

**SCHOOL INFORMATION SYSTEM PLUS
ZANZIBAR
TECHNICAL PROPOSAL
DRAFT**

July 11, 2017

SUBMITTED TO:

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July 11, 2017

TO: Sarah Osborne, Tanzania Tusome Pamoja, Project Management Specialist

FROM: Kurt D. Moses, Director, Policy & Information Systems, Global Learning Group

RE: Initial Technical Proposal, SIS Plus for Zanzibar

Attached is our Technical Proposal for the School Information System Plus, based upon the several Terms of Reference (TOR) and amendments received since May, 2017. We have attempted to stay current with edits to this document including the version submitted on 7 June, and subsequent clarifications received on 22 June. In contrast with the April 26 TOR, we have, as requested, outlined our approach to both Phases I and II for Zanzibar. A Financial Proposal will be coming out shortly that accompanies this Technical Proposal.

We believe that we have commented on and agreed or amended each Task listed, outlined the FHI360 Project Team to work on this project and, in Appendix 1, provided our best estimate of a feasible timetable for work in Zanzibar, and developed a cost-effective implementation strategy. Important in this initial Timetable is the following:

1. We do not believe it wise to use the SIS Plus system as the sole basis for the Beginning of School Year launch in January of 2018, as some timetables have proposed.
2. Our experience in the Pilot SIS work on the Mainland indicated that the rate of absorption of training by participants was often slower than planned, and usually resulted in several repeated trainings—some unexpected.
3. Additionally, a full-scale roll-out, even in a public system of comparatively small size, exposes the entire education system to often avoidable errors.
4. Typically, in most systems, a paper submission or copy is required for legal reasons and this transformation from paper as a copy of record to digital usually requires several years.
5. Accordingly, we propose that the Beginning of School Year effort be done, as in the past, with a small pilot effort, including training, done in Mid-January and extending through February 2018. Using that pilot as the basis for any procedural or technical

modifications, further training be conducted in March to April. We have so outlined on our timetable. This position is consistent with our original thinking in our initial technical questions/response about a 6 month launch period as opposed to 10-11 months which is more realistic from a technical standpoint.

6. In addition, we understand that the Zanzibar MOEVT will be doing the country of Tanzania a great service by creating a true sub-national, and ultimately national system that is almost totally digitized. For that reason alone, a deliberate, careful strategy is warranted. Prior experience with rushing installation has often overlooked both historical comfort with sustainable systems, and more easily avoided unclarities.

Our team is prepared to discuss any element of this initial proposal and to clarify further our assumptions and expectations.

We look forward to beginning this work following a timely review.

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SCHOOL INFORMATION SYSTEM PLUS

ZANZIBAR

TECHNICAL PROPOSAL

A. INTRODUCTION

This Technical Proposal responds to the RTI Terms of Reference(TOR) dated 26 April 2017, as modified by response to questions date 8 and 14 June 2017. In addition, with appropriate documentation, additional data were requested to allow determination of scope of activities. The portion of work in the TOR that has not been modified is quoted below and incorporated as reference in this proposal. Additionally, we have attached several appendices to elaborate on our approach. These Appendices include as well Attachments 1 & 2 of the original TOR.

B. BACKGROUND

We incorporate here the relevant sections from the TOR that describes the Key Objectives and Background for the development of the SIS Plus. Note that in sections related to timing and scope ***we have shown modifications using BOLDED Italics.***

The recent Zanzibar Education Situation Analysis (2016) identified the following limitations of the system:

- **A fragmented system:** school census information is held by the EMIS section; teacher information by the HR department; examination information by the ZEC; teacher training data by the department of Teacher Education, and examinations data by the Zanzibar Examinations Council. Ideally, these data should be held as part of one EMIS system.
- **Fragile storage:** there are separate Excel spreadsheets storing data from different parts of the school census questionnaire, and for different years, so it is difficult to conduct cleaning checks within and between years. The large number of Excel spreadsheets are stored on limited numbers of computers, and there is no other back-up.

- **Data reliability concerns:** there is incomplete coverage of the private sector; data collection system is almost entirely centralized and manual in its operations and management and therefore prone to error.
- **Sporadic production of analytical material:** Education Abstracts and District Profiles are excellent tools but are produced sporadically rather than regularly each year.

The existing system is best characterized as strongly supply-driven. What this means is that the work practices and information flow tend to result primarily in many different actors supplying (or providing/entering) data into the system. The vast majority of the time spent is on data production and recording, not data analysis or use. The principal challenge of the current system relates to the redundant and duplicative forms and manual data entry processes experienced at all levels but most acutely by school head teachers. The resultant data entry burden for all schools, districts, teacher centers and MOEVT departments and agencies are enormously counter-productive to the efficient and effective use of their time and resources. All of which conspires to severely constrain their ability to process, analyse, and act on this information in a timely and effective way.

Vision of a future *Demand-Driven* EMIS. The vision of a future EMIS is one that is *demand-driven*. That is all information consumers and stakeholders are drawing on one *normalized source of record* for their school-level information needs through a school-based paper and digital data entry system. System users should enter only those data that are uniquely available to their office or function, and spend most of their time analyzing and acting on the data. In other words, their principal engagement with the EMIS data is to generate actionable, timely information to enhance the productivity, efficiency and effectiveness of their work.

A demand-driven decision-support EMIS has at its core a school-based data entry application for schools to enter their data directly. As much as 90-95% of all data (if not more) that are currently used is generated directly by schools. In such a system, schools enter data electronically directly into a centralized database. The data entered by schools would reflect and mirror their existing work practices: once per year beginning of school year information on school, enrollment and teacher details; continuous reporting of teacher and student attendance; student performance, dropouts, and student/ teacher transfers, and teacher subject/class assignments. Stakeholders ranging from schools to districts and teacher centers to MOEVT departments will access the data directly through an interface that would allow them to generate analysis and reports necessary for their work.

School Information System *Plus (+)*. The School Information System (SIS) will serve as the principal component of the new EMIS. All government and private pre-primary, primary, and secondary schools will use the system for their primary reporting responsibilities. An SIS has been developed for the Tanzania Mainland under the leadership of the Prime Minister's Office for Regional Affairs and Local Government (PO-RALG). For deployment by the Zanzibar MOEVT, the SIS must be customized to meet the unique context and needs of the Zanzibar schools, districts and Ministry and serve as the central component of its broader education management information system.

The SIS is a sub-national, school-based information capture and data management system that supports school, teacher center and district delivery and management of education services. Through the SIS, head teachers will submit annual and continuous monitoring (monthly, termly) data on individual students, individual teachers and their schools' details through Android-powered tablets. The SIS will support the manipulation of this information to provide user-friendly data for each level to improve school and educational performance. The SIS is not just a data entry platform: it is a workflow process that governs the interactions for and between schools, communities, districts, teacher centers and Ministry to enable a data-driven planning, monitoring, evaluation and learning environment. Additional modules will be developed for Supervision, Inspection, Teacher Education, Examinations, Primary and Secondary Education, and Administration. The core SIS, plus the additional modules, are referred to together as the *SIS Plus (+)*.

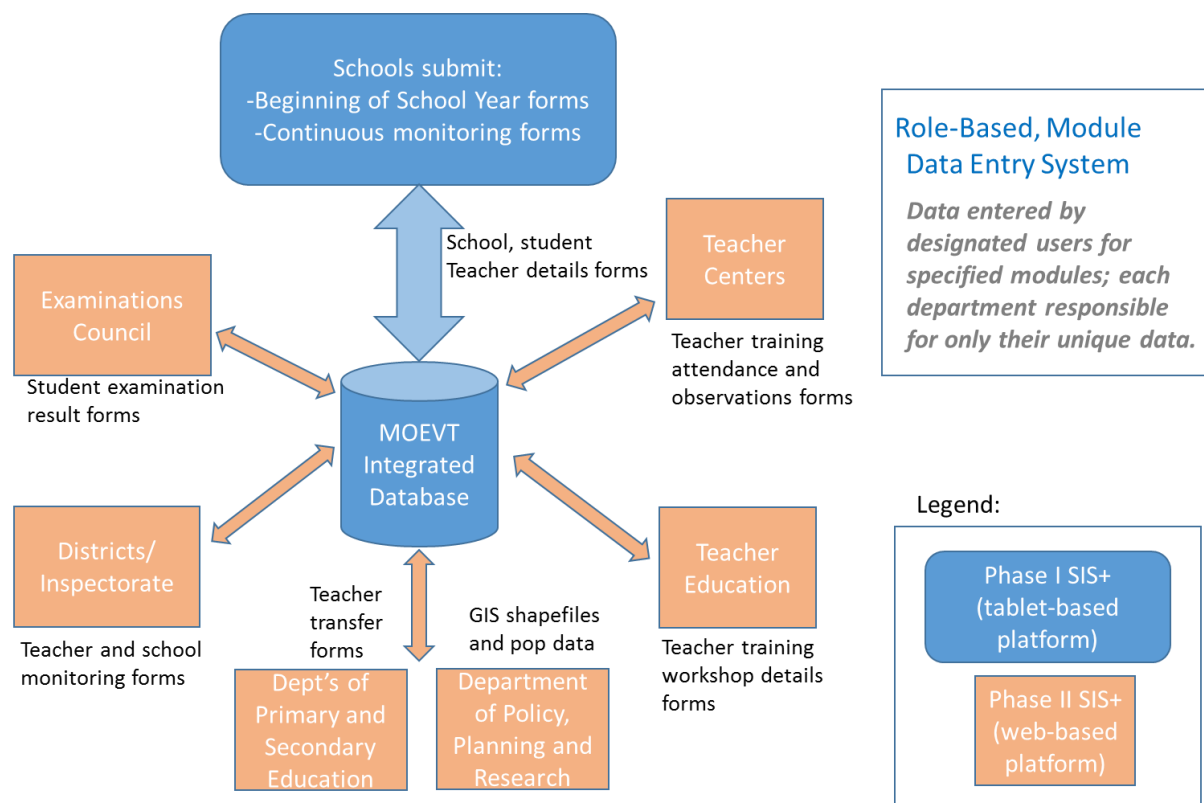
Timetable and Phasing for SIS+ deployment. The development and deployment of the SIS will follow three discrete phases over a four-year period.

- **Phase I:** core SIS beginning of school year and continuous reporting modules (Android-based application) for all government and private pre-primary, primary and secondary schools ***deployed 10 months after Contract signing.***
- **Phase II:** additional SIS+ web-based modules for key MOEVT departments and stakeholders developed and ***deployed within a year after Phase 1.***
- **Phase III:** technical system modifications and additional modules for human resource and asset management designed ***and deployed after Phase II.***

Phase I Technical Activities. Phase I is concerned with the activities and milestones related to the development, deployment and support of the core SIS beginning of school year and continuous reporting modules for **Government** pre-primary, primary, and secondary schools. These include activities related to SIS software customization, hardware provision, training of relevant school, district, teacher center and MOEVT officers, establishing of help desk and ongoing maintenance and support.

Phase II Technical Activities. Phase II is concerned with the design, development and implementation of additional web-based data entry and reports modules. These modules will enable MOEVT departments, districts and teacher centers to enter data unique to their office directly into the central MOEVT server database. The modules will have role-based permissions to ensure data security and that only designated users have access to their specific modules and form fields. For example, only specified users from the Zanzibar Examinations Council will have the ability to access the Examinations module to input examination and final grade results. For all other users, the Examinations module will not be visible. Technical activities related to Phase II deployment and implementation include design of modules and user experience specifications, development of reporting and analytic tools, training of relevant MOEVT, district and teacher center personnel, and connectivity support for departments that have low or non-existent internet access.

Figure 1 depicts the relationship between Phase I and Phase II SIS development objectives.



C. FHI360 ASSUMPTIONS

The following assumptions undergird FHI360's response to the RTI Terms of Reference.

1. Scope: Focus of this work for Phase I is on Government Schools only.
2. Scope: Focus of work for Phase II will allow for on-line, Web based access to the MOEVT Integrated Database for Private School.
3. Scale: Phase I includes Pre-Primary, Primary, and Secondary schools
4. Timing: Timing noted in the contract will be based upon effectiveness date of the contract.
5. Support: RTI will provide a full-time, locally present Project Manager, and will be responsible for costs associated with training. RTI will also, in conjunction with the MOEVT, provide the "services and facilities" as noted on page 12 of the SIS+ TOR. FHI360 will provide needed training materials in support of training.
6. FHI360 Subcontract: Will include funds for all travel, international and domestic, and housing as well as local travel.
7. FHI360 Subcontract: Will be fixed price.

