using local community members to validate enrollments (piloted in Gambia and Eswatini) has shown promise in catching inflated figures. The policy might endorse such community or third-party validation in areas where trust is low. Another tool is **headteacher certification** – Uganda introduced a rule that headteachers must sign off on their submitted data and inspectors then verify a portion, adding accountability at the school level. The EMIS policy can make this a norm: data should not just be sent upward unchecked, but validated and signed at each administrative level.

Data Quality Metrics and Monitoring

To manage quality, one must measure it. The policy should establish key data quality indicators (e.g., percentage of schools reporting on time, error rates in submissions, completeness of key fields) and require regular monitoring of these indicators. Unfortunately, very few countries currently have formal M&E for their EMIS processes. The policy can fill this gap by saying, for example, “The Ministry will track and annually report on EMIS performance indicators such as timeliness of data collection, response rates, and publication delays.” South Africa (outside KIX 19) had a scorecard for data timeliness; such practices could be emulated through policy mandates. By embedding these metrics, it encourages continuous improvement – if a district had only 80% of schools reporting last year, targeted actions can be taken to reach 100%.

Use of Technology for Quality Control

Modern EMIS software often includes built-in validation rules and error flags. The policy should encourage utilizing such technology to enhance quality. For example, GIS coordinates can be used to detect if any populated areas lack a reported school (implying missing data). Databases can flag outliers (like a school reporting 500% increase in enrollment) for review. The policy might stipulate that the chosen EMIS platform must have these validation features turned on, and that data managers review automated error reports after each data collection cycle.

Additionally, technology like mobile data collection can include validation (forcing certain fields or ranges). The overarching idea is to **reduce manual errors** (transcription mistakes, etc.) by moving to direct data entry where feasible, and to systematically catch errors early. As noted, countries like Kenya and Rwanda that implemented direct school data entry saw fewer transcription errors, although they had to manage other issues like user training.

A policy that emphasizes tech-driven quality control will push the system toward more reliable data through modern means.

By codifying these QA practices, an EMIS policy ensures that data quality is not left to chance or only addressed when problems become too large. Instead, it becomes a routine, expected part of EMIS operations. This, in turn, builds confidence among data users, a crucial factor because, as noted in the study, one major reason officials avoid using EMIS data is doubt about its accuracy. A policy-driven commitment to quality is therefore foundational to the success of EMIS.

Human Capacity and Training

No EMIS can function without skilled people. Therefore, a core component of an EMIS policy must focus on capacity building and human resources for data management. The KIX Africa 19 research repeatedly highlighted human capacity gaps as a primary bottleneck in EMIS effectiveness. The policy should address this through:

Staffing Norms and Structure

The policy could specify a *minimum staffing structure* for EMIS at national and sub-national levels. For instance, it might state that “each District Education Office must have at least one dedicated EMIS officer” and that the central EMIS unit will maintain a certain number of statisticians, data analysts, and IT specialists. In many countries, EMIS units are woefully understaffed – sometimes just 2-3 people managing data for the whole country. Such minimal staffing leads to burnout and data issues. Nigeria and Rwanda, with formal policies/strategies, have begun increasing staff or dedicating budget lines for EMIS personnel. The policy can legitimize requests for more staff by making it an official requirement tied to system size (e.g., one EMIS officer per X schools or per region).

Training and Professional Development

The policy should mandate ongoing training programs for EMIS personnel at all levels. This could include annual training workshops on data collection procedures, database management, statistical analysis, and use of new EMIS tools. Additionally, a “**training of trainers**” approach can be institutionalized: national experts train provincial/district staff, who then train school-level staff, as was recommended and practiced in some contexts. Such cascading builds local capacity. The policy may also encourage partnering with local universities or institutes to create formal training modules or certifications in EMIS.

A standout example is The Gambia, which has reportedly introduced a specialized Master’s program in EMIS/data science. The policy can cite or support similar initiatives – e.g., offering scholarships or bonding for staff to attend advanced training, in exchange for serving in the ministry afterward. By formalizing training expectations (like “EMIS staff must undergo at least one capacity-building course per year”), the policy helps ensure skills keep pace with changing technology and methodologies.

Retention and Incentives

High turnover of skilled staff is a recurring problem, as data teams often lose members to better-paying jobs, derailing progress. An EMIS policy can outline strategies for retaining talent. This could include creating clear career pathways for EMIS officers (promotions, titles reflecting senior data roles), offering recognition or awards for strong performance (such as innovative use of data or high data quality), and implementing bonding agreements for staff who receive extensive training (to serve a minimum period).

Additionally, the policy might propose non-monetary incentives: for example, publishing an “EMIS performance league table” of regions might motivate local officers, or giving special mention to districts that consistently submit timely, accurate data. While such details might be operational, including the intent in policy signals that **people are a priority**. The KIX study notes that without dedicated, capable staff, even the best systems falter – many countries cited that when a key EMIS person leaves, knowledge is lost and momentum stalls. Therefore, a policy that values

human capacity will advocate for measures to treat EMIS staff as important professionals within the education sector.

Community and School-Level Capacity

Capacity building isn't just for ministry officials. The policy should consider training for headteachers and school clerks who actually fill in the data, as well as district officers who supervise them. It might require that every year, prior to the annual census, all school heads are briefed on any updated indicators or common mistakes. Some policies also encourage data literacy among school managers, so they can use their own data. In this way, capacity building cascades down to the grassroots, which is where data originates. As noted, limited IT skills at school level can hinder digital EMIS rollout, so the policy could mandate introductory computer training for school data focal persons in tandem with digital system introduction.

In essence, this component of the EMIS policy ensures that alongside the hardware and software, the "humanware" is developed. By formally planning for training and retention, it addresses one of the most stubborn challenges: the lack of enough skilled hands on deck to collect, clean, analyze, and use data effectively. It transforms what might otherwise be an afterthought (sending staff to a workshop if a donor funds it) into a systematic, budgeted part of the EMIS program.

Financing and Sustainability

One of the clearest findings from the KIX 19 study is that sustainable financing is vital for EMIS success – and often lacking. Thus, a dedicated section in the EMIS policy should focus on how the EMIS will be financed and sustained over time:

Dedicated Budget Lines

The policy should advocate for a specific budget allocation for EMIS within the national education budget. In many countries, EMIS costs are buried under general planning or statistics budgets and tend to be underfunded. The policy can stipulate that the Ministry of Education establish a line item for EMIS operations (data collection, system maintenance, staff training, etc.). For example, Nigeria's federal education budget, after its policy, reportedly now includes a distinct line for EMIS activities – even if small, it's a notable step. The policy could set targets, like "allocate at least X% of the education budget to EMIS" or ensure incremental increases over time. A recommendation from the study suggests aiming for **0.5–1% of the education recurrent budget** to be dedicated to EMIS. This kind of concrete target can be adopted in policy as a goal for planners and advocated during budget negotiations.

Domestic Funding over Donor Reliance

Many African countries' EMIS improvements have been funded by donors (e.g., a grant provides computers or builds a new data system). While helpful, this often leads to boom-and-bust cycles – when the project ends, activities stall due to lack of local funds. The policy should explicitly emphasize **sustainable domestic financing**, encouraging governments to gradually assume costs currently covered by external partners. It may call for creating an EMIS investment plan that shows how donor funds will be matched or replaced by government funding over a certain period.

The rationale, as found in the study, is that only with predictable domestic funding can EMIS operations continue uninterrupted and improvements be maintained. For instance, the study notes that Kenya's government funding of its NEMIS platform was crucial in rolling it out at scale. Similarly, countries that allocated part of their GPE grants to EMIS saw immediate improvements, but the trick is to keep those going once the grant is spent. A policy commitment to funding helps in advocacy with the Ministry of Finance by framing EMIS as *essential infrastructure* for the education system, not a one-off project.

Cost Elements and Funding Uses

The policy can outline what needs funding: e.g., **routine data collection costs** (printing forms, transporting them or supporting electronic data submissions), **ICT infrastructure** (servers, software licensing or development, internet connectivity for schools), **capacity building activities** (trainings, workshops), and **data dissemination** (publishing annual reports, maintaining data portals). By enumerating these, it ensures planners remember to budget for all facets. For example, something as mundane as fuel for motorbikes or vehicles to deliver forms to remote schools can be a major blocker if not budgeted – stakeholders mentioned scenarios like “no fuel to go to schools for verification” due to budget constraints. A good policy would explicitly mention supporting field monitoring and verification exercises financially.

Leveraging Donor and Partner Support Strategically

While domestic funding is primary, the policy should also set guidelines for engaging with donors in a way that builds sustainability. It might encourage alignment of donor projects with the national EMIS strategy (to avoid duplicative parallel systems). It might state that any externally funded EMIS initiative must include a handover or capacity-building component. For instance, if a partner is providing tablets for data collection, the policy could require that a maintenance/replacement plan be in place post-project. The KIX report noted fragmentation when donors each build separate data systems – a policy can mitigate that by insisting on government leadership and integration of such efforts. Additionally, the policy could call for exploring innovative financing (maybe public-private partnerships for ICT infrastructure, or cost-sharing with other ministries when data systems are integrated).

The financing component essentially answers the question: how will we pay for all the good things outlined in this policy? Without this, policies risk being unimplemented wish-lists. By contrast, integrating financing strategies (and commitments) increases the policy's credibility and impact. It tells both government and partners that EMIS is a priority worth funding consistently. Indeed, an oft-repeated recommendation is to move EMIS funding from project-based to program-based – making it part of normal government operations. A strong policy makes that shift possible by laying the groundwork for budgetary support and accountability.

ICT Infrastructure and Digital Systems

In the 21st century, EMIS is heavily dependent on technology. A modern EMIS policy should therefore have a component addressing ICT infrastructure, systems, and innovation. This section covers how data is collected, stored, and managed using technology, and ensures that the system stays up-to-date and fit-for-purpose:

EMIS Platform and Software

The policy might specify the national EMIS platform or standards for it. For example, some countries have adopted *OpenEMIS (open-source software)* or *DHIS2 for Education* as their system (Sierra Leone and Somalia have piloted DHIS2-based EMIS, Lesotho and others tried OpenEMIS). Kenya built a custom National EMIS (NEMIS) launched in 2017/18. The policy could document the chosen system and emphasize commitments to maintain it (hosting, updates, cybersecurity). If the country hasn't chosen a specific system, the policy can at least set selection criteria – like it should allow for unique student IDs, online and offline modes, interoperability with other systems, etc. Importantly, if the EMIS is digital, the policy must ensure **data backup and security** protocols are in place (regular backups, data recovery plans), to protect against data loss or hacking.

Digital vs Paper Strategy

Many African countries are in transition from paper-based data collection to digital data entry. The policy should outline the **strategy for this transition**. For instance, it may set a goal like “By 2025, all secondary schools will submit data online, and by 2030 all primary schools will follow.” In interim years, it might adopt a hybrid approach. The study found that *all* KIX countries still conduct an annual school census, but the sophistication varies from paper surveys to full online systems. For example, Kenya's NEMIS allows schools to upload data directly online and assigns unique IDs to students. Rwanda has near-universal use of an online School Data Management system. On the other hand, countries like Liberia or Malawi still largely use paper forms and then enter data centrally into a database.

The policy should acknowledge the current state and lay out plans to leverage ICT more. This might include investing in computers or tablets for schools, improving internet connectivity for education offices, and providing alternative solutions for remote areas (e.g., offline data collection apps with periodic syncing, or using mobile phones where PCs are not available). Tanzania's experience with attempting real-time NEMIS updates showed that connectivity issues can impede direct data entry in some regions. A policy could thus support infrastructure expansion (rural internet, power supply) as part of EMIS improvement, possibly in collaboration with telecom ministries or using universal service funds.

Unique Identifiers and Integration

A forward-looking part of the ICT section is to incorporate **unique identifiers (IDs)** for tracking students, staff, and schools. Unique IDs enable data integration and longitudinal tracking (e.g., following a student's progress, linking exam results with enrollment data). Kenya's NEMIS introduced unique student IDs to eliminate “ghost students” and tie funding to actual enrolled students. Nigeria is working to link EMIS with the national ID number program.

The policy can mandate or encourage the assignment of unique codes to each school (if not already), and unique IDs to learners and teachers in the EMIS. Furthermore, it should encourage integration of EMIS with other information systems. This includes linking with exam management systems (to incorporate learning outcomes data), linking with education finance systems (to monitor resources alongside results), and even cross-sector integration like linking with civil registry for births (to help identify out-of-school children).

The AU's Norms & Standards and global trends emphasize interoperability – a policy might direct the Ministry's ICT units to adopt data exchange standards (e.g. Education Metadata standards or SDG4 data requirements) so that EMIS data can be easily combined with other datasets. Integration ensures that EMIS data doesn't live in a silo but contributes to a wider evidence base, which is increasingly important for holistic planning (education's links to demographics, health, etc.).

Maintenance and Technical Support

The ICT component should also plan for **maintenance**. Too often, systems are built but not maintained (servers break down, software becomes outdated). The policy might establish that an annual budget allocation is made for

EMIS hardware/software maintenance (as mentioned earlier in financing). It might require that the Ministry retain or contract necessary IT expertise to support the EMIS (troubleshoot the database, develop new features, etc.). And it could encourage exploring new cost-effective technologies like cloud hosting (some countries may find cloud-based EMIS reduces the burden on local infrastructure, as long as data security is addressed). Also, as technology evolves, the policy should allow for **innovation pilots** – e.g., piloting mobile data collection apps, using satellite data for mapping schools, etc., with the view that successful pilots be scaled.