D. TECHNICAL RESPONSE BY PHASE—PHASE I

FHI360 will customize and build **six (6) tablet-based (Android-compatible) data entry modules and forms for school officers**. Data will be entered by either the head teacher or the school statistician (each form/module will have a designated user per the SRS). These forms will be field tested and de-bugged prior to deployment. The user interface, forms and modules **must be available in English and Kiswahili**. FHI360 will develop the necessary documentation and training materials for 1) system administration, 2) backend help desk support, and for 3) system end users. RTI expects the MOEVT to host the system server and database locally in the MOEVT headquarters in Zanzibar. ***FHI360 initially recommends, to accommodate procurement cycles and ease of administration, the use of Cloud Based servers in early stages of development. The same process as used by the Mainland during the initial phases of SIS implementation.*** Phase I will include comprehensive security protocols involving data encryption and user-defined role-based access permissions to the data, reports and information to ensure privileged control over who in the system has rights to which information. ***The SIS will meet relevant international standards for maintaining personally identifiable information.*** In addition, the SIS will comply with open source initiative approved licenses that are widely used or have strong user communities;¹ all code will be made freely and publicly available on a GitHub site for open access ***once code has reached production status. If MOEVT wishes to use the unique full database, SMS transmission capability available on the Mainland, while NOT OPEN SOURCE, it will be provided to MOEVT for no additional cost, license free and supported by FHI360 without fee as long as it is operated by MOEVT.***

Four (4) of the reporting modules will be modified and customized based on existing Mainland reports. Two reporting modules will be developed that are unique to Zanzibar (not currently developed for the Mainland).

1. Customize the development of the annual Beginning of School Year Report based on modifications to the existing SIS Mainland baseline school questionnaire
2. Customize the development of continuous monitoring reports based on modifications to the existing Mainland application. These include:
 - a. Monthly student attendance form
 - b. Weekly teacher attendance form
 - c. Monthly teacher continuous professional development (CPD) form
 - d. Termly student performance form
 - e. Termly student exit reports (to track transfers out and drop-outs)

FHI360, upon contract initiation, will receive finalized approved paper version of these forms. These approved forms will be the SOLE BASIS upon which system design will be based. (Note: In the past, with often multiple parties responsible for forms, last minute alterations have been made, which then must be redone electronically—delaying project implementation.

¹ See <https://opensource.org/licenses/category>

Over time, modest amendments will be accommodated after final approval, and accessible by MOEVT trained personnel.)

3. Develop additional continuous monitoring reports that are not currently developed for the Mainland. These include:
 - a. Termly teacher class assignment reports (to track teacher workload and teacher needs)
4. For Phase I we are assuming the following scale regarding MOEVT Government Schools to support:

School Type	# Schools
Pre-Primary	30
Primary	211
Basic	66
Secondary	141
Government Subtotal	448

5. The forms that will require more customized development in the SIS+ are the annual Beginning of School Year (BoSY) and the termly Teacher Class Assignment Form. Note though that the Zanzibar BoSY and the Mainland Baseline School Questionnaire share many of the same forms and data requirements. References for each are included in Attachment 2 of the TOR.

E. PHASE I – TASKS AND DELIVERABLES

Task 0. Planning Meeting. *Within one month of contract signing, FHI360, with RTI assistance, will arrange for an on-site project initiation meeting with key MOEVT personnel, RTI technical leadership, and two representatives from the FHI360 design and implementation team. The goal will be to ensure that all provided materials, upon which this proposal is based are current, approved, and consistent with expectations by the MOEVT. Additionally, and most critically, FHI360 will work with the project team to ensure that timing of deliverables matches key school dates and times, and that appropriate field personnel are involved and infrastructure is available at the correct points in the stages of “roll-out.” (Note: key to effective functioning will be knowledge of*

available mains power (or appropriate solar back-up) as well as extent of connectivity via Mobile vendors). Finally, with a Memorandum of Understanding (MOU) we will document our agreements and protocols.

Task 1. Database Design. *The relational database that supports the SIS+ will be based on open-source MySQL and map unique primary key identifiers of database objects, including unique individual students, unique individual teachers, and unique individual schools. (This will require that indeed appropriate unique numbering for students, teachers, and schools had been agreed to and implemented). The database design will include a) a relational model that describes the connections between tables and reports; and b) database schema that includes codes for object characteristics and variables.*

Task 2. Develop Security, Encryption, and Role-based Access Protocols. User designations and roles that govern data access and use permissions will include the following:

FHI360 will use SSL protocol with rights and privileges of users assigned by the MOEVT. It is expected that the following guidelines for access and maintenance will be instituted:

- **School users:** minimum two per school for head teachers and school statisticians
- **District users:** minimum two per district for District Education Officer and District statistician
- **General system users:** designated MOEVT officials from all other departments (such as Policy Research and Planning, Departments of Primary and Secondary Education, etc.)
- **Specified module system users:** designated officials from Examinations, Inspection, Departments of Primary and Secondary Education, Department of Teacher Education and Teacher Centers (with access to their respective Phase II modules) with capability to enter data and edit forms through an online form editor
- **System administrators:** designated MOEVT officials to ensure back-end system support, database management, maintenance and troubleshooting

FHI360 will ensure that encryption protocols meet appropriate international standards for maintaining personally identifiable information.

Task 3. Startup Screen and School Registration Module. FHI360 will create a module that will initialize the application on the school's tablet and enable the school to enter basic information to register the school in the system *following examples included as Attachment 2. Note: This Registration Module will follow as closely as possible, existing and tested Mainland applications.*

Task 4. Customize Digitization of Beginning of School Year Forms. *FHI360 will customize the existing beginning of school year report to include four discrete sub-forms: (i) school particulars/characteristics; (ii) school facility details; (iii) teacher details; and student*

details. The head teacher and school statistician will have a shared responsibility to enter the data for each of the sub-forms.

Task 5. Customize Digitization of Student Attendance Forms. On a monthly basis, school statisticians will submit summary attendance forms for individual students by class. The school statistician will enter the number of days each student has been absent for the month (based on records maintained by the class teacher). ***Upon review, it may be possible to eliminate paper class records with the appropriate use of the school tablet.***

Task 6. Customize Digitization of Teacher Attendance Forms. On a weekly basis, head teachers will enter the number of days absent for each individual teacher.

Task 7. Customize Digitization of Teacher Continuous Professional Development Forms. On a monthly basis, head teachers will enter the type and amount of training, peer learning and support received by the teacher.

Task 8. Customize Digitization of Student Performance Forms. On a termly basis (at the end of each school term), the school statistician will enter summary scores for individual students for each subject that pertains to their grade and level.

Task 9. Customize an MOEVT Unique Teacher Classroom Assignment Form. On a termly basis (at the end of each school term), the school head teacher will enter the subject, class and number of periods assigned to each teacher.

Task 10. Customize an MOEVT Unique Student Exit Form. ***FHI360 will develop a form that, on a termly basis, allows the head teacher to enter the status (transfer out or dropout) of students who have not been present any day for the prior three months.*** If the student has dropped out, the head teacher will note the reason(s) from a drop-down list.

FHI360 acknowledges the prior work including Use Cases. We have noted above where we believe some items may become more efficient, and understand that any changes will be agreed prior to proceeding. Task 12 provides additional detail on how we suggest controlling unclear areas. The Phase I SRS contains the specific use case data form fields and process flows for each form and module described above. RTI has already undertaken extensive consultations with the Zanzibar MOEVT to develop the SRS for all modules. The vendor must follow the Phase I SRS to exact specifications. Where the SRS is unclear or silent, or where the vendor deems the technological solution too costly or cumbersome, the vendor must consult with RTI and recommend solutions before proceeding.

Task 11. Develop Print-friendly Tabular Reports for School, District and MOEVT Department End Users. ***FHI360 will provide selected reports that show the immediate information that schools, districts and key MOEVT departments require to satisfy their core functions and comply with their existing reporting duties. The reports will be available on demand and accessible through a web-interface platform and downloadable***

in MS Excel (or CSV) file format. Schools should be able to download their specific school reports from their local tablet. Districts and MOEVT should view and download reports from the web. ***The specific description of the content and format of these reports will need to be detailed prior to Roll-Out. Prior SIS applications have included immediate, tablet accessible reports based on school inputs.***

Task 12. System Administration Documentation and Training for System support, Trouble-shooting and Help Desk Personnel. *FHI360 will develop comprehensive documentation on system administration requirements and training materials for system administrators and support personnel. The system administrator training will focus primarily on database management and administration and backend system configuration (user access privileges, etc). FHI360 will also be responsible for developing the documentation and training materials for system support personnel, including for individuals identified to provide first responder support to schools, districts and central Ministry HQ and help desk systems.*

FHI360 understands that the training materials for end user master trainers and for end users (such as head teachers, school statisticians, district officers, and other end users) will be developed and implemented directly by RTI and MOEVT. FHI360 will contribute to the development of end user training materials after clear discussions with the selected end users. During the initial planning meeting, Task 0, we will propose a process for 1) suggestion, 2) review, 3) approval by signature, and 4) clarification for amendments and training scopes. This will assist in focusing training material (which should include videos and prompts) on careful User Assessment.

FHI360 understand, for budget purposes, RTI and the MOEVT will cover the associated direct costs and logistics in-country directly for all training delivered.

F. TECHNICAL RESPONSE BY PHASE—PHASE II

FHI360, by contrast with the original TOR, has been requested as of 9 June to propose Phase II work. We understand Phase II SIS+ includes the implementation of a robust business intelligence reporting engine (Business Intelligence Platform) that includes decision-support tools and feedback reports for schools, districts, and MOEVT departments and agencies. Five (5) additional data entry modules will be developed for Examinations, Supervision/Inspection, Teacher Education, the Department of Policy, Research and Planning (DPPR), and the Departments of Primary and Secondary Education. These modules will enable officers from the Zanzibar Examinations Council (ZEC), District Supervisors and School Inspectors, Department of Teacher Education (DTE) officers and Teacher Center subject advisors to enter data on students, teachers, and schools that they generate as part of their function. DPPR officers will have the capability to add/edit location and population data, and re-assign schools, shehias and districts as needed. The Departments of Primary and Secondary Education officers will be able to transfer and re-assign teachers from one school to another. At this stage, the reporting approach, which

the Tablets support (in addition to actual transactional work at the School level (e.g. SIS pilot on the mainland supports promoting students, tracking student progress, and maintaining school records including photographs) will begin to transition into a transactional system—where operational reallocations become possible.

FHI360 understands that in Phase II a portion of the objectives relate to providing Private Schools access to and support in using the Web-based platform—to thereby allow a consolidated view of educational activities Island wide. The scope of this, as of 2017 we understand to be as follows:

Pre-Primary_Private	293
Primary_Private	28
Basic_Private	60
Secondary_Private	14
Private subtotal	395

G. PHASE II--TASKS AND DELIVERABLES

Task O. Preparation Meeting, Workplan, and Review

It is expected that with the “roll-out” of the Tablet based SIS+ at the beginning of the 2018 school year, there will be substantial experience by April 2018 in its use, infrastructure issues, and the level of training required for key users. Task O of Phase II should formally illuminate these issues, review solutions, and adjust the workplan to accommodate changes. Additionally, at this time, we should review the LOE required for the next Year, but particularly the commitment of MOEVT counterparts, who become critical for sustainability. As with Phase I, Task O, the results of this working meeting will be formalized.

Task 1. Develop Additional Web-based Modules for Data Entry. *FHI360 will create user modules accessible via the Web and with SSL access protocols in Open Source code using PHP, Apache, and Java (typically with a development package such as Ruby on Rails) to include:*

- **Examinations Module** to enable Zanzibar Examination Council officers to enter examination results for students taking the Standard IV, VI and Form 2 exams. *(This will be reviewed to determine if post-examination automation, with a manual check phase, would allow a more efficient entry process).*
- **Supervision/Inspection Module** to enable head teachers, district supervisors and school inspectors to enter information on teacher performance. *(This is only partially template driven at present, there may be a way to reduce manual effort and still capture critical insights needed for inspection purposes).*
- **Teacher Education Module** to enable Teacher Education officers to enter details on in-service teacher training (INSET) workshops and allow for Teacher Center subject advisors to note which teachers attended which INSET workshops. *(FHI360 has developed a Tablet based attendance system keyed to unique identifiers for teachers. This portion of the module could well be, inexpensively, automated if the MOEVT desires it).*
- **Teacher Transfer Module** to enable the Departments of Primary and Secondary Education to transfer teachers from one school to another, *and to update necessary Human Resources, Finance, and Retirement functions in other departments.*
- **Location/population Module** to enable the Department of Policy, Planning and Research to update the database with GIS “shapefiles” and District-level population data. This module will also allow the MOEVT to reassign schools, shehias, teacher centers and Districts in the event they split or their boundaries change. *(This component of the consolidated Data Base is most critical since it will link the key DB identifiers (e.g. unique school number) with the important descriptors related to time, structure, ownership, and condition).*
- **Modified Beginning of School Year Module.** The Phase I report, as now operating, requires a massive registration of all students and teachers currently in the system. The subsequent BoSY reports *will focus on “edits” and thus* not require schools to enter every student and teachers’ individual details again. Instead, the school facility details, teacher details and student details sections will be pre-populated from prior year data and require updates only for new entrants and transfers in, students who have exited, teachers who have come and gone, and updates to school facility details.
- **Web-enabled Data Entry of Private School Data BoSY Forms.** FHI360 will support the MOEVT desire to have private schools use the SIS+ as the means to submit BoSY data on teachers, enrollment and school facilities. *We understand that* not all private schools will have access to Android-powered tablets; nor can the Ministry cover the costs of their training and support. *Under Phase II, Task 1 a solution is to provide private schools* with a web-based data entry platform for those without tablets to access the internet and submit their reports, online through an Internet-connected laptop or desktop computer.