In summary, the ICT Infrastructure component is about ensuring the EMIS is built on a strong technological foundation that can grow. Countries like Kenya, Rwanda, and The Gambia have demonstrated that digital systems can dramatically change EMIS capabilities (Kenya can compile data for millions of students and direct funding accordingly; The Gambia manages to produce reliable annual statistics with relatively limited tech by maximizing what they have). Meanwhile, countries with rudimentary or fragmented systems (like South Sudan or, until recently, Somalia) show what happens when ICT investment is minimal. A robust policy makes clear that leveraging technology is not optional but essential for a modern EMIS, and provides a roadmap for doing so in a way that is inclusive (covering all areas) and resilient.

Data Utilization and Dissemination

Collecting data is only half the battle; using it effectively is the ultimate goal. Therefore, a core section of the EMIS policy should focus on data utilization, dissemination, and feedback mechanisms. This ensures that the information produced by EMIS actually informs decisions and is shared with stakeholders:

Routine Use in Planning and Decision-Making

The policy can mandate that key planning processes must draw on EMIS data. For example, it might require that annual budget proposals or education sector plans include analysis of the latest EMIS indicators (enrollment trends, PTR, infrastructure gaps) as justification for resource allocation. Some countries already have policies stating that planning should be evidence-based, but culture change is slow. By formalizing it, there is a greater chance that over time every policy decision or new initiative in education cites relevant data (student-teacher ratios, learning outcomes, etc.). The policy might also call for the use of EMIS data in school management – e.g., requiring district officers to review data with school principals annually to develop improvement plans.

Publication of Annual Education Statistics

A standard deliverable of EMIS is the annual education statistical abstract or yearbook. The policy should commit to producing and disseminating this report every year (or every two years at most) and outline who should receive it. Many KIX countries do produce annual reports but with varying timeliness and distribution.

The policy could ensure **timely release** (e.g., “the annual report should be published within 6 months of data collection completion”) to keep data relevant. It should also emphasize broad dissemination: not just sending to donors, but making it available publicly (online, in print for libraries, etc.).

Transparency is key – by putting data in the public domain, it invites researchers, civil society, and local communities to engage with the information. Countries like Kenya, as mentioned, have an open data portal, and The Gambia shares data with local stakeholders regularly. These practices can be elevated to official policy so they continue consistently. Moreover, the policy might call for data to be disaggregated and *presented in user-friendly formats* (maps, infographics, etc.) to encourage use.

Feedback to Data Providers (Schools & Districts)

One reason schools sometimes are lax in reporting is that they **never see their data used or returned** to them in a meaningful way. The policy can introduce a feedback loop requirement: after data collection and analysis, each district or school should receive a summary of key findings or even a simple report card comparing their

performance to national or regional averages. This could motivate schools by showing them where they stand and that the data they provided turned into useful insights.

For example, if a district finds out its completion rate is below the national average, it might trigger local action. The policy could institutionalize this by stating that the EMIS unit will produce district-specific briefs or that planning officers must share analysis with school heads in meetings. Fostering this two-way communication makes data collection a more meaningful exercise for those on the ground, not merely a bureaucratic requirement.

Data Use at Decentralized Levels

The policy should encourage or require sub-national authorities to utilize EMIS data in their local decision-making as well. This might involve training local education officers in basic data analysis and interpretation (tying back to capacity building). It could also mean establishing *education management dashboards* at province or district level.

A good policy example is where local governments have access to EMIS data systems to monitor their schools (some countries allow provinces to directly view the EMIS database for their region, which can empower them). The policy might call for each region to hold an annual “data review meeting” to discuss what the numbers imply for their action plans. Essentially, it embeds data use practices at every level, making it a norm that any discussion of school performance, teacher deployment, or infrastructure needs starts with looking at the data.

Promoting a Culture of Data Use

Beyond mandates, the policy could outline strategies to cultivate a broader **data-use culture**. This could overlap with recommendations like creating incentives for data use (awards or recognition for evidence-based innovations), integrating data use into professional standards for school leaders, and working with teacher training institutions to include EMIS literacy in leadership programs.

The study underscored that changing organizational culture is slower and harder than changing systems. Thus, a policy can at least acknowledge this and set expectations that leaders champion data-driven management. For instance, it could state that “the Minister and senior officials will publicly share and discuss EMIS findings in annual forums,” thereby modeling data use from the top.

Linking Data to Accountability

One potent way to ensure data is used is to tie it to accountability systems. If a country has performance contracts or targets (say, under an education sector plan or results-based financing), the policy can ensure EMIS indicators are part of those measures. Kenya’s tactic of linking school funding to NEMIS enrollment data, while initially challenging, created a strong incentive for schools to make sure their data was complete.

A policy might not detail such mechanisms, but it could support the principle that verified data will be used as the basis for allocating resources or evaluating programs. This, however, must be done carefully to avoid perverse incentives (like manipulating data to get more funds), which again underlines why data quality and trust have to improve concurrently.

In summary, the data utilization component of the policy ensures that the massive effort of collecting EMIS data pays off in improved education management. It addresses a common weakness: many countries have collected data for years but not fully translated it into action or improvement. With explicit provisions, an EMIS policy can encourage a shift where data informs everything from high-level policy decisions to day-to-day management in schools. This creates a virtuous cycle: when stakeholders see data being used to make positive changes (like fixing a resource gap or highlighting a success), they are more likely to invest effort in providing quality data in the future.

IMPLEMENTATION AND MONITORING MECHANISMS

Having a well-crafted EMIS policy is only the beginning. The policy should also spell out how it will be implemented, monitored, and updated. This chapter focuses on the mechanisms for translating the policy into practice and ensuring it remains effective.

Policy Implementation Strategy

Phased Action Plan

The EMIS policy should be accompanied by or incorporate an implementation plan that breaks down the policy provisions into actionable steps, with timelines and responsibilities. This ensures that from the moment the policy is adopted, there is a clear roadmap. For example, if the policy calls for establishing an EMIS Steering Committee, the action plan would specify when it should be formed and who will initiate it. If the policy calls for introducing unique student IDs, the plan would outline pilot phases and expansion. By phasing activities (short-term, medium-term, long-term), countries can prioritize critical actions first (like securing funding and staffing, developing guidelines) and then move to more advanced ones (like integrating multiple databases). An explicit implementation section could even be an annex to the policy, but referencing it in the main text signals commitment.

Roles in Implementation

Just as the policy clarifies roles for routine EMIS operations, it should also clarify who oversees *implementing the policy itself*. Often, a task force or the EMIS Steering Committee might take charge of monitoring policy rollout. Ministries might designate a focal person or unit to coordinate implementation progress. The policy could mandate periodic implementation reports to senior officials or to a coordinating body (like AU or KIX if regionally linked). For instance, Sierra Leone’s draft policy development involved a wide group of stakeholders and now requires periodic review meetings to track progress – institutionalizing such practice in the policy can be beneficial.