Task 2. Develop Decision-support and Feedback Tools. *FHI360, based on 10 years of experience in Decision Support tools, will help develop/adapt tools that include user-definable web-based reporting and “user friendly” query builders to allow custom reports for other general users of the system, which will include the following features:*

- Capability to create visualized charts and graphical representations of the data
- Capability to create custom indicators
- Capability to create spatial analyses using GIS data
- Capability to create custom dashboards and reports
- ***Capability to analyze the effects of prioritized resource needs based on*** pupil : resource ratios and their minimum requirements (eg, pupil : textbook ratio, pupil : toilet ratio; pupil : seat ratio, etc)

FHI360 understands that rather than hard-code this reporting, visualization and analytic capability into the system, the preference is to leverage existing open source (non-enterprise) business intelligence tool that can interface with the data.

Task 3. System Administration Documentation. *FHI360 will be responsible for developing comprehensive documentation on system administration requirements for system administrators, help desk personnel, and system end users for Phase II modules and features. RTI and the MOEVT will cover the costs of training and manage logistics in-country directly.*

FHI360 concurs that Phase II modules and deliverables must be field tested and debugged prior to deployment. The user interface, forms and reports will be available in English and Kiswahili—with MOEVT and RTI responsible for Kiswahili translation and approval. FHI360 will develop the necessary documentation and training materials for system administration, backend help desk support (*The Tusome Pamoja Project will cover costs of additional Help Desk software, should that be required*), and for system end users for Phase II modules.

H. SPECIAL ISSUES

There are a set of special issues that were partially anticipated in the TOR of April, 2017 related to this SIS+ system. They are the following:

1. **On-going Maintenance:** *As requested in the TOR, we have budgeted for on-going maintenance after Software installation for 2 years. This should be enough time for MOEVT staff to adjust to the most typical type of user issues, and to have practiced Technical Team modification of key reports and variables. FHI360 will establish a 3 Tier “hot-line” approach to ensure that as many operating issues as possible can be handled immediately from the closest location. Tier 2 issues may be*

routed to a central location at MOEVT. Tier 3 issues then forwarded to on-call FHI360 technical team working remotely. Additionally, the Help Desk will need to maintain replacement tablets, as well as any infrastructure support elements—such as solar chargers, and SIM cards.

2. **Decentralized Network Management:** *With both the Tablet and Web-interface Information System, the MOEVT will have a highly decentralized information network. This requires MOEVT maintenance (routine back-ups, equipment maintenance, parts replacement (see above), and retraining, as well as on-going technical management). Portions of these tasks can be automated (e.g. network management control software, etc.). As noted earlier, FHI360 has developed a REMOTE TABLET MONITORING system that treats all Tablets as part of a network, and remotely monitors them for faults, failure, and non-use. If desired, this can, and should, also be built into Phase II.*

I. PROJECT TEAM

Development Team Leader & FHI360 Project Director: Dr. Sergio Somerville. Dr. Somerville is the primary designer of the digital version of the SIS, tablet system which interfaces with a complete Web based DashBoard operating on the Tanzanian Mainland. He has been responsible for national and sub-national information systems in multiple countries, including multi-sector (education, environment, health, sanitation, and census) work in Guatemala and other Latin American countries. In addition to mobile, tablet and cell phone information system design in Liberia, Sierra Leone, and Equatorial Guinea, he has been in Tanzania multiple times during the development of SIS, including presenting system capabilities to the former President. Dr. Somerville is working with an experienced team of proficient, programmers, database experts, graphic designers, and web specialists.

Senior Advisor: Kurt D. Moses. Moses heads the Policy and Information Systems practice within FHI 360's Global Education department. He has worked on information system design, including policy and implementation in 69 countries, and, after visiting Tanzania in 2014, 2015, and June of 2016 was part of the original design team for SIS. He has led longer-term capacity building projects for the intersection of information and policy development in some 21 countries for virtually all major international donors.

Lead Programmer/Database Expert: Julio Alfaro. Mr Alfaro has 15 years of experience in software engineering and database management in both the private, and public sector. As a software developer, he has worked for leading telecommunication and mobile technology companies in Guatemala including CLARO cellphone, GBM, SEGA, EXECUTRAIN, and XOOM de PAYPAL. Proficient in both android- and web-based programming, he has also taught classes in several higher education institutions including Galileo University, Universidad

Rafael Landivar and Universidad del Valle de Guatemala. He is proficient in a suite of programming languages including C ++, Objective C, Java, C #, VB.Net, Ruby, Node.js, and Javascript.

Project Manager Quality Control: Douglas Drew. Mr. Drew is an expert in Education Management Information Systems (EMIS) and Statistical Capacity Building, bringing over 20 years of operations and information management experience. Drew has twice served as Chief of Party for programs requiring the design and implementation of data systems in Africa: First, for an education program which successfully developed and implemented an Educational Management Information System (EMIS) at various levels of Uganda’s Ministry of Education and Sports (MOES); Second, for an education program which designed and implemented a data-based survey and evaluation of South Sudan’s Alternative Education System’s program. Drew brings a rigorous evidence-based approach to his projects, having a strong background in mathematics, statistics, methodology, and information management. Throughout his career, he has worked with AED, FHI 360, UNESCO, USAID, the World Bank, as well as numerous Ministries of Education and local education stakeholders.

Technical Specialist/Trainer Lead: Andrew Goodall. Mr. Goodall manages and works alongside the Guatemala technical team and consultants in development of all mobile applications. He has experience in quality control and user experience for EMIS applications. Andrew will be involved on-site during the key implementation and training periods. He is well versed in FHI 360’s ICT tools, including SIS, having led the SIS training process for FHI 360 on-site during 2016 with regional ICT staff and national trainers, and is thoroughly familiar with both tablet applications and the type of training necessary for their effective use. He has led both training and demonstration efforts for a number of countries.

Technical Analyst/Writer: Xuejiao “Joy” Cheng. Ms. Cheng has extensive experience in education information systems, client relations and training, data analysis, and research in international education policy, with professional working experience on various donor-funded projects in South Sudan, Liberia, Sierra Leone, Cambodia and DRC. Joy will be involved on-site during the key implementation and training periods.

J. PREVIOUS IMPLEMENTATION EXPERIENCE

TANZANIA: EMIS, GIS, and School Information System

October 2014 - Present

From October 2014 to Present, FHI 360 has been responsible for establishing a successful, pilot “proof of concept” education management information systems (EMIS) involving 5,500 primary and secondary schools in seven of mainland Tanzania’s poorest regions using mobile, tablet, and GIS-based data collection. Working with the Prime Minister’s Office – Regional Administration and Local Government (PMO-RALG), this activity was completed with a 99.5%

coverage rate. Subsequently, FHI 360 at the request of Cambridge Education and DfID Tanzania, developed a School Information System (SIS) which duplicates a digital set of forms in both English and Kiswahili, and is being used to assist schools to monitor teacher performance, student performance, daily attendance, financial receipts, and other school management activities. This activity was implemented with the support of FHI 360 through training, training materials and technical expertise, in a pilot involving over 4,300 pre-primary and primary schools as well as 1,100 Ward, District, and Regional offices in the seven regions. The components of this included:

- **Customized EMIS software to support the Annual School Census, and to expand via multiple formats for reporting on all major elements of education system operation for Pre-Primary, Primary and Secondary levels; this includes:**
 1. *Questionnaire Tracking System (QTS)*: monitors and controls the process of collecting data from the ASC.
 2. *Integrated Data Entry Application (IDEA)*: processes ASC data into the database.
 3. *Error Checking Module (ECM)*: identifies logic errors and missing/invalid information from ASC questionnaires.
 4. *Business intelligence*: allows rapid ad-hoc, multi-year, multi-variable reporting; easy transfer to Excel or Word, and mapping of conditions of the educational system. This information can be used to populate the BRN Head Teacher's daily decision making process or to inform the government of Tanzania education budgeting process
 5. *Website*: that houses all the information and allows for one point of entry for all the information in the system.
- **Customized Geographic Information System (GIS) based on a Tablet/Cell Phone platform; this includes:**
 1. *GIS Mapping of all Pilot schools in Tanzania* and Verification of School Information with particular attention to new schools or ghost schools. This component provided a fully functioning GIS system and became a component of overall EMIS.
 2. *An Open Source application* which allows verification of school location, verification of select school data, and photographs of the school. The data transmits to the MOEVT online server, and the platform supports data collection without an Internet connection.
 3. *Variables identified*:
 - a. School name and operation status;
 - b. Number of classrooms;
 - c. Number of teachers;
 - d. Number of students;
 - e. Pictures of elements of the school;
 - f. GIS coordinates;

- **School Information System (SIS):**

SIS is a school oriented tool that provides school data collection, school data processing and aggregated reporting, at the school and upper levels. SIS uses FHI 360's **all-in-one data transmission technology IOT**, Internet and/or SMS, to transmit intermittent (school census data for classrooms, furniture, textbooks, facilities, initial enrollment, repeaters, dropouts and new entrants) and daily records for attendance (for students and teachers) and evaluation and behavior (for each individual subject in the curriculum). Initial data and daily updates are transmitted to the main database, **without** the users intervention, based on the connection available during transmission. When transmitting, IOT packs the data in one or many packets and determines the optimum transmission mode, using the minimum amount of Internet time or SMS Text messages. Using these transmission protocols, SIS does not transmit questions and answers, it actually transmits entire **databases**.

SIS allows for data collection at the school level which is reported for internal school needs and is aggregated to Ward, District, Region and National levels. SIS main accomplishments are:

- Captures annual initial enrollment data and other baseline data covering resource, school characteristics, finances;
- Captures daily/weekly/quarterly student data for attendance, subjects, performance and behavior, each specified according to accepted norms;
- Captures monthly financial data by source and expenditure;
- Creates reports for online and offline access;
- Data is consolidated in a server when internet or SMS Texting are available.

GUATEMALA: MCC Secondary Education Quality Improvement Project

May 2017-2020

FHI 360 is currently working with PRONACOM in Guatemala to implement the Secondary Education Quality Improvement Project, funded by the Millennium Challenge Corporation (MCC) in support of the Education Strategic Plan 2016-2020 and the axis of Quality, Equity and Inclusion of the Ministry of Education (MoE). The aim of this Project is to support the efforts of the Government of Guatemala (GoG) to implement institutional reforms and transformation of the Middle Level Education and the Critical Path of the MoE. The project will work closely with PRONACOM to promote quality education in levels of learning achievement; cultural relevance; satisfaction general service standards in each mode of the Basic Cycle; and deliverability of National Base Curriculum (CNB) in the classroom

SIERRA LEONE: Decentralized and Integrated EMIS for Ministry of Education, Science, and Technology as well as Mobile Annual School Census

October 2014 - 2017

Since 2014 FHI 360 has been involved with a risk analysis, and strengthening of a decentralized but integrated EMIS for the MEST headquarters and related training activities and support for statistical analysis. The latest phase, which began in June 2017 will provide a mobile annual school census to the ministry.

The goal of the Annual School Census is to collect education data every year at the school level. The data collected through this questionnaire provides a snapshot of the Sierra Leonean education system and assist planners at all levels to target interventions.

Given what is involved in conducting a school census and the need for it, there is a need for a system that can support swift and timely report of the data and results. Moving forward, the Ministry of Education Science and Technology will migrate from a paper based questionnaire to a digital system for a fast and robust system that can manage its data and information. FHI 360 is responsible for development of the mobile version of the full length Annual School Census, as well as training materials, including modification/integration of ED-ASSIST, modification and updates to MEST dashboard and technical support.

IRAQ: TASAWI – Women’s Digital Literacy and English Program (WDLEP)

2012-2017

The Tasawi Program, funded by the Department of State Bureau of Near Eastern Affairs, aims to 1) improve employment opportunities for 2,500 ethnic and religious minority, and IDP women through training in English and computer skills throughout Iraq and 2) provide these women with access to support systems to facilitate attainment of new or improved employment. FHI 360 staff have held two workshops to train English teachers on the Tasawi curriculum specifically and best practices in TESOL more generally. FHI 360 developed a tailored English Language curriculum (focused on both general and business English) for two levels, both beginner and intermediate English learners, and is providing continuous monitoring and mentoring of the English teachers. FHI 360 partners with local Iraqi NGOs and a Microsoft training partner in Iraq (Legend Lands) to implement the program. Additionally, FHI 360 received additional funding, after the original award, to implement a Capacity Development Initiative to more formally help build the organizational capacity of the 13+ NGOs that serve as implementing partners for the program, through technical assistance and coaching. Tasawi uses a tablet-based

reporting system, linked to an online platform (developed by team in Global Learning), to monitor the program and receive real time reporting on training implementation.

EL SALVADOR: Support to the Salvadoran Ministry of Education (MINED)

2005-2012

FHI 360 was asked by the Ministry of Education in El Salvador to conduct an analysis of the country's long-term education strategy and offer suggestions for improvements to the national education agenda. Results:

- * FHI 360 supported MINED in the development of the National Education Accounts (NEA) framework to track investment in education from households, municipalities, and the public and private sectors, and the subsequent integration of the accounts into the MINED's information system. El Salvador was the only country in the region implementing the NEAs.

- * The resulting information has helped draw clear connections among financial information, public policy, and current and prospective educational reform initiatives, and led to major policy decisions such as reduction of secondary school fees.

SOUTH SUDAN: Education Management Information System (EMIS) Support to the Ministry of General Education and Instruction

2006-2013

The EMIS Support project makes available reliable and timely national, county and village-level education statistics for the world's newest country, the Republic of South Sudan and all 10 states. The project — which reaches 98 percent of all known schools at all education levels, covering more than 1.7 million students — prepares the national and state governments, education officials, and staff to collect, understand, and use education data. The project is implemented through the following approaches:

- * Collaborating with the central government to create evidence-based approaches to allocating funds for education to states for policy development & budget alignment;

- * Increasing decentralized planning and budgeting systems by equipping all 10 states' Education Planning and Budget units with fully equipped computers; appropriate training materials, manuals, resource guides; and routine training opportunities in data analysis and interpretation; and

* Drawing on current, appropriate and cost-effective technology—provide VSAT satellite Internet capabilities to a variety of national and state level offices; introduce smartphones to transfer data from county and state sites; introduce low cost tablets to speed school level data entry and review; use a customized “K-Mobile” cell phone-based system to collect photographic, geo-positioning and verification data, which is available via the Web in Google Earth format.

OTHER EMIS/M&E EFFORTS to the classroom level have been conducted in Equatorial Guinea, Liberia, Afghanistan, and Democratic Republic of Cong

Appendix I Time Table

Phase I 2017-2018: August to December 2017

[illegible]

Phase I 2017-2018: January to May 2018

[illegible]

Phase II 2018-2019: June to December 2018

Phase 2 2018-2019			June				July				August				September				October				November				December			
Tasks	TOR Tasks	Work force	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planning meeting	Task 0	SS, AG, KM																												
Task 1 data entry modules - design phase	Task 1	SS, AG, JC, KM, JA, Guat																												
Task 1 database definition	Task 1	SS, JA, Guat																												
Task 1 - alpha version development and programming	Task 1	SS, JA, Guat																												
Task 1 - alpha version testing	Task 1	Andrew, Joy, Guat																												
Task 2 - dynamic reporting definitions	Task 2	SS, JA, Guat																												
Task 2 - dynamic reporting development	Task 2	SS, JA, Guat																												
Task 2 - alpha version testing	Task 2	SS, AG, JC, JA, Guat																												
Task 3 - draft documentation	Task 3	KM, JC, DD																												
Task 1 and 2 - beta version testing	Task 1 and 2	SS, AG, JC, JA, Guat																												
Task 1 and 2 - beta version training and observation	Task 1 and 2	AG, JC, DD																												
Task 3 - updated documentation	Task 3	KM, JC, DD																												
Final reporting and presentation	Final reporting	SS, AG, KM																												

Phase II 2018-2019: January to May 20

Phase 2 2018-2019			January				February				March				April				May			
Tasks	TOR Tasks	Work force	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planning meeting	Task 0	SS, AG, KM																				
Task 1 data entry modules - design phase	Task 1																					
		SS, AG, JC, KM, JA, Guat																				
Task 1 database definition	Task 1	SS, JA, Guat																				
Task 1 - alpha version development and programming	Task 1																					
		SS, JA, Guat																				
Task 1 - alpha version testing	Task 1																					
		Andrew, Joy, Guat																				
Task 2 - dynamic reporting definitions	Task 2	SS, JA, Guat																				
Task 2 - dynamic reporting development	Task 2																					
		SS, JA, Guat																				
Task 2 - alpha version testing	Task 2	SS, AG, JC, JA, Guat																				
Task 3 - draft documentation	Task 3	KM, JC, DD																				
Task 1 and 2 - beta version testing	Task 1 and 2	SS, AG, JC, JA, Guat																				
Task 1 and 2 - beta version training and observation	Task 1 and 2																					
		AG, JC, DD																				
Task 3 - updated documentation	Task 3	KM, JC, DD																				
Final reporting and presentation	Final reporting	SS, AG, KM																				

Phase 1 Key Personnel Level of Effort

Personnel	LOE (days)
Development Team Leader & FHI360 Project Director	30
Senior Advisor	30
Project Manager Quality Control	50
Technical Specialist/Trainer Lead	45
Technical Analyst/Writer	60
Lead Programmer/Database Expert	70
Guatemala Technical Team	200

Phase 2 Key Personnel Level of Effort

Personnel	LOE (days)
Development Team Leader & FHI360 Project Director	35
Senior Advisor	30
Project Manager Quality Control	60
Technical Specialist/Trainer Lead	65
Technical Analyst/Writer	85
Lead Programmer/Database Expert	80
Guatemala Technical Team	200

Appendix 2 SERVICES & FACILITIES PROVIDED BY RTI & MOEVT

1. **Facilities and equipment:** The Ministry will make available the following:
 - a. Meeting rooms with internet connectivity
 - b. Training rooms (including equipment) with internet connectivity.
 - c. Ministry sites will be open for Personnel of vendor during normal work hours (8:00AM – 3:00PM) or other hours and all according to pre-approved operational plans or meetings.
 - d. Ministry will enable the vendor to use its IT infrastructure for the purpose of installing, testing, operating, or maintaining software systems in this TOR.
 - e. Ministry and RTI will provide necessary tablets and hardware systems to install, test, operate and deploy the software systems in this TOR.
2. **Human Resources:** The MOEVT together with RTI will commit the following personnel to work hand-in-hand with the vendor:
 - a. SIS+ Project Coordinator from MOEVT.
 - b. SIS+ EMIS Technical Advisor from RTI.
 - c. SIS+ System Administrator from MOEVT.
3. **Information & Documentation:** The Ministry and RTI will make available to the vendor the following:
 - a. Software Requirement Specifications SRS document of the SIS+ Phase I and Phase II. This document will include all details of the physical system design (functional and non-functional requirements), system use cases, users' matrix, prototyping of SIS+ standardized forms/reports, access to OS BI tools and APIs.
 - b. Any available material and documents related to the assignment.

Appendix 3 School Information System Plus Terms of Reference

Zero Draft: 20 December 2016

Version 1: 27 February 2017, revised March 2, revised March 31

Version 2: 26 April 2017

School Information System *Plus*

Terms of Reference

Design, Build and Customize a School Information System Plus (SIS+) for the Government of Zanzibar, Ministry of Education and Vocational Training. Statement of Work for Phase I and Phase II SIS+ development.

Abbreviations

BI	Business Intelligence.
BoSY	Beginning of School Year
DTE	Department of Teacher Education
EMIS	Education Management Information System. An alternative name of SIS+
ICT	Information & Communication Technology.
M&E	monitoring and evaluation
Ministry	Government of Zanzibar, Ministry of Education and Vocational Training Ministry of Education.
MOEVT	Government of Zanzibar, Ministry of Education and Vocational Training.
OS	open source
RTI	RTI International, trade name for Research Triangle Institute
SIS+	School Information System Plus. For the purpose of this project, SIS+ is a fully Android-based system, designed and developed for the use at school level to store, manage and secure data and information of schools (i.e. students, educational resources, school infrastructure and other related data). Also, SIS+ is a system that extracts indicators through out-of-the-box statistical reports to be used by planners and decision makers at school, districts and Ministry levels.

In this document, we used SIS+ term interchangeably with the term EMIS Education Management Information System.

SRS	System Requirements Specifications
TOT	Training-of-Trainers.
TWG	Technical Working Group.
UAT	User Acceptance Test.
USAID	United States Agency for International Development
ZISP	World Bank Zanzibar Improving Sector Project
ZEC	Zanzibar Examinations Council

1. Introduction and Overview

The Revolutionary Government of Zanzibar, Ministry of Education and Vocational Training (MOEVT) intends to transform its existing education management information system through the development and deployment of a customized school-based digital information system, with support from the United States Agency for International Development (USAID) Tusome Pamoja and the World Bank Zanzibar Improving Sector Project. The education management information system (EMIS) is critically important for the Revolutionary Government of Zanzibar to leverage better data for decision-making. The current monitoring and evaluation (M&E) system has placed more emphasis on the collection of data than on systematically processing and analyzing the collected data and packaging and disseminating them for evidence-based decision making by internal and external stakeholders.

The recent Zanzibar Education Situation Analysis (2016) identified the following limitations of the system:

- **A fragmented system:** school census information is held by the EMIS section; teacher information by the HR department; examination information by the ZEC; teacher training data by the department of Teacher Education, and examinations data by the Zanzibar Examinations Council. Ideally, these data should be held as part of one EMIS system.
- **Fragile storage:** there are separate Excel spreadsheets storing data from different parts of the school census questionnaire, and for different years, so it is difficult to conduct cleaning checks within and between years. The large number of Excel spreadsheets are stored on limited numbers of computers, and there is no other back-up.
- **Data reliability concerns:** there is incomplete coverage of the private sector; data collection system is almost entirely centralized and manual in its operations and management and therefore prone to error.

- **Sporadic production of analytical material:** Education Abstracts and District Profiles are excellent tools but are produced sporadically rather than regularly each year.

The existing system is best characterized as strongly supply-driven. What this means is that the work practices and information flow tend to result primarily in many different actors supplying (or providing/entering) data into the system. The vast majority of the time spent is on data production and recording, not data analysis or use. The principal challenge of the current system relates to the redundant and duplicative forms and manual data entry processes experienced at all levels but most acutely by school head teachers. The resultant data entry burden for all schools, districts, teacher centers and MOEVT departments and agencies are enormously counter-productive to the efficient and effective use of their time and resources. All of which conspires to severely constrain their ability to process, analyze and act on this information in a timely and effective way.

Vision of a future *Demand-Driven* EMIS. The vision of a future EMIS is one that is *demand-driven*. That is all information consumers and stakeholders are drawing on one source of record for their school-level information needs through a school-based paper and digital data entry system. System users should enter only those data that are uniquely available to their office or function, and spend most of their time analyzing and acting on the data. In other words, their principal engagement with the EMIS data is to generate actionable, timely information to enhance the productivity, efficiency and effectiveness of their work.

A demand-driven decision-support EMIS has at its core a school-based data entry application for schools to enter their data directly. As much as 90-95% of all data (if not more) that are currently used is generated directly by schools. In such a system, schools enter data electronically directly into a centralized database. The data entered by schools would reflect and mirror their existing work practices: once per year beginning of school year information on school, enrollment and teacher details; continuous reporting of teacher and student attendance; student performance, dropouts, and student/ teacher transfers, and teacher subject/class assignments. Stakeholders ranging from schools to districts and teacher centers to MOEVT departments will access the data directly through an interface that would allow them to generate analysis and reports necessary for their work.

School Information System *Plus (+)*. The School Information System (SIS) will serve as the principal component of the new EMIS. All government and private pre-primary, primary, and secondary schools will use the system for their primary reporting responsibilities. An SIS has been developed for the Tanzania Mainland under the leadership of the Prime Minister's Office for Regional Affairs and Local Government (PO-RALG). For deployment by the Zanzibar MOEVT, the SIS must be customized to meet the unique context and needs of the Zanzibar schools, districts and Ministry and serve as the central component of its broader education management information system.

The SIS is a sub-national, school-based information capture and data management system that supports school, teacher center and district delivery and management of education services. Through the SIS, head teachers will submit annual and continuous monitoring (monthly, termly)

data on individual students, individual teachers and their schools' details through Android-powered tablets. The SIS will support the manipulation of this information to provide user-friendly data for each level to improve school and educational performance. The SIS is not just a data entry platform: it is a workflow process that governs the interactions for and between schools, communities, districts, teacher centers and Ministry to enable a data-driven planning, monitoring, evaluation and learning environment. Additional modules will be developed for Supervision, Inspection, Teacher Education, Examinations, Primary and Secondary Education, and Administration. The core SIS, plus the additional modules, are referred to together as the *SIS Plus (+)*.