Capacity and Change Management

Implementation will involve change – new processes, possibly new technology, and new expectations from staff. The policy should acknowledge the need for training around the new policy itself. For example, after adoption, workshops might be needed in each region to explain the new EMIS policy to education officers and school principals, so everyone understands the changes (such as stricter deadlines or new data elements to collect). Including a clause on dissemination and orientation for the policy ensures it doesn’t remain a document only read at the central level.

Monitoring & Evaluation of EMIS Performance

EMIS Performance Indicators

A standout insight from the KIX study was that very few countries systematically monitor how well their EMIS is functioning. An EMIS policy can fill this gap by establishing a **monitoring and evaluation (M&E) framework for the EMIS itself**. This means defining key performance indicators (KPIs) for the EMIS, such as: timeliness of data collection (e.g., “% of annual census data submitted by the deadline”), data completeness (e.g., “% of schools reporting all required indicators”), data accuracy (perhaps measured by discrepancy rates found in audits), usage metrics (like “number of downloads/views of the annual statistics report” or “number of data requests fulfilled”), and others. The policy can require that these KPIs be tracked annually and reviewed.

Regular EMIS Health Check or Audit

The policy might call for periodic external or internal assessments of the EMIS. For instance, a comprehensive **EMIS assessment every 3-5 years** could be mandated, to evaluate against international standards or benchmarks (such as the AU’s EMIS Norms & Standards). The AU’s 2018 assessment gave countries a score on various dimensions

(many KIX countries partially met criteria and had issues with data timeliness and use). If the policy commits to such evaluations, it ensures the system's strengths and weaknesses are regularly identified and addressed.

It could also tie into global monitoring: GPE (Global Partnership for Education) tracks whether countries have a functional EMIS in its results framework. Liberia's poor score in a GPE evaluation became an impetus for reforms. Knowing this, a policy could say: "The Ministry will conduct a biennial EMIS performance review, aligned with regional or global indicators, and publish the results." This fosters accountability – if a country publicly shows improvement or stagnation, it pressures action.

Reporting and Feedback Mechanisms

The M&E section should outline how monitoring results will be used. For example, if it's found that data collection was late in a region, what is the follow-up? Perhaps the EMIS Steering Committee reviews such cases and works with those regional directors to improve. Or if an audit finds inconsistencies, the policy could empower the Ministry to require corrective action plans from those responsible.

Another aspect is upward reporting: the policy could require an annual "EMIS performance report" delivered to the Minister or Cabinet, summarizing how well the EMIS met its targets and what challenges were encountered. This keeps EMIS on the agenda at high levels, preventing it from being a "set and forget" system.

Continuous Improvement Cycle

A good policy treats itself as a living document that might need updates. Thus, it can include a clause about **policy review** every X years - e.g.: "This EMIS policy will be reviewed and revised every 5 years to incorporate new developments and lessons learned." This ensures that as technology evolves, or as new data needs emerge (say, more focus on learning outcomes or on tracking 21st-century skills), the policy can be updated accordingly. It also means that if an implementation M&E finds certain provisions not working well, they can be adjusted in the next iteration. Including stakeholders (like sub-national officials, school representatives, and development partners) in that review process can make the policy adaptive and grounded.

Oversight and Governance for Implementation

High-Level Oversight

As mentioned earlier, establishing an EMIS Steering Committee is often recommended. In terms of implementation, such a committee (once formed) could also double as the oversight body for the policy rollout. The policy should detail its composition (e.g., department heads, maybe Ministry of Finance or NSO reps, partners) and mandate. For example, "The EMIS Steering Committee shall meet quarterly to review EMIS operations and policy implementation progress and advise on corrective measures."

Role of Regional/International Benchmarks

In monitoring, the policy can leverage external benchmarks for accountability. For instance, referencing that the country aims to comply with AU's continental EMIS indicators or to improve its UIS (UNESCO Institute for Statistics) data submissions. Rwanda and Kenya were highlighted as countries aligning their data collection to SDG4 indicator needs. The policy might explicitly mention SDG4 – e.g., that the EMIS will track the core global education indicators and annually report progress, feeding into global monitoring. This links national efforts to international commitments.

In short, this chapter on implementation and M&E ensures the EMIS policy does not gather dust on a shelf. By setting up clear mechanisms for executing the policy and checking on its outcomes, it closes the loop from planning to action to review. It also future-proofs the EMIS by establishing processes to regularly check its health and adapt as needed. The experience in the KIX countries shows that where such mechanisms were present (even informally), progress was faster; for example, peer review and learning

mechanisms helped countries like Somalia accelerate their policy development after seeing neighbors do so. A strong EMIS policy will formalize internal monitoring and encourage external peer accountability – which leads us to the importance of regional integration.

INTEGRATION WITH REGIONAL AND GLOBAL FRAMEWORKS

African education systems operate in the context of both regional and global education agendas. A forward-looking EMIS policy should explicitly connect with these broader frameworks to ensure alignment, relevance, and mutual reinforcement. Key frameworks include the African Union’s (CESA 16-25) and Norms & Standards for EMIS in Africa, as well as the global Sustainable Development Goal 4 (SDG4) monitoring requirements. This chapter of the policy would cover:

Alignment with AU’s Continental Strategy (CESA) and EMIS Norms

The African Union’s CESA 2016-2025 places emphasis on establishing efficient education management information systems as part of strengthening education management. Moreover, the AU developed a set of *EMIS Norms and Standards* that serve as a benchmark for member states. The EMIS policy should state the country’s commitment to adhering to these continental standards. This might mean including indicators or targets from CESA (for example, CESA’s aspiration that all countries have functional EMIS by a certain date, or that data is used for equity monitoring) and ensuring the policy’s content checks the boxes of the AU Norms (which cover areas like data timeliness, periodicity, coverage, etc.). The study found that many KIX countries were aware of these frameworks, but the degree of alignment varied. Rwanda and Kenya, which are active in international reporting, have made sure their EMIS collects data needed for SDG4 and presumably meets many AU standards. By integrating these into national policy, countries can improve coherence, essentially *speaking the same language* on data as their neighbors and continent.

SDG4 Indicator Integration

SDG4 (Quality Education) has a set of global indicators that countries are expected to track (covering access, completion, learning outcomes, equity aspects like gender and disability, and financing). A robust EMIS policy should ensure that the EMIS is capable of producing the data for those indicators, so the country can fulfill its global reporting commitments. That means including data areas that might not have been traditional – e.g., data on **learning outcomes** (like national exam results or assessment scores), **disability and inclusion** (e.g., enrollment of children with special needs, which Uganda added after SDG4 push), **early childhood education** (Lesotho expanded EMIS to ECE under SDG influence), and **education finance** (spending data, which many EMIS historically lacked). The policy can list which SDG4 indicators the EMIS will cover and commit to strengthening any weak areas. Additionally, it can mention coordination with national SDG reporting processes (to ensure education data from EMIS is used in the country’s SDG reports).