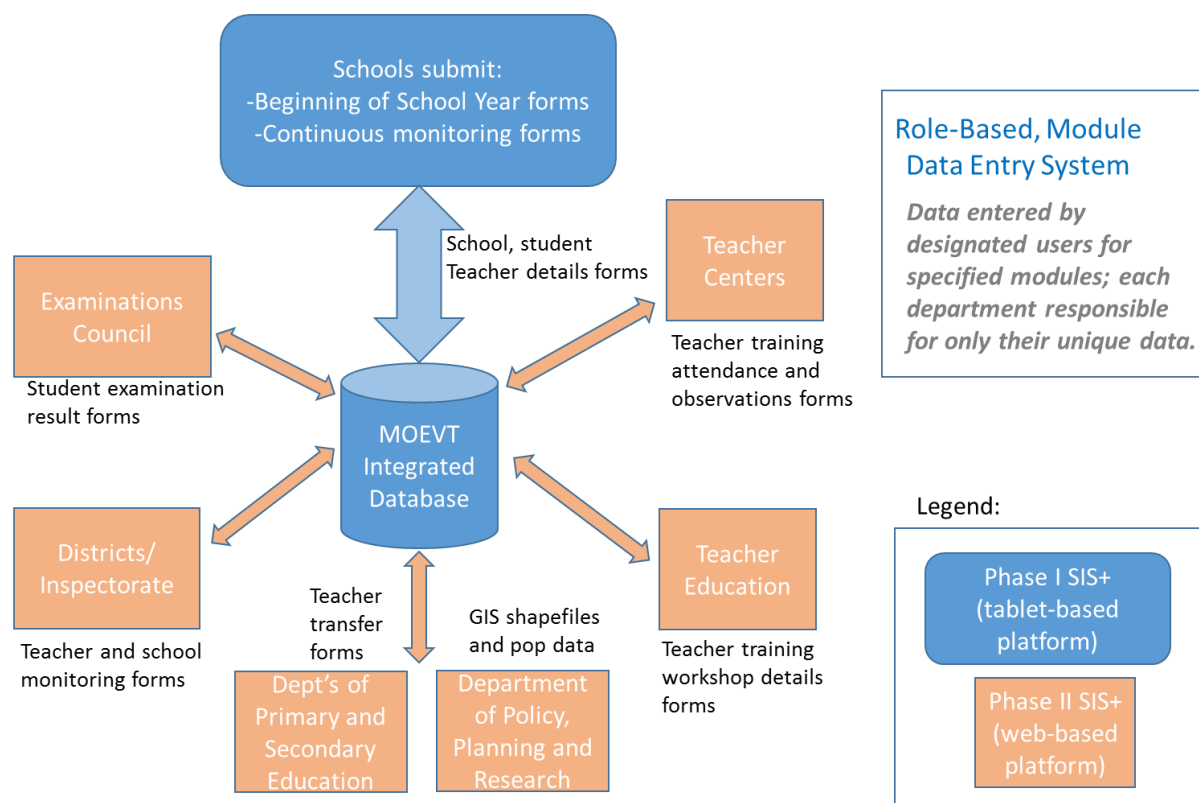
Timetable and Phasing for SIS+ deployment. The development and deployment of the SIS will follow three discrete phases over a four-year period.

- **Phase I:** core SIS beginning of school year and continuous reporting modules (Android-based application) for all government and private pre-primary, primary and secondary schools deployed by August 2017.
- **Phase II:** additional SIS+ web-based modules for key MOEVT departments and stakeholders developed and deployed by January 2018
- **Phase III:** technical system modifications and additional modules for human resource and asset management designed and deployed by 2018 and beyond.

Phase I Technical Activities. Phase I is concerned with the activities and milestones related to the development, deployment and support of the core SIS beginning of school year and continuous reporting modules for pre-primary, primary, and secondary schools. These include activities related to SIS software customization, hardware provision, training of relevant school, district, teacher center and MOEVT officers, establishing of help desk and ongoing maintenance and support.

Phase II Technical Activities. Phase II is concerned with the design, development and implementation of additional web-based data entry and reports modules. These modules will enable MOEVT departments, districts and teacher centers to enter data unique to their office directly into the central MOEVT server database. The modules will have role-based permissions to ensure data security and that only designated users have access to their specific modules and form fields. For example, only specified users from the Zanzibar Examinations Council will have the ability to access the Examinations module to input examination and final grade results. For all other users, the Examinations module will not be visible. Technical activities related to Phase II deployment and implementation include design of modules and user experience specifications, development of reporting and analytic tools, training of relevant MOEVT, district and teacher center personnel, and connectivity support for departments that have low or non-existent internet access. **Figure 1** depicts the relationship between Phase I and Phase II SIS development objectives.

Figure 1. Role-Based Data Entry Modules for Phase I and Phase II SIS+ Development



2. Background to USAID and World Bank Supporting Programmes

USAID Tusome Pamoja, along with the World Bank ZISP programme, are supporting the Ministry's efforts to implement the SIS+ in all government schools. USAID Tusome Pamoja is supporting direct implementation and support in 307 pre-primary, primary and basic (primary+secondary) schools; ZISP is supporting direct implementation and support in 147 secondary schools. In addition, USAID Tusome Pamoja will oversee development and customization of the SIS+ application and ensure the specifications of the Phase I and Phase II modules meet the requirements of all relevant MOEVT stakeholders.

About USAID Tusome Pamoja. USAID Tusome Pamoja is a five-year, sector support programme targeting better learning outcomes (focused on reading, writing and mathematics) at pre-primary and primary early grades (standards 1 through 4), in 31 Local Government Authorities of Mainland Tanzania across four regions of Tanzania – Iringa, Morogoro, Mtwara and Ruvuma - and 11 districts of Zanzibar. The goal of the program is to achieve age-appropriate, curriculum defined levels of reading and writing at standards 2 and 4 for at least 75% of classrooms in the target areas. An additional objective of the program is to develop, implement and demonstrate best approaches to strengthen the quality of education in the target regions for replication consideration in other regions. Within the target regions, there is estimated to be in excess of 1.4 million students enrolled, taught by more than 36,000 teachers in approximately 3,035 schools.

USAID Tusome Pamoja is a government-implemented programme led by the President's Office – Regional and Local Government (PO-RALG) and the Ministry of Education, Science & Technology (MOEST) in Mainland Tanzania. In Zanzibar, the program is led by the Ministry of Education and Vocational Training (MOEVT). The USAID Tusome Pamoja contractor, RTI International,² has established offices in each of the four mainland regions and Zanzibar. For each mainland region, the Regional Secretariat will provide oversight and coordination of Local Government Authority (LGA) activities. District Administration (notably the District Education Office) will lead the implementation of USAID Tusome Pamoja across the LGA targeting district, ward, school and community levels. In Zanzibar, the districts and Teacher Centres provide administrative and technical implementation leadership. The Regional Offices, with support from the Dar Office, will provide technical, operational and peripatetic support to each level of governance within each region.

World Bank ZISP Programme. The World Bank's Zanzibar Improving Student Prospects (ZISP) project is a five-year, US\$35 million project that will support the RGOZ in making both targeted interventions for quick impact, and system-level reforms for longer-term sustained gains. The MoEVT is the responsible agency for the ZISP project. The underlying principle is to gear the education system towards improved instruction and enhanced direct/personalized support to students. The project development objective of ZISP is to improve the quality of (a) instruction and (b) learning environment in upper primary and lower secondary (Standard 5 to Form 2) in Math, Science and English (MSE). The ZISP Project is further strengthening the Government's M&E system through technical assistance support. The overall EMIS is to be enhanced on multiple dimensions and so that the MoEVT's technical capacity on data management and use will also be strengthened. There will be particular focus on generating better and more-frequently updated data on students' formative assessments and teacher management (including performance indicators). The aim is for the education system data to be better linked and made easily accessible through education dashboard(s), a part of which will be accessible to the public.

3. Statement of Work for SIS+ Phase I Module Development

RTI International (through USAID Tusome Pamoja) intends to contract the services of a qualified Software Provider (vendor) to build, customize, modify, develop and deploy a scalable and sustainable SIS+ software application in Zanzibar. The statement of work (SOW) outlines the objectives, tasks and deliverables, work plan and schedule, and minimum qualifications to customize and deploy the SIS+ application to meet the needs of the Zanzibar education sector.

The SOW involves development of Phase I modules. RTI will consider **an option buy-in** for Phase II based on vendor and system performance. Phase I includes the core school reports modules to be submitted on Android-based tablets: the Beginning of School Year (BoSY) report and the continuous monitoring (monthly and termly) forms and standardized reports. Phase II

² RTI International is the trade name of Research Triangle Institute (www.rti.org)

includes the development of additional web-based data entry modules for other system users as well as implementation of a dynamic business intelligence, decision-support and feedback capability.

The software application must conform to the system requirements and specifications (SRS) document attached to this terms of reference (Attachment 1). The SRS provides a detailed description of the Phase I technical and functional requirements to meet the needs the MOEVT. Detailed use cases for Phase II functional requirements will be developed at a later time.

The overall period of performance for this service agreement is from [start Month] 2017 to January 2020, which includes a fixed 2-year period of operational maintenance and support provided off-site (remotely) by the vendor.

- **3.1 Phase I Objectives**

The vendor will customize and build six (6) tablet-based (Android-compatible) data entry modules and forms for school officers to begin entering data by August 2017. Data will be entered by either the head teacher or the school statistician (each form/module will have a designated user per the SRS). These forms will be field tested and de-bugged prior to deployment. The user interface, forms and modules must be available in English and Kiswahili. The vendor must develop the necessary documentation and training materials for system administration, backend help desk support, and for system end users. RTI expects the MOEVT to host the system server and database locally in the MOEVT headquarters in Zanzibar. Phase I will include comprehensive security protocols involving data encryption and user-defined role-based access permissions to the data, reports and information to ensure privileged control over who in the system has rights to which information. The SIS must meet international standards for maintaining personally identifiable information. In addition, the SIS must comply with open source initiative approved licenses that are widely used or have strong user communities;³ all code must be made freely and publicly available on a GitHub site for open access.

Four (4) of the reporting modules will be modified and customized based on existing Mainland reports. Two reporting modules will be developed that are unique to Zanzibar (not currently developed for the Mainland).

6. Customize the development of the annual Beginning of School Year Report based on modifications to the existing SIS Mainland baseline school questionnaire
7. Customize the development of continuous monitoring reports based on modifications to the existing Mainland application. These include:
 - a. Monthly student attendance form
 - b. Weekly teacher attendance form
 - c. Monthly teacher continuous professional development (CPD) form

³ See <https://opensource.org/licenses/category>

- d. Termly student performance form
- e. Termly student exit reports (to track transfers out and drop-outs)

The finalized approved paper version of these forms will be provided to the selected vendor

8. Develop additional continuous monitoring reports that are not currently developed for the Mainland. These include:
 - a. Termly teacher class assignment reports (to track teacher workload and teacher needs)

Attachment 2 contains the draft Forms for all SIS+ modules, which have been reviewed and agreed upon with the Zanzibar MOEVT. The vendor should work from these forms to estimate development LOE. To save development time and costs, RTI and the SIS+ software developer will align as much as possible the Zanzibar forms to those of the Mainland in terms of their format and structure, upon commencement of this contract. The forms that could be aligned almost perfectly include the teacher attendance forms, teacher CPD forms, student attendance forms, and student exit forms, and student performance forms.

The forms that will require more customized development in the SIS+ are the annual Beginning of School Year (BoSY) and the termly Teacher Class Assignment Form. Note though that the Zanzibar BoSY and the Mainland Baseline School Questionnaire share many of the same forms and data requirements.

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- **3.2 Phase I Tasks and Deliverables**

Phase I, Task 1. Database design. The relational database that supports the SIS+ must be based on open-source software (eg MySQL) and map unique primary key identifiers of database objects, including unique individual students, unique individual teachers, and unique individual schools. The database design will include a) a relational model that describes the connections between tables and reports; and b) database schema that includes codes for object characteristics and variables.

Phase I, Task 2. Develop security and encryption protocols, and role-based access privileges for system users. User designations and roles that govern data access and use permissions will include the following:

The system must use SSL protocol with rights and privileges of users to be assigned by the MOEVT:

- School users: minimum two per school for head teachers and school statisticians
- District users: minimum two per district for District Education Officer and District statistician

- General system users: designated MOEVT officials from all other departments (such as Policy Research and Planning, Departments of Primary and Secondary Education, etc)
- Specified module system users: designated officials from Examinations, Inspection, Departments of Primary and Secondary Education, Department of Teacher Education and Teacher Centers (with access to their respective Phase II modules) with capability to enter data and edit forms through an online form editor
- System administrators: designated MOEVT officials to ensure back-end system support, database management, maintenance and troubleshooting

Encryption protocols must meet international standards for maintaining personally identifiable information.

Phase I, Task 3. Startup Screen and School Registration Module. This module will initialize the application on the school's tablet and enable the school to enter basic information to register the school in the system.

Phase I, Task 4. Customize build of Beginning of School Year forms. The beginning of school year report will include four discrete sub-forms: (i) school particulars; (ii) school facility details; (iii) teacher details; and student details. The head teacher and school statistician will have a shared responsibility to enter the data for each of the sub-forms.

Phase I, Task 5. Customize build of Student Attendance forms. On a monthly basis, school statisticians will submit summary attendance forms for individual students by class. The school statistician will enter the number of days each student has been absent for the month (based on records maintained by the class teacher).

Phase I, Task 6. Customize build of Teacher Attendance forms. On a weekly basis, head teachers will enter the number of days absent for each individual teacher.

Phase I, Task 7. Customize build of Teacher Continuous Professional Development forms. On a monthly basis, head teachers will enter the type and amount of training, peer learning and support received by the teacher.

Phase I, Task 8. Customize build of Student Performance forms. On a termly basis (at the end of each school term), the school statistician will enter summary scores for individual students for each subject that pertains to their grade and level.

Phase I, Task 9. New build of Teacher Classroom Assignment forms. On a termly basis (at the end of each school term), the school head teacher will enter the subject, class and number of periods assigned to each teacher.

Phase I, Task 10. New build of Student Exit forms. On a termly basis, the head teacher will enter the status (transfer out or dropout) of students who have not been present any day for

the prior three months. If the student has dropped out, the head teacher will note the reason(s) from a drop-down list.

The Phase I SRS contains the specific use case data form fields and process flows for each form and module described above. RTI has already undertaken extensive consultations with the Zanzibar MOEVT to develop the SRS for all modules. The vendor must follow the Phase I SRS to exact specifications. Where the SRS is unclear or silent, or where the vendor deems the technological solution too costly or cumbersome, the vendor must consult with RTI and recommend solutions before proceeding.

Phase I, Task 11. Develop standard print-friendly tabular reports for school, district and MOEVT Department end users. These reports will provide the immediate information that schools, districts and key MOEVT departments require to satisfy their core functions and comply with their existing reporting duties. The reports should be available on demand and accessible through a web-interface platform and downloadable in MS Excel (or CSV) file format. Schools should be able to download their specific school reports from their local tablet. Districts and MOEVT should view and download reports from the web. The specific description of the content and format of these reports will be detailed at a later point in time. General guidance is provided in the SRS document.

Phase I, Task 12. System administration documentation and training for system support, trouble-shooters and help desk personnel. The vendor will be responsible for developing comprehensive documentation on system administration requirements and training materials for system administrators and support personnel. The system administrator training will focus primarily on database management and administration and backend system configuration (user access privileges, etc). The vendor will also be responsible for developing the documentation and training materials for system support personnel, including for individuals identified to provide first responder support to schools, districts and central Ministry HQ and help desk systems.

Note the training materials for end user master trainers and for end users (such as head teachers, school statisticians, district officers, and other end users) will be developed and implemented directly by RTI and MOEVT. RTI expects the vendor to contribute to the development of end user training materials.

For budget purposes, RTI and the MOEVT will cover the associated direct costs and logistics in-country directly for all training delivered.

- **3.3 Phase II Objectives**

The Phase II objectives and description are provided for informational purposes only. The offeror is expected only to submit a proposal for Phase I development. However, the offer should incorporate design considerations for Phase I to ensure compatibility with downstream Phase II requirements. Phase II SIS+ includes the implementation of a robust business

intelligence reporting engine that includes decision-support tools and feedback reports for schools, districts, and MOEVT departments and agencies. Five (5) additional data entry modules will be developed for Examinations, Supervision/Inspection, Teacher Education, the Department of Policy, Research and Planning (DPPR), and the Departments of Primary and Secondary Education. These modules will enable officers from the Zanzibar Examinations Council (ZEC), District Supervisors and School Inspectors, Department of Teacher Education (DTE) officers and Teacher Center subject advisors to enter data on students, teachers, and schools that they generate as part of their function. DPPR officers will have the capability to add/edit location and population data, and re-assign schools, shehias and districts as needed. The Departments of Primary and Secondary Education officers will be able to transfer and re-assign teachers from one school to another.

- **3.4. Phase II Tasks and Deliverables**

The following Phase II tasks and deliverables are provided for informational purposes only.

Phase II, Task 1. Develop additional web-based modules for data entry. Additional user modules include:

- Examinations module which will enable Zanzibar Examination Council officers to enter examination results for students taking the Standard IV, VI and Form 2 exams
- Supervision/Inspection module which will enable head teachers, district supervisors and school inspectors to enter information on teacher performance
- Teacher Education module which will enable Teacher Education officers to enter details on in-service teacher training (INSET) workshops and allow for Teacher Center subject advisors to note which teachers attended which INSET workshops.
- Teacher transfer module which will enable the Departments of Primary and Secondary Education to transfer teachers from one school to another.
- Location/population module which will enable the Department of Policy, Planning and Research to update the database with GIS shapefiles and district-level population data. This module will also allow the MOEVT to reassign schools, shehias, teacher centers and districts in the event they split or their boundaries change.
- Modified Beginning of School Year module. The Phase I report requires a massive registration of all students and teachers currently in the system. The subsequent BoSY reports will not require schools to enter every student and teachers' individual details again. Instead, the school facility details, teacher details and student details sections will be pre-populated from prior year data and require updates only for new entrants and transfers in, students who have exited, teachers who have come and gone, and updates to school facility details.
- Web-enabled data entry of private school data BoSY forms. The MOEVT desires that private schools use the SIS+ as the means to submit BoSY data on teachers, enrollment and school facilities. Unfortunately not all private schools will have access to Android-

powered tablets; nor can the Ministry cover the costs of their training and support. One solution is to provide private schools with a web-based data entry platform for those without tablets to access the internet and enter submit their reports online through an internet-connected laptop or desktop computer.

Phase II, Task 2. Develop decision-support and feedback tools. Decision support and feedback tools will entail user-definable web-based reporting tools and user friendly query builders to develop additional reports for other general users of the system, which should include the following features:

- Capability to create visualized charts and graphical representations of the data
- Capability to create custom indicators
- Capability to create spatial analyses using GIS data
- Capability to create custom dashboards and reports
- Capability to prioritize resource needs based on pupil : resource ratios and their minimum requirements (eg, pupil : textbook ratio, pupil : toilet ratio; pupil : seat ratio, etc)

Rather than hard-code this reporting, visualization and analytic capability into the system, the preference is to leverage an existing open source (non-enterprise) business intelligence tool that can interface with the data.

Phase II, Task 3. System administration documentation. The vendor will be responsible for developing comprehensive documentation on system administration requirements for system administrators, help desk personnel, and system end users for Phase II modules and features. RTI and the MOEVT will cover the costs of training and manage logistics in-country directly.

Phase II modules and deliverables must be field tested and debugged prior to deployment. The user interface, forms and reports must be available in English and Kiswahili. The vendor must develop the necessary documentation and training materials for system administration, backend help desk support, and for system end users for Phase II modules.

• 3.5 Phase I Work Plan and Deliverable Schedule

Phase I tasks and deliverables must be completed no later than [Month 2017] in order for initial training and deployment to school head teachers by [Month date]. The vendor must provide a detailed project work plan and schedule to meet the deployment timing for both phases. The work plan must define the work to be accomplished in terms of major and minor tasks, the schedule for completion of tasks, and the resources required to complete the tasks that are described above.

The project work plan must list major stages of the project, tasks and deliverables defined within each phase, estimated deliverable completion dates, and the dates for decision points that require approval before proceeding to the next major stage of the project.

Attachment 3 contains the illustrated work plan to review SRS, design, build, customize, test, train and support the SIS+ Phase I module. The vendor must prepare a work plan table for Phase I activities/milestones based on this model and approximately in line with LOE expectations set forth.

• 3.6 SIS+ Project Team Roles & Skills Requirements

The vendor should propose the optimal team required to ensure on time development and deployment. The proposal must include a table of positions, individuals proposed, responsibilities, levels of effort (in person hours). For guidance, the following team members are required at a minimum to ensure the successful implementation of the tasks.

1. **Development Team Leader.** To oversee the development team and provide quality assurance and quality control of the application, and develop system documentation
2. **Programmer Developer(s).** Build the application, interface and reports; train MOEVT system administrators.

The key skill areas needed, as a minimum, are:

Title	Required Knowledge/Skills/Experiences
	▶
2) Development Team Leader	<ul style="list-style-type: none"> ▶ 5 years' software development experience ▶ Project management skills. ▶ High level experience in team leading skills. ▶ Should have high-level experience in system development. ▶ Should have good experience in project life cycle. ▶ High level experience in preparing, and following-up the test cases. ▶ Should have a high-level experience of n-tier system architecture, client-server applications, web applications and a good understanding of network infrastructure. ▶ Should be able to identify points of automation, as well as to analyze potential points of business process simplification and improvement along the way. ▶ Good experience in educational systems and business process management and analysis. ▶ Should be able to write and/or organize (but not limited to): Source code documentation; User Manual documentation; System Administrator documentation; Training Manuals; Update the documentation where needed post going-live.
3) Programmer Developers	<ul style="list-style-type: none"> ▶ 3 years' experience in software development particularly with mobile and web-applications ▶ High level experience with mobile- and web-enabled software applications. ▶ High level experience in implementing and following-up the test cases. ▶ Demonstrated skills to achieve the following tasks: <ul style="list-style-type: none"> ○ Prepare and build the SIS+ modules, ○ Prepare and build the SIS+ reports and all other reporting requirements including the incorporation of the ad-hoc reporting tool, ○ Train the MOEVT staff on how to create these reports, ○ Build capacity of the MOEVT staff to implement and run the new systems,

Title	Required Knowledge/Skills/Experiences
	<ul style="list-style-type: none"> ○ Conduct Unit Testing, Integrated Testing and User Acceptance Testing (UAT). ○ Post implement and Troubleshoot SIS+ application bugs and errors post going-live. ▶ Good knowledge in Online Analytical Processing (OLAP). ▶ Practical and high level experience in database design and architectures. ▶ Troubleshoot RDBMS bugs and errors post going-live. ▶ Good experience in writing documentations and users manuals. ▶ Conduct end-user and administrator training.

4. Performance Payment Milestone Schedule

This will be a fixed price contract. The LOE workplan/activity schedule details core activities across three stages. The vendor is required to submit the specified deliverables at the completion of each stage. These deliverables constitute the performance-payment milestones.

1. **Stage 1.** Completion of Phase 1 Design and customize the SIS+ modules, database and architecture, and submission of Phase 1 Progress Report #1 (25% of contract value)
2. **Stage 2.** Completion of Phase 2 SIS+ performance, user acceptance testing (UAT), and submission of Phase I Progress Report #2 (25% of contract value)
3. **Stage 3.** Completion of Phase 3 SIS+ Go Live post-UAT beta version in the production environment, and submission of Phase I Progress Report #3 (50% of contract value)

The approved work plan will contain the agreed upon dates by which each of the deliverables will be expected.

5. Services & Facilities Provided by RTI and the MOEVT

4. **Facilities and equipment:** The Ministry will make available the following:
 - a. Meeting rooms with internet connectivity
 - b. Training rooms (including equipment) with internet connectivity.
 - c. Ministry will enable the vendor to use its IT infrastructure for the purpose of installing, testing, operating, or maintaining software systems in this TOR.
 - d. Ministry and RTI will provide necessary tablets and hardware systems to install, test, operate and deploy the software systems in this TOR.
5. **Human Resources:** The MOEVT together with RTI will commit the following personnel to work hand-in-hand with the vendor:
 - a. SIS+ Project Coordinator from MOEVT.
 - b. SIS+ EMIS Technical Advisor from RTI.
 - c. SIS+ System Administrator from MOEVT.
6. **Information & Documentation:** The Ministry and RTI will make available to the vendor the following:
 - a. Software Requirement Specifications SRS document of the SIS+ Phase I and Phase II. This document will include all details of the physical system design (functional and non-functional requirements), system use cases, users matrix, prototyping of SIS+ standardized forms/reports, access to OS BI tools and APIs
 - b. Any available material and documents related to the assignment.

Appendix 4 SIS Phase 1 Forms Master

The Revolutionary Government of Zanzibar Ministry of Education and Vocational Training

Beginning of School Year Questionnaire for School Information System (SIS) Plus [insert year]

Introduction

Every child deserves a quality education, but this can only occur when nations make resources available, equitably, fairly and promptly. The goal of the Beginning of School Year (BoSY) Questionnaire for the School Information System is to collect education data on all facets of school characteristics at the school level. The data collected through this questionnaire provides a snapshot of the Tanzanian education system and assists planners at all levels to target interventions for school improvement, including school leaders, district education officers, and MOEVT headquarters officers.

Responsibility

- 1 Each head teacher is responsible for the correct and accurate completion of his or her school's beginning of school year data and his or her signature is required.
- 2 All Government schools must complete the BoSY form.
- 3 The filled Questionnaires shall be verified by the District Education Officer and the [insert additional responsibility].
- 4 Deliberate reporting of inaccurate or incomplete information may lead to disciplinary action by the Government of Zanzibar according to the [insert relevant statute].

Source of Information

- 1 In order to complete the questionnaire, you will need to have on hand your school registers of students, teachers, and school facilities.
- 2 Provide data as of [date], similar to Annual School Questionnaire collected through the Ministry's Statistics Unit.
- 3 If you have any questions, please consult your respective DEO or [insert additional responsibility]

Getting Started

Before starting to complete the Questionnaire make sure you have:

- School registers on hand
- The questionnaire instructions booklet on hand
- Read the questionnaire instructions carefully

Important Note:

- If your school provides Pre-Primary Education only, answer questions for Pre-Primary only.
- If your school provides Primary Education only, answer questions for Primary only.
- If your school provides more than one of the levels of mentioned above, answer all questions with respect to the relevant levels.