Reporting to International Platforms

The policy might encourage timely reporting to the UNESCO Institute for Statistics (UIS) and other bodies. Countries like Nigeria and Rwanda regularly submit data to UIS, reflecting more up-to-date information on global platforms. The benefit of this is not just international recognition; it also forces a country to maintain a certain standard and completeness of data. The policy could say, for instance, “The Ministry will annually update and submit key education indicators to the UIS and other relevant regional bodies (like AU’s IPED) to benchmark progress.” This keeps the country in good standing and allows cross-country comparison.

Peer Learning and Regional Initiatives

Integration is not only about indicators but also sharing *practices*. The KIX initiative itself is about cross-country exchange. The policy can acknowledge participation in regional networks or initiatives (like the ADEA's EMIS peer reviews, KIX Africa 19 Hub activities, SADC or ECOWAS education data groups if applicable). By pledging to engage regionally, the policy helps the country benefit from others' experiences and contribute its own. For example, Somalia's push to develop a policy was partly inspired by knowing that neighboring countries like South Sudan were planning theirs, indicating a healthy peer influence. A country's policy might thus say, "We will actively participate in AU and regional EMIS forums and adopt relevant best practices emerging from them." The recommendations from the KIX study suggest organizing annual forums where countries showcase progress (like Nigeria updating its policy, Kenya implementing NEMIS, The Gambia using data for planning). A national policy that commits to such exchanges signals openness to learning and external review.

Continental Monitoring and Scorecards

The AU has discussed creating an African Education Data Scorecard or similar mechanism. An EMIS policy can welcome or anticipate this by committing to provide data for any continental monitoring mechanism. If, for instance, the AU were to set a target that "by 20XX all member states have an approved EMIS policy and meet X out of Y Norms", a country with an EMIS policy already in place can aim to meet that and even surpass it. The policy could instruct its EMIS unit to track how the country rates against the Norms & Standards and address gaps identified.

Global Crisis and Resilience Linkages

Though not explicitly a framework, it's worth noting global events like the COVID-19 pandemic highlighted the need for robust data systems to manage crises (tracking school closures, remote learning, etc.). An integrated policy might mention building EMIS resilience to shocks in line with global discussions on educational data in emergencies. This ties with global frameworks around data and crisis response.

In essence, integrating with regional and global frameworks ensures that a country's EMIS policy is not developed in isolation. It leverages broader momentum and resources. Aligning with CESA means the country contributes to Africa's collective education goals (and can attract AU technical support); aligning with SDG4 means it contributes to and benefits from global knowledge and funding aligned to those goals.

The KIX study noted that regional collaboration and standards have been driving progress in some cases and could be leveraged further. For example, the AU EMIS Norms evaluation helped identify weaknesses in countries' systems, giving them a clear idea of what to fix. A good EMIS policy acknowledges those external reference points, effectively saying "we are part of a larger effort to improve data for education" – which adds legitimacy and impetus for implementation.

COMMON PITFALLS AND LESSONS FROM KIX AFRICA 19 COUNTRIES

The experiences of the 19 countries in the KIX Africa 19 study provide a rich source of lessons on what to do – and what not to do – when developing and implementing an EMIS policy. This chapter distills common pitfalls observed and the lessons learned from those contexts, ensuring that policymakers reading the guidance can anticipate and avoid these issues.

Common Pitfalls in EMIS Policy and Implementation

Absence of a Formal Policy or Framework

The most foundational pitfall is simply not having a formal EMIS policy at all. Many countries in the study that lacked a standalone policy suffered from *unclear roles, fragmented data systems, and inconsistent practices*. Without a policy, there was often no single vision or authority for EMIS, leading to duplication (multiple departments or donors collecting overlapping data). For example, in one country an official noted that both the Ministry’s planning unit and the inspectorate were sending separate data collection forms to schools due to lack of clarity on who was in charge. This confusion is a direct result of not having an overarching framework – a problem a clear policy could have prevented. **Lesson:** Establish a formal policy or at least a unifying framework to avoid fragmentation. Even strong informal systems ultimately move toward formalization to safeguard their gains.

Policy Exists on Paper but Poor Implementation

Another pitfall is the “paper tiger” policy – a well-written document that is not effectively implemented or enforced. The study warns that having a policy **doesn’t automatically fix challenges**. For instance, Nigeria has a comprehensive EMIS policy, yet it continues to grapple with challenges like state-level data discrepancies and capacity gaps. This shows that a policy without strong follow-through and resources can lead to complacency (assuming the existence of the policy is enough). Similarly, some countries drafted policies that never got officially adopted or implemented (Uganda had a draft that lingered without formal approval). **Lesson:** Avoid complacency once the policy is written. Build concrete implementation plans and accountability to ensure the policy’s provisions are put into practice. Regular check-ins on policy actions (like whether committees are functioning or budgets allocated) are necessary to breathe life into the policy.

Lack of Enforcement Mechanisms

Many countries struggled with enforcing data submission and standards. A pitfall is to have requirements (e.g., “schools must submit data by X date”) but no mechanism or consequence when they do not. The study found that **lack of enforcement** was a governance weakness across countries. EMIS units often had no authority to compel non-compliant schools or regions. For example, Uganda’s draft policy suggested sanctions for schools that don’t report data, but it’s unclear if that’s enforced. Without enforcement, data flows depend on individual principals’ goodwill or external pressure. **Lesson:** Build enforcement into the system. Some practical approaches include tying school funding or registration status to data reporting, or engaging local authorities to follow up. The Gambia’s use of official circulars is one interim way to enforce compliance, but ideally legal backing (as part of education regulations) will strengthen this. Essentially, a policy should have “teeth”; otherwise, compliance may wane over time.

Over-Reliance on Donor Projects (Stop-Go Syndrome)

A major pitfall seen in lower-performing countries (Group 3 and some Group 2) was heavy reliance on donor-funded initiatives for EMIS improvements, without government continuity. Many countries had scenarios where a donor provided hardware, software, or pilots, but when the project ended, progress stalled or regressed because the government hadn’t allocated resources to continue or institutionalize it. For example, in one case tablets were given for data collection, but after the project, there was no budget to replace batteries or cover transport for data

collection, causing the innovation to fizzle out. Similarly, in Liberia and Malawi, multiple EMIS projects happened but each time capacity building had to restart because previous gains weren't sustained. **Lesson:** Plan for sustainability from the start. Governments should co-finance or at least pick up maintenance costs of any donor-funded systems. Policies should encourage integration of donor efforts into a single national system (to avoid parallel systems each with short life spans). Additionally, continuity in local staffing (keeping trained people in place) can mitigate the disruption when external support cycles end.

Insufficient Funding and Budget Priority

A very common pitfall is under-funding the EMIS. As noted, few countries had a dedicated budget line or adequate funds for EMIS activities. This leads to chronic issues: data collection gets delayed for lack of funds, quality suffers because verification visits (“no fuel”) can't happen, and system upgrades are slow. Without financial commitment, even the best policy objectives cannot be realized. **Lesson:** Secure and ring-fence funding for EMIS. Advocating for a specific percentage of the education budget to EMIS (as recommended in the KIX study) can help. Demonstrating EMIS's value in improving efficiency can convince governments to invest. Essentially, treat EMIS as core infrastructure that requires ongoing investment, not as a one-time expenditure. Countries that did allocate more domestic funds (like Kenya for NEMIS) saw tangible improvements.

Human Capacity Gaps and Turnover:

Another widespread pitfall is neglecting the human element. Many countries have EMIS units that are understaffed and under-skilled, with some critical positions empty or high turnover rates. In such cases, even with good tools, data quality and use remain poor because there aren't enough capable hands to manage and analyze data. The departure of one or two key people can set a program back significantly (Liberia's EMIS saw a setback when key staff left in 2018). **Lesson:** Prioritize building a stable, skilled EMIS team. This includes hiring sufficient staff, training them, and creating incentives to keep them. One innovative approach from The Gambia – launching a formal degree program in EMIS – indicates a commitment to developing a pipeline of experts. Countries should consider collaborations with academic institutions to professionalize EMIS roles. Additionally, having a clear succession or documentation process can mitigate knowledge loss when staff do leave.

Siloed Systems and Poor Coordination

In several countries, different departments or ministries maintained separate databases (for exams, teacher payroll, etc.) that were not integrated with EMIS due to lack of coordination. This is often because no policy or body existed to enforce collaboration. For example, examination councils often operate independently, so their data on learning outcomes might not feed into the EMIS routinely. Likewise, multiple ministries (as in federal systems or where higher education is separate) can result in disjointed data collection. **Lesson:** Break down silos through formal coordination mechanisms. Establish MoUs or committees bridging these units. Sierra Leone's move to develop a comprehensive policy was driven by the realization that having separate ministries for basic and higher education was causing data gaps. Nigeria's federal system taught that horizontal coordination is as important as vertical. So, building connections (technical and institutional) between parallel systems is key. An EMIS policy should mandate data sharing and integration where possible (like integrating EMIS with the school finance system so budget and outcomes can be linked).

Data Not Used – the “Data Rich, Information Poor” syndrome

A final pitfall is when data is collected but not effectively utilized for decision-making. Many KIX countries struggle with a weak data use culture – data often ends up being just for annual reports to satisfy donors, rather than informing daily management. Decision-makers sometimes don't trust the data (due to quality issues) or simply revert to habit or politics instead of evidence. In some cases, even where policy mandates evidence-based planning, the actual uptake is limited. **Lesson:** Proactively promote and incentivize data use. Improve data quality to build trust (since officials won't use data they consider unreliable), and demonstrate data's value through success stories

(like how Kenya used NEMIS data to clean up ghost students and save funds). Engaging the end-users of data early (e.g., involve district officers in designing EMIS reports so they get what they need) can also help. Policymakers should lead by example, referencing data in speeches and decisions. When schools and local offices see data being taken seriously at the top, they are more likely to mirror that. Overcoming this pitfall is critical because ultimately, an EMIS that isn't used for action fails to achieve its purpose.

Lessons Learned and Good Practices

High-Level Political Support is a Game-Changer

A recurrent lesson is the power of leadership. Countries where a Minister or other high official championed EMIS saw notable improvements in governance and resource allocation for EMIS. The Gambia provides a strong example: its Minister's vocal support for EMIS in recent years elevated the EMIS unit's authority and fostered inter-departmental cooperation. Rwanda's leadership push for ICT integration similarly mobilized significant resources for EMIS. Conversely, where leadership was indifferent, EMIS units remained low-profile and struggled to get compliance or funding. **Lesson:** Secure high-level buy-in and maintain it. Strategies include involving Ministers in EMIS steering committees, demonstrating to them how data can highlight achievements or needs (thus making it politically salient), and aligning EMIS improvements with their agenda (e.g., use EMIS to track an initiative the Minister cares about). Once leadership is on board, many other pieces (funding, coordination, etc.) become easier to achieve.

Peer Learning and Regional Influence Work

The KIX study observed that countries are influenced by their peers' experiences. For instance, Somalia accelerated its EMIS policy development upon learning that other post-conflict states like South Sudan were planning theirs. Many countries adopted certain technologies (like DHIS2 or student ID systems) after seeing neighbors succeed with them. Knowledge exchange, whether formal (workshops, study tours) or informal, often spurs action and helps avoid reinventing the wheel. **Lesson:** Leverage regional networks and examples. Policymakers should actively participate in forums (like KIX, ADEA, etc.), and consider twinning or mentorship between countries. For example, Nigeria's experience updating its policy or Kenya's NEMIS implementation are rich case studies – others can learn pitfalls to avoid or tips to emulate. Ensuring that when one country makes progress, others hear about it in a structured way (annual summits, webinars on specific issues as recommended) can accelerate collective improvement.

Formal Policy Helps, but Must Be Contextualized

Group 1 countries (with formal policies) generally had better-organized EMIS and clearer roles. Their policies often included comprehensive provisions (like Nigeria's covering data privacy and decentralized roles, Sierra Leone's aligning with best practices, Somalia's addressing federal coordination). These served as strong foundations and those countries can act as champions or examples for others. However, the lesson is that simply copying a policy template is not enough – it must fit the country's governance context (federal vs unitary), capacity level, and needs. For instance, Rwanda doesn't have a singular EMIS policy document, but its effective practices achieve the same ends, tailored through its ICT strategy. **Lesson:** Aim for a formal policy, but ensure it is *locally relevant*. Use international recommendations (UNESCO, AU Norms) as guidance but adapt to on-ground realities like administrative structures or resource levels. The policy should be realistic – setting achievable standards that can be gradually raised. Also, keep it flexible enough to allow innovation (e.g., if a new technology emerges, the policy shouldn't lock the country out of trying it).

Transitional Measures Can Work (But Don't Neglect Formalization)

Some countries managed reasonably well with interim solutions in absence of policy – e.g., **strong internal guidelines, dedicated leadership, and embedding EMIS in broader plans**. Kenya and The Gambia (Group 2

countries) performed quite well in many EMIS aspects despite lacking standalone policies. Kenya relied on circulars and an ICT strategy to implement NEMIS, and The Gambia leveraged committed leadership to foster a data use culture. This shows that even without a formal policy, progress is possible if certain factors align (leadership, capacity, a de facto strategy). But even these “good without policy” cases recognize the need to institutionalize; for example, both Kenya and Gambia acknowledge that formalizing their successes into policy or law would protect and extend them. **Lesson:** Use whatever interim mechanisms available to improve EMIS (don’t wait for a policy to start making changes), but concurrently work towards formalizing those mechanisms. A strong informal practice today can be the basis of tomorrow’s formal policy. Institutional memory is fragile if not codified; formal policies help preserve good practices through leadership changes and generational turnover.