For further instructions, clarification and communication contact District Education Officer or [insert additional contact] or email: [insert email address contact]

**Beginning of School Year Form for
School Information System Plus
(SIS+) for School Registration Only**

Form ID

*Form to be completed by Head Teacher only if
school is not yet registered in the SIS*

A. School Profile and Particulars

A1. School EMIS Code (six-digit EMIS code)		
A2. Name of School (write full name of school)		
A3. Location (write the name of your school's region, district, Shehia and assigned Teacher Center)	A3a. Region	
	A3b. District	
	A3c. Shehia	
	A4d. Teacher Center	
A4. Urban or Rural (tick whether your school is in an urban or rural area. Tick only one box)	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	
A5. School Year (write the current school year)		
A6. School Type (tick whether your school is government or private)	<input type="checkbox"/> Government <input type="checkbox"/> Private	
A7. School Level (tick the level(s) of education your school offers. Tick all that are applicable)	<input type="checkbox"/> A7a. Pre-Primary <input type="checkbox"/> A7b. Primary <input type="checkbox"/> A7c. Secondary	
A8. School Shifts (tick how many shifts your school operates. Tick only one box)	<input type="checkbox"/> One shift (single) <input type="checkbox"/> Two shifts (double)	
A9. School Bank Account (enter bank account number and name of bank)	A9a. Bank Account Number:	
	A9b. Name of Bank:	
A10. School Registration Number (write in the full registration number)		
A11. Year Established (write in the year your school was first established)		
A12. Owner (tick the type of owner of the school. Tick only one box)	<input type="checkbox"/> Government	
	<input type="checkbox"/> Community	
	<input type="checkbox"/> Individual	
	<input type="checkbox"/> NGO	
	<input type="checkbox"/> Corporation	
A13. School Address (write the full address of the school in the space below)		
A14. Contact Information (write the mobile number and email address)	A14a. Mobile Number	
	A14b. Email address	
A15. Language of Instruction (tick the box for the primary language of instruction. Tick only one box)	<input type="checkbox"/> Kiswahili <input type="checkbox"/> English <input type="checkbox"/> Other	
A16. Type of Secondary School (complete only if school offers secondary level classes (A7d, A7e or A7f). Tick only one box)	<input type="checkbox"/> Biased <input type="checkbox"/> Unbiased <input type="checkbox"/> Both	
A17. Type of Secondary School Bias (complete only if Biased or Both (A16a or A16c) was ticked above. Tick all that apply)	<input type="checkbox"/> A17a. Islamic <input type="checkbox"/> A17b. Computer <input type="checkbox"/> A17c. Business <input type="checkbox"/> A17d. French <input type="checkbox"/> A17e. Science <input type="checkbox"/> A17f. Social Science <input type="checkbox"/> A17g. Technical	

**Beginning of School Year Form for
School Information System Plus
(SIS+) for School Registration Only**

Form ID

*Form to be completed by Head Teacher at the
beginning of every school year*

B. School Details

B1. Grades and Streams	Level	Grade	Streams
<p>Write in the number of streams for each grade level offered.</p> <p>Streams are the number of classes within each grade/standard.</p> <p>If the school does not offer the grade/standard listed, leave the number of streams blank.</p>	Pre-primary (write in if A7a was ticked)	B1a. Nursery	
		B1b. Junior	
		B1c. Senior	
	Primary (write in if A7b was ticked)	B1d. Std I	
		B1e. Std II	
		B1f. Std III	F
		B1g. Std IV	
		B1h. Std V	
		B1i. Std IV	
	Secondary (write in if A7c was ticked)	B1j. Form I	
		B1k. Form II	
		B1l. Form III	
		B1m. Form IV	
		B1n. Form V	
		B1o. Form VI	

B2. Does the school share facilities with another school? (tick only one (1) box)	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	---

B2a. If Yes, write in name of school	
---	--

B3. Does the school have access water? (If yes, tick the source that applies. Tick only one (1) box).	<input type="checkbox"/> No <input type="checkbox"/> Tap <input type="checkbox"/> Borehole <input type="checkbox"/> Protected well <input type="checkbox"/> Unprotected well <input type="checkbox"/> Other sources
--	--

B4. Number of toilets in use (write the number of toilets for each category)	B4a. For use by boy pupils only	
	B4b. For use by girl pupils only	
	B4c. For use by teachers only	
	B4d. For use by both boys and girls	
	B4e. For use by both pupils and teachers	
	B4f. For use by persons with disabilities	

B5. Does the school have electricity? (If yes, tick the type of electricity source. Tick only one (1) option)	<input type="checkbox"/> No <input type="checkbox"/> National Grid <input type="checkbox"/> Other source
--	--

B6. Does the school have teacher's houses? (If yes, write in number of houses and number of staff living in houses in B6a and B6b)	<input type="checkbox"/> Yes
	<input type="checkbox"/> No

B6a. How many houses?		B6b. How many staff live in houses?	
------------------------------	--	--	--

B7. Does the school have a library? (Tick only one (1) box)	<input type="checkbox"/> Yes
	<input type="checkbox"/> No

B8. Distance of school from nearest health centre? (write in number of kilometers)	Km
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B9. What types of playgrounds does the school have? (if no, if the school does not have a playground. If the school has a playground, tick all that apply)	<input type="checkbox"/> B9a. No
	<input type="checkbox"/> B9b. Football field
	<input type="checkbox"/> B9c. Netball court
	<input type="checkbox"/> B9d. Other

B10. Did the School Management Committee met at least once last year? <i>Tick "Yes" if the SMC is active and has met at least once since the beginning of last school year</i>	
--	--

B11. Is the parent teacher council established at the school? <i>Tick "Yes" if a parent-teacher council has been established and has met at least once since the beginning of the school year</i>	
--	--

B12. School Income and Source of Funds. <i>Please indicate the amount of funds received next to each source listed. If no amount received, leave blank or enter "0" (zero).</i>	Grant Source	Amount in Shillings
	B12a. Agriculture	Tshs.
	B12b. Petty trade	Tshs.
	B12c. Handicraft	Tshs.
	B12d. Building levy	Tshs.
	B12e. Tuition fees *	Tshs.
	B12f. External aid	Tshs.
	B12g. Building grant	Tshs.
	B12h. In kind contribution (estimates)	Tshs.
	B12i. Parent contributions	Tshs.
	B12j. Other Contribution	Tshs.

**Private schools only*

B13. School Expenditures. <i>Please indicate the amount of funds received next to each source listed. If no amount received, leave blank or enter "0" (zero).</i>	Grant Source	Amount in Shillings
	B13a. Salaries *	Tshs.
	B13b. Teaching/learning materials	Tshs.
	B13c. Laboratory equipments	Tshs.
	B13d. Other equipments	Tshs.
	B13e. Water, Electricity and Sanitation charges	Tshs.
	B13f. Transport	Tshs.
	B13g. Construction	Tshs.
	B13h. Study tours	Tshs.
	B13i. Sports activities	Tshs.
	B13j. Other expenditures	Tshs.

**Private schools only*

Beginning of School Year Form for School Information System Plus (SIS+) for School Registration Only

Form ID

Form to be completed by Head Teacher at the beginning of every school year

C. Classrooms and Furniture (write in total number for each room type and column heading)

No	Type of rooms	C1	C2. Condition of rooms		
		Total Number of rooms used	C2a. Good	C2b. Need Major Repair	C2c. Under Construction
1	Classroom				
2	Library				
3	Head teacher office				
4	Staff room				
5	Hall				
6	Computer lab				
7	Workshops				
8	Science laboratory				
9	Geography room				
10	Play room				
11	Counselling office				
12	Alternative Learning Center				
13	Special Needs Classroom				
14	Other				

No	Type of rooms	C3. Furniture					
		C3a. One-seat desks	C3b. Two-seat desks	C3c. Three-seat desks	C3d. Single chairs	C3e. Tables for one student	C3f. Tables for two students
1	Classroom						
2	Library						
3	Head teacher office						
4	Staff room						
5	Hall						
6	Computer lab						
7	Workshops						
8	Science laboratory						
9	Geography room						
10	Play room						
11	Counselling office						
12	Alternative Learning Center						
13	Special Needs Classroom						
14	Other						

D. Other Buildings and Facilities

No	Type of facility	D1. Availability		D2. Shared with another school		D3. Total Number	D4. Number shared	D5. Capacity for all
		D1a. Yes	D1b. No	D2a. Yes	D2b. No			
1	Hall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2	Cafeteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3	Male Dormitory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
4	Female Dormitory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
5	Store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
6	Canteen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
7	BookShop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

**Beginning of School Year Form for
School Information System Plus
(SIS+)**

Form ID

*Form to be completed by Head Teacher at
the beginning of every school year*

E. Pre-Primary Teaching and Learning Materials

Complete form E only if your school offers Pre-Primary classes

E1. Teacher Guides for Pre-Primary Classes *(enter the number of teachers guides by subject and class)*

No	Subject name	E1a. Nursery	E1b. Junior	E1c. Senior
1	Language			
2	Islamic Knowledge			
3	Mathematics			
4	Environment			
5	Sports			
6	Arts and Crafts			

E2. Student Books for Pre-Primary Classes *(enter the number of student books by subject and class)*

No	Subject name	E2a. Nursery	E2b. Junior	E2c. Senior
1	Language			
2	Islamic Knowledge			
3	Mathematics			
4	Environment			
5	Sports			
6	Arts and Crafts			

**Beginning of School Year
Form for School Information
System Plus (SIS+)**

Form ID	
<i>Form to be completed by Head Teacher at the beginning of every school year</i>	

F. Teaching and Learning Materials for Primary School Classes

F1. Teacher Guides for Primary Classess *(enter the number of teachers guides by subject and standard)*

No	Subject name	F1a. Std I	F1b. Std II	F1c. Std III	F1d. Std IV	F1e. Std V	F1f. Std VI
1	Arabic						
2	Computer Studies						
3	English						
4	Islamic Knowledge						
5	Kiswahili						
6	Mathematics						
7	Science						
8	Social Science						
9	Sports						
10	Vocational training						
11	Geography						
12	History						
13	Civics / Citizenship						

F2.Textbooks for Primary School Classess *(enter the number of student books by subject and standard)*

No	Subject name	F2a. Std I	F2b. Std II	F2c. Std III	F2d. Std IV	F2e. Std V	F2f. Std VI
1	Arabic						
2	Computer Studies						
3	English						
4	Islamic Knowledge						
5	Kiswahili						
6	Mathematics						
7	Science						
8	Social Science						
9	Sports						
10	Vocational training						
11	Geography						
12	History						
13	Civics / Citizenship						

**F3. Supplemental Learning Materials
and Aides for Primary Classrooms.** *Enter
the number of each learning aide being used in
primary classrooms*

No	Learning Aide	Total Readers
F3a.	Standard I leveled readers	
F3b.	Standard II leveled readers	
F3c.	Standard III non-fiction readers	
F3d.	Standard IV non-fiction readers	

**Beginning of School Year
Form for School Information
System Plus (SIS+)**

Form ID

Form to be completed by Head Teacher at the beginning of every school year

G. Teaching and Learning Materials for Secondary School Classess

G1. Teacher Guides for Secondary School Classess *(enter the number of teachers guides by sub)*

No	Subject name	G1a. Form I	G1b. Form II	G1c. Form III	G1d. Form IV	G1e. Form V	G1f. Form VI
1	Arabic						
2	Computer Studies						
3	English						
4	Islamic Knowledge						
5	Kiswahili						
6	Mathematics						
7	Geography						
8	History						
9	Civics / Citizenship						
10	Physics						
11	Chemistry						
12	Biology						
13	Bookkeeping						
14	Commerce						

G2. Teacher Guides for Secondary School Classess *(enter the number of teachers guides by sub)*

No	Subject name	G2a. Form I	G2b. Form II	G2c. Form III	G2d. Form IV	G2e. Form V	G2f. Form VI
1	Arabic						
2	Computer Studies						
3	English						
4	Islamic Knowledge						
5	Kiswahili						
6	Mathematics						
7	Geography						
8	History						
9	Civics / Citizenship						
10	Physics						
11	Chemistry						
12	Biology						
13	Bookkeeping						
14	Commerce						

Beginning of School Year Form for School Information System Plus (SIS+)
Form ID
Form to be completed by Head Teacher at the beginning of every school year
H. Other Learning Materials and Aides
H1. Supplemental Learning Materials and Aides. *Enter the number of each learning aide item being used at each level. Fill in the column for each level that is applicable to your school*

No	Learning Aide	H1a. Pre-Primary	H1b. Primary	H1c. Secondary
1	Typewriter			
2	Map			
3	Dictionary			
4	Geometric shapes			
5	Globe			
6	Radio			
7	Science kit (Primary) ⁺			
8	Physics kit*			
9	Biology kit*			
10	Chemistry kit*			
11	Television			
12	Maps on the wall			
13	Computers/Laptops			
14	Tablets			

⁺ For Primary School classrooms only

*For Secondary School classrooms only

H2. Office and Administrative Equipment. *Enter the number of each equipment item in the school. Fill in the column with the number of functioning items and non-functioning items*

No	Office / Admin Equipment	H2a. Functioning	H2b. Non-Functioning
1	Computers		
2	Photocopier		
3	Printer		
4	Projector		
5	Radio		
6	Scanner		
7	School Notice boards		
8	Tablets		
9	Typewriter		
10	Video camera		

H3. Does your school have special needs equipment for pupils and students. <i>Tick Yes if the school has special the in stock, and in adequate quantity, and in good working condition. If Yes is selected, enter the total</i>	No.	Item	Yes	No	H3a. Total
	1	A4 frame	<input type="checkbox"/>	<input type="checkbox"/>	
	2	Braille machines	<input type="checkbox"/>	<input type="checkbox"/>	
	3	Braille paper	<input type="checkbox"/>	<input type="checkbox"/>	
	4	Crutches	<input type="checkbox"/>	<input type="checkbox"/>	24
	5	Embosser	<input type="checkbox"/>	<input type="checkbox"/>	
	6	Hearing aides	<input type="checkbox"/>	<input type="checkbox"/>	
	7	Magnifying glasses	<input type="checkbox"/>	<input type="checkbox"/>	
	8	Non-visual computer software	<input type="checkbox"/>	<input type="checkbox"/>	

Beginning of School Year Form for School Information System Plus (SIS+) for School Registration Only

Form ID

Form to be completed by Head Teacher at the beginning of every school year

Instructions: Enter all details for staff and teachers at school. Do not omit any information. Refer to the **Staff Registrar Book** to complete these forms electronically. If you do not have information available, consult your teacher or staff to help complete the information in the form.