Comprehensive Coverage vs. Focus – Find the Balance

Some lessons revolve around how broad the EMIS policy should be. A too-narrow focus might miss important elements (like only focusing on school census and ignoring data on learning or finance). Conversely, a very broad policy might be too ambitious to implement all at once. The KIX study noted differences, e.g., Sierra Leone’s draft tries to cover data across basic and secondary education comprehensively. Rwanda’s approach effectively covers EMIS needs through various strategic documents rather than one policy. **Lesson:** Ensure core components (governance, data quality, financing, capacity, use) are all addressed – a policy that covers only technology and not people would fail, or vice versa. However, prioritize within the policy and implementation plan: identify “must-haves” vs “nice-to-haves” for the first few years. For example, getting the governance and finance right might be a first priority, while adding advanced features like learning outcome tracking might be phased in later. The policy can outline both immediate actions and long-term vision. Countries learned that trying to do everything at once can overwhelm the system – gradual improvements, building on each other, tend to stick better.

Data Quality is a Continuous Battle – Engage Users in Solving It

A lesson on data quality is that it’s not just a technical issue but a cultural one too. Many issues (late reporting, inaccuracies, missing data) persisted because those providing data didn’t see value or were not held accountable. Innovative pilots like community validation of school data in Eswatini and Gambia engaged people outside the government to improve accuracy. **Lesson:** Engage stakeholders widely in improving data quality. This includes the communities, as well as the data providers themselves (teachers, headmasters). If they feel ownership – for instance, if after verifying data they see it used in planning new resources for their school – they’ll be more committed to quality. It ties back to giving feedback and showing data use. Another aspect is to invest in simple tech solutions like error checks and outlier detection which help catch mistakes early. Essentially, treat data quality improvement as an ongoing part of EMIS operations, not a one-off clean-up effort. Institutionalize practices like annual data audits or data quality workshops so that it becomes part of the cycle.

By learning from these pitfalls and lessons, policymakers can craft EMIS policies that are realistic, implementable, and resilient. The mixed experiences across Africa – from Nigeria’s comprehensive policy to Mozambique’s lack thereof, from Kenya’s tech-driven approach to Somalia’s nascent system – provide a kind of map: showing both roadblocks and workarounds. The overarching takeaway is that context matters, but certain fundamentals (clarity, resources, capacity, and commitment to use data) are universal. Avoiding known pitfalls can save time and resources, and accelerating adoption of proven good practices (with necessary adaptations) can leapfrog progress, as many countries are now aiming to do.

CONCLUSION AND RECOMMENDATIONS FOR POLICYMAKERS

The analysis of EMIS policy development and implementation across the KIX Africa 19 countries leads to a clear conclusion: strengthening EMIS is foundational to achieving educational goals, and this requires deliberate policy action backed by sustained commitment. An effective EMIS policy is not a luxury or a bureaucratic formality – it is a critical piece of educational infrastructure. It provides the rules, structures, and investments needed to ensure that quality data informs every decision from the classroom to the cabinet. As African Union strategies and global targets like SDG4 emphasize, without robust data systems, efforts to improve access, equity, and quality in education are essentially flying blind.

For African policymakers, the time to act on EMIS is now. Many countries have recognized the gaps and are moving in the right direction – Somalia’s recent first policy, Sierra Leone’s draft, multiple countries integrating EMIS in sector plans, etc.. The momentum can be felt regionally. Over the next few years, we can expect – and should strive for – all KIX Africa 19 countries (and indeed all AU member states) to have solid EMIS policy frameworks and more robust, user-driven EMIS operations. This will enable better monitoring of education progress, facilitate resource mobilization (as data demonstrates needs and results), and ultimately contribute to better learning outcomes for students.

Drawing on the validated findings of the KIX study, we present the following key recommendations for national policymakers (Ministries of Education and related agencies) to either kick-start or accelerate EMIS policy development and implementation:

Develop or update the EMIS Policy/Strategy

If your country lacks a formal EMIS policy, prioritize creating one. Use this document, along with regional guidelines (like the AU EMIS Norms) as references to ensure all critical components are covered. If a policy exists but is outdated, initiate a review and update – technology and data needs evolve, and so should the policy. Engage stakeholders (from statisticians to school principals) in drafting to build buy-in. As examples, Nigeria’s updated 2021 policy shows the value of periodic revision, and Rwanda’s de facto policy via ICT strategies shows that updates can come through integrated planning. An updated policy will provide a current roadmap that aligns with national education sector plans and international commitments.

Establish Strong EMIS Governance and Coordination Mechanisms

Form or revitalize a high-level EMIS Steering Committee or coordination body to oversee EMIS across departments and levels. This committee should include key units (planning, ICT, inspectorate, teacher management, NSO, etc.) and meet regularly to address EMIS issues, unblock bottlenecks, and promote a shared vision. Additionally, clarify roles in the EMIS structure through official directives – for instance, designate one department to lead EMIS and outline support roles for others. Having a formal committee “breaks silos” and keeps EMIS high on the agenda, which our findings show is crucial. Nigeria’s experience with a national EMIS committee and Sierra Leone’s plan to establish one highlight this as a best practice. Effective governance will improve accountability and responsiveness – e.g., issues like low data response rates can be tackled collectively by the committee as soon as they are identified.

Secure Sustainable Domestic Financing for EMIS

Advocate for and allocate a specific budget for EMIS operations in the education budget. We recommend aiming for on the order of 0.5–1% of the education recurrent budget dedicated to EMIS and data management. This funding should cover the essentials: annual data collection exercises (whether printing forms or maintaining online systems), data verification activities (travel for field checks), EMIS hardware and software maintenance, and capacity building workshops. Work closely with the Ministry of Finance to make the case that investing in data yields high returns – better data leads to better targeted policies, more efficient spending, and the avoidance of costly mistakes.

For countries heavily reliant on donors, start a transition plan where government co-funds more each year for EMIS projects. Reducing over-reliance on external funding ensures continuity of operations. As evidenced, even a modest increase in domestic funding can significantly improve data timeliness and quality (e.g., Kenya’s government funding for NEMIS was key to its implementation success). Treat EMIS as essential infrastructure: like paying teacher salaries or textbook costs, it must be a constant line item, not left to ad-hoc support.

Invest in Human Capacity Development and Staff Retention

The policy on paper means little without skilled people to execute it. Develop a comprehensive capacity building plan for EMIS staff at all levels. This includes regular training (annual, at minimum) for the central EMIS team and for district education officers on data collection techniques, analysis, and any new EMIS tools. Adopt a training-of-trainers model to cascade knowledge to school level, as recommended in the study. Collaborate with local universities or institutes to create specialized courses or certifications in EMIS – following the example of The Gambia’s new M.Sc. in EMIS which is a forward-looking step to professionalize the field.

Equally important is retention: create incentives for EMIS personnel to stay. This can involve establishing clear career pathways and promotion opportunities for data staff, providing recognition for good performance (e.g., awards for data quality or innovative data use), and improving working conditions (perhaps offering a retention allowance for critical IT staff, etc.). Consider bonding agreements for staff sent for advanced training (so they serve a term after training). By nurturing a stable “EMIS cadre,” countries ensure that capacity investments are not lost and that institutional knowledge accumulates. Human capacity is the linchpin of effective EMIS – our study consistently showed that where staff are few or under-skilled, EMIS performance suffers. Therefore, this recommendation is pivotal.

Enhance Data Quality Assurance Mechanisms

Establish robust QA processes as part of EMIS operations. Ministries should develop detailed data collection manuals and provide training on accurate data reporting for school and district staff. It’s vital to implement systematic validation – for example, require each district or region to verify a sample (e.g., 10%) of school data on-site or through call-backs for consistency. Cross-check key indicators (like enrollment vs. number of teachers or classrooms) using automated EMIS system flags, and investigate outliers. Make use of technology for QA: if GIS is available, check that all schools in known communities are reporting (to catch any missing schools), and use data dashboards to spot anomalies early.

Another good practice is involving communities or third parties in verification – e.g., some countries had success with community members verifying enrollment to curb inflation of numbers. Formalize such practices where feasible (they not only improve data credibility but also increase local buy-in). Additionally, integrate a feedback mechanism: share back some results of data verification with the schools so they know errors were found and corrected, reinforcing learning. By embedding these quality checks, data accuracy and completeness will improve over time, building the trust of decision-makers in EMIS data. As one respondent aptly noted, “For data to be used, stakeholders must trust its accuracy” – so this recommendation underpins the ultimate goal of data utilization.

Institutionalize Data Utilization in Decision-Making

Create policies and practices that turn data into action. At the national level, require that all major education initiatives and plans reference EMIS statistics in their rationale. This could mean, for instance, that when proposing new school construction, the planning document must cite EMIS data on enrollment growth or student-classroom ratios in the target area. Encourage (or mandate) that budget allocations (like distribution of teachers or learning materials) follow needs as evidenced by data (e.g., pupil-teacher ratios, or schools without libraries identified via EMIS).

At sub-national levels, instruct district education offices to use EMIS data to set targets (say, improving attendance or exam pass rates) and to monitor schools under their supervision. One practical step is to develop user-friendly data dashboards or report cards for local administrators so they can easily see their performance and gaps. Also, improve data dissemination: ensure annual education statistical reports are not only published but discussed – perhaps tabled in Parliament or reviewed in an annual education conference with stakeholders. Some countries have put their data online (open data portals); if possible, do that for broader accessibility. The Gambia’s practice of sharing data with its Local Education Group is a good model of inclusive dissemination. The policy environment should also encourage transparency – unless sensitive, data should be publicly available to researchers, civil society, and communities, which can stimulate independent use and even pressure for improvement.

Finally, foster a culture where successes and failures are measured by data. For example, if a new reading program was rolled out, look at EMIS indicators on learning outcomes or repetition rates to gauge impact. Leadership can champion this by always asking in meetings: “what do the data say?” over anecdote. Building such a culture takes time, but institutional signals (like guidelines that require policy proposals to include data analysis) can gradually make data use the norm rather than the exception.

Strengthen EMIS–Sector Coordination and Integration

Position EMIS not as an isolated system, but as a central hub interconnected with other information systems and sectors. Concretely, improve coordination with the National Statistics Office (NSO) and other ministries. For instance, integrate EMIS data with population data from the NSO to improve planning (as some countries do for projecting school-age populations). If responsibility for education is split (like separate ministries for higher education, or significant roles for local governments), establish formal agreements on data sharing so that the EMIS encompasses all education sub-sectors.

Cross-sector integration is also increasingly important: consider linking EMIS with health data (for school health programs, or tracking out-of-school youth via social services). Pilot initiatives that connect EMIS with other databases (e.g., civil registries to find children not in school, or linking EMIS with exam council databases to analyze learning outcome trends). Regionally, align EMIS with AU’s Norms & Standards and the continental education strategy – this means, for example, ensuring indicators collected allow reporting on CESA and SDG4, as mentioned above. Countries like Rwanda ensure their EMIS covers data needed for SDG monitoring (e.g., data on disabilities, ECE, etc.) – others should follow suit to not be left behind in global reporting.

Strengthening integration also extends to donor coordination: use the EMIS policy/strategy as the single framework to which all donor-funded data projects must adhere. A recommendation from our research is for regional bodies (like KIX/AU) to help coordinate donor support to reduce duplication; at country level, you can mirror that by having a clear ask and plan for donors aligning with your EMIS improvements (rather than each partner setting up something new in parallel). In short, make EMIS a platform that connects and serves multiple purposes – from national planning to international reporting – rather than a silo. This will maximize return on investment and ensure EMIS remains relevant to various stakeholders.

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By implementing these recommendations, policymakers will address the core gaps identified across the continent – from establishing the needed frameworks and funding, to nurturing the human and technical capacity, to finally ensuring that data is utilized to drive improvements. The collective result will be a transformation towards more effective, evidence-driven education systems.

It is also recommended that regional bodies and development partners complement these national efforts. The AU’s KIX Africa 19 Hub, ADEA, and others can develop regional toolkits and facilitate peer learning (so countries have access to templates and examples). Donors like GPE, UNICEF, UNESCO, and the World Bank should align their support with the national EMIS policy and focus on capacity transfer and

sustainability. Encouragingly, many of these actors are keen to help – the key is coordination and aligning with country-led plans.

In conclusion, an effective EMIS policy for Africa is one that is comprehensive yet practical, grounded in lessons from the field, and aligned with continental aspirations and global best practices. The path may seem complex, but as countries share experiences and innovate together, the vision of robust EMIS across the continent is within reach. The pay-off will be significant: with reliable data at their fingertips, African education leaders can make informed decisions to improve schools, allocate resources fairly, respond swiftly to challenges, and ultimately provide a better education for all children. In the words of the study, improving EMIS is not just a technical reform – it is foundational to achieving our education goals, because if we can't measure it, we can't improve it. Let this guide serve as a springboard for African countries to either launch or refine their EMIS policies, learning from each other and moving collectively toward stronger education data systems that underpin quality education for every learner.

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