I. Staff Details

I1. Non-Teaching Staff Information Enter the information for non-teaching staff exactly how it is recorded in the staff records book. If you are missing information, please follow-up with the staff person to complete all fields.	I1a. Family Name			
	I1b. Given Name			
	I1c. ZSSF			
	I1d. Mzanzibari			
	I1e. Sex	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
	I1f. Date of birth	dd	mm	yyyy
	I1g. Telephone number			
	I1h. Position			
	I1i. Date of Appointment	YYYY		
	I1j. Date of First Post	YYYY		
	I1k. Bank Account Number			
	I1l. Name of Bank			
	I1m. Comments			

I2. Teaching Staff Details			
Personal Identification Information	I2a. Family Name		
	I2b. Given Name		
	I2c. ZSSF		
	I2d. Mzanzibari		
	I2f. Sex	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Teaching Employment Status	I2g. Date of birth	dd	mm yyyy
	I2g. Position		
	I2h. Date of Appointment		
	I2i. Date of First Post		
Teaching Qualifications	I2j. Daily or Permanent		
	I2k. Academic Qualifications		
	I2l. Professional Qualifications		
	I2m. Specialization (A/S/G)		
Teacher License Information	I2n. Subjects qualified to teach		
	I2o. Amethibishwa (tenured)		
	I2p. License Number		
	I2q. License Type		
	I2r. Date of Issue		
Residence Information	I2s. Date of Expiration		
	I2t. Location (town/village)		
	I2u. Distance from school (approx Km)		
Banking Details	I2v. Bank Account Number		
	I2w. Name of Bank		

I3. Teacher Leave Status

I3a. Is the teacher currently on leave?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Study Leave	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes: I3b. Subject of study
		I3c. Date of completion
		I3d. Institution attending
		I3e. Degree/diploma
13f. Maternity Leave	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes: I3g. Expected return date
13h. Leave with pay	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes: 13i. Reason:
13j. Leave without pay	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes: 13k. Reason:

I4. Teaching and Non-Teaching Duties

Teaching and Non-Teaching Duties	14a. Pre-primary level	<input type="checkbox"/> Yes <input type="checkbox"/> No	No. periods
	14b. Primary level	<input type="checkbox"/> Yes <input type="checkbox"/> No	No. periods
	14c. Secondary level	<input type="checkbox"/> Yes <input type="checkbox"/> No	No. periods
	14d. Subjects taught at Pre-primary level	1	<input type="checkbox"/>
		2	<input type="checkbox"/>
		3	<input type="checkbox"/>
	14e. Subjects taught at Primary level	1	<input type="checkbox"/>
		2	<input type="checkbox"/>
		3	<input type="checkbox"/>
		4	<input type="checkbox"/>
		5	<input type="checkbox"/>
	14f. Subjects taught at Secondary level	1	<input type="checkbox"/>
		2	<input type="checkbox"/>
		3	<input type="checkbox"/>
		4	<input type="checkbox"/>
		5	<input type="checkbox"/>
14g. Other duties			

**Beginning of School Year Form for
School Information System Plus
(SIS+) for Student Registration**

Form ID

*Form to be completed by Head Teacher
at the beginning of every school year*

Instructions: Enter all details for each student at school. Do not omit any information. Refer to the **Student and Class Registrar Books** to complete these forms electronically. If you do not have information available, consult the students' parents or guardians to help complete

J. Student Registration Details

J1. Student Personal Information	J1a. Student ID code	
	J1b. Student Surname	
	J1c. Student First Names	
	J1d. Student date of birth (dd/mm/yyyy)	dd mm yyyy
	J1e. Student sex (boy/girl)	
	J1f. Year student started Standard I	YYYY

J2. Student's Parent Status. <i>Tick the boxes only if the student's parent(s) is known to be deceased. Tick all that apply</i>	J2a. Mother deceased	<input type="checkbox"/>
	J2b. Father deceased	<input type="checkbox"/>

J3. Student's Parent or Guardian Information	J3a. Name of Father/Guardian	
	J3b. Name of Mother/Guardian	
	J3c. Parent/Guardian telephone number	

J4. Student's Disability	J4a. Hearing disability	<input type="checkbox"/>
	J4b. Partial Seeing disability	<input type="checkbox"/>
	J4c. Blindness	<input type="checkbox"/>
	J4d. Physical disability	<input type="checkbox"/>
	J4e. Learning disability	<input type="checkbox"/>
	J4f. Albino	<input type="checkbox"/>
	J4g. Other	<input type="checkbox"/>

J5. Grade and Stream	J5a. Grade Level	Standard II
	J5b. Stream	C

J6. Student Characteristics			
J6a. Is the student a day student or a boarding student?	<input type="checkbox"/> Day	<input type="checkbox"/> Boarding	
J6b. Is the student a repeater?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
J6c. Is the student a transfer in from another school?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
J6d. If yes, which school?			
J6e. Is the student a drop in (that is was the student formerly a drop-out?)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Weekly Teacher Attendance Form**Form ID***Form to be completed by Head Teacher at the beginning of every month*

Instructions: Enter teacher attendance details for each teacher at school. Do not omit any information. Refer to the **teacher attendance record** to complete these forms electronically.

Step 1. Select month and Year

1a. Week

1b. Month

1b. Year

Step 2. Enter the total number of schools days for the month

Step 3. Once the month and year are selected, table will be generated on the screen with the following information for each teacher

Teacher ID

Auto-populated from

Teacher given name

Auto-populated from

Teacher family name

Auto-populated from

3a. Number of days teacher was present for the month

3b. Number of days absent for excused reasons

[days]

[reason]

3c. Number of days absent for unexcused reasons

[days]

3d. Number of days tardy (arrive to school late)

[days]

Step 4. Once table is complete, select continue. A confirmation prompt should be given to go to the next teacher or complete

Monthly Student Attendance Form**Form ID**

Form to be completed by School Statistician at the beginning of every month

Instructions: Enter student attendance details for each student at school. Do not omit any information. Refer to the **Class attendance record** to complete these forms electronically. If you do not have information available, consult the teacher to help complete the information in

Step 1. Select month and Year

1a. Month

1b. Year

Step 2. Enter the total number of schools days for the month**Step 3. Select Grade and Stream**

3a. Grade

Standard II

3b. Stream

D

Step 4. Once the Grade and Stream are selected, table will be generated on the screen with the following information for each student.

Grade

Stream

Student's ID

Student's Given Name

Student's family name

Standard II

D

4a School officer to complete

4a. Number of days student was present for the month

Table to be displayed on the screen should enable the user to write in the number of days for the month and autopopulate the other column fields, as shown below

Class	Stream	Student ID	Student Name	Number of days present for month
Standard I	A	Auto-pop list [from J5]	Auto-pop [from J5]	[write in, not to exceed number of school days for the month entered above]
Standard I	A	Auto-pop	Auto-pop	
Standard I	A	Auto-pop	Auto-pop	

Step 5. Once table is complete, select continue. A confirmation prompt should be given

Monthly Teacher Continuous Professional Development Form

Form ID

Form to be completed by Head Teacher at the beginning of every month

Instructions: Enter the teachers' continuous professional development opportunities for each teacher at school. Do not omit any information.

Step 1. Select month and Year

1a. Month

1b. Year

Step 2. Enter the professional development received by the teacher in the past month

Instructions: Enter the teachers' continuous professional development opportunities for each teacher at school. Do not omit any information.

2a. Number of days teacher participated in TC-based training this month (formal training)	[days]
2b. Theme(s) or topic(s) of formal training	
2c. No. of days this month teacher visited TC for teacher meetings or for instructional support	[days]
2d. No. of hours teacher was supported by head teacher on instruction this month	[hours]
2e. No. of hours teacher was supported by TC Subject Advisor on instruction at the school	[hours]

Step 3. Once table is complete, select continue. A confirmation prompt should be given to go to the next teacher or complete

Termly Student Exit Form**Form ID**

Form to be completed by School Statistician at the end of every term for all three (3) terms

Instructions: This form must be completed for students who have zero days present or attending school for the selected term period. Indicate whether the student has transferred out or has dropped out. If the student is a transfer out, write in the school. If the student is a drop out, indicate the reason.

Step 1. Select Term and Year	1a. Term	
	1b. Year	

Step 2. Select Grade and Stream	3a. Grade	Standard I
	3b. Stream	C

Step 3. Once the term and year are selected,3. displays table of students that have zero days present for the selected term as below	Student ID	from J5
	Student given name	From J5
	Student family name	From J5
	Total days present for term	From Monthly Return
	3a. Student action	
3b. If transfer out, write name of school:		
3c. If the student is a drop out give reason:		

Table to be displayed on the screen should enable the user to write in the number of days for the month and autopopulate the other column fields, as shown below

Student ID	Student Name	Total days present for Term	Student Action	Status/Dropout Reason
Auto-pop	Auto-pop	Auto-pop from attendance report (should be zero days)	Transfer Out	[Write in school transferred to]
			Drop Out	Reason 1 (drop-down list) Reason 2 (drop-down list) Reason 3 (drop-down list) Other (specify)

Step 4. For each subject selected, select the grade taught	Form I
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Step 5. For each grade selected, select the stream(s) taught for that grade level. Tick all that apply	<input type="checkbox"/> A	<input type="checkbox"/> G	<input type="checkbox"/> M
	<input type="checkbox"/> B	<input type="checkbox"/> H	<input type="checkbox"/> N
	<input type="checkbox"/> C	<input type="checkbox"/> I	<input type="checkbox"/> O
	<input type="checkbox"/> D	<input type="checkbox"/> J	<input type="checkbox"/> P
	<input type="checkbox"/> E	<input type="checkbox"/> K	<input type="checkbox"/> Q
	<input type="checkbox"/> F	<input type="checkbox"/> L	<input type="checkbox"/> R

Step 6. Select "Add another subject" or "Next"	<input type="checkbox"/> Add another subject	<input type="checkbox"/> Next
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Repeat Steps 3 to 6 until full class assignment for the teacher has been completed.
Once all subjects, grades and streams are complete (select "Next"), SIS auto-populates the number periods the teacher is teaching and prompts confirmation that this is correct

Step 7. Confirm total number of periods for [name of teacher]	
Total number of periods is 24	7a. Is this correct? <input type="checkbox"/> Yes <input type="checkbox"/> No
7b. If Yes, add another teacher, update entries, or finish?	<input type="checkbox"/> Add another teacher <input type="checkbox"/> Update Entries <input type="checkbox"/> Finish and exit module

Select "Add another teacher" until all teachers' assignments are complete (repeat Steps 3 to 7b) If any errors or edits need to be made to the entry, select "Update entries"

7c. Teacher class assignmentnet (TCA) database edit view [Optional]

TCA_No	TCA_Year	TCA_Term	TCA_Teach	TCA_Teach	TCA_Subj	TCA_Grad	TCA_Strea	TCA_Peric	Edit
1	2018	1	55555555	Mohamm	English	Form I	A	6	<input type="checkbox"/>
2	2018	1	55555555	Mohamm	English	Form I	A	6	<input type="checkbox"/>
3	2018	1	55555555	Mohamm	Kiswahili	Standard V	B	6	<input type="checkbox"/>
4	2018	1	55555555	Mohamm	Sports	Form II	A	2	<input type="checkbox"/>
5	2018	1	55555555	Mohamm	Social Scie	Standard V	C	4	<input type="checkbox"/>

7d. Update Teacher class assignmentnet (TCA) database edit view	<input type="checkbox"/> Update and add another teacher
	<input type="checkbox"/> Update and exit module

Termly Student Performance Form**Form ID**

Form to be completed by School Statistician at the end of every term for all three (3) terms

Step 1. Select Term and Year	1a. Term	
	1b. Year	

Step 2. Select Grade and Stream	2a. Grade	Standard II
	2b. Stream	D

Step 3. Once the Grade and Stream are selected, table will be generated on the screen with the following information for each student.	Grade	Standard II
	Stream	D
	Student's ID	
	Student's First Name	
	Student's surname	
Primary Subject Scores	3a. Alternative Learning	
	3b. Arabic	
	3c. Computer Studies	
	3d. English	
	3e. Kiswahili	
	3f. Mathematics	
	3g. Religion	
	3h. Science	
	3i. Social Science	
Secondary Subject Scores	3j. Alternative Learning	
	3k. Arabic	
	3l. Biology*	
	3m. Bookkeeping*	
	3n. Chemistry*	
	3o. Civics*	
	3p. Commerce*	
	3q. Computer Studies	
	3r. English	
	3s. Geography	
	3t. History	

Table to be displayed on the screen should enable the user to write in the student scores for the term and autopopulate and auto-calculate the other column fields, as shown below

Grade / Stream [eg Standard I, Stream A]

Student ID	Student Name	Social Science	Kis	Eng	Sci	Math	Relig	Arab	Sports	Total	Average
Auto-pop	Auto-pop									Auto-calc	Auto-calc

Step 4. Confirm and return to Step 2 to add in new grade and stream