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Assistance to Basic Education: All Children Reading (ABE ACR)

Tanzania National EGRA
Sampling and Logistics Plan

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This combined Sampling and Logistics Plan provides a description of the sample and data collection logistics for the Tanzania National Early Grade Reading Assessment (EGRA) study. The Sampling Plan introduces the design, methodology, and verification process for the sample of schools to be used in the study. The Logistics Plan outlines the steps that will be taken to complete the data collection with teams of assessors administering the assessment instruments. The combined Sampling and Logistics Plan provides a clear understanding of the origin and design of the sample and how the sample relates to the data collection process through the steps outlined in the data collection logistics.

1 Sampling Plan

1.1 Population and List Frame

The population of interest will be all Standard 3 students attending non-special needs public schools within the country.¹ The list of schools identified in the 2014 National Examinations Council of Tanzania (NECTA) Primary School Leaving Certificate Examination were used for the schools in mainland Tanzania. The 2014 census list of schools collected by the Zanzibar Ministry of Education was used for the islands composing the Zanzibar region. After making the appropriate exclusions,² a total of 15,704 schools were identified in the list, which was used for sampling the population of interest.

1.2 Sample Methodology

The sample methodology calls for a two-stage sample of schools–teachers and schools–students. **Table 1** provides a summary of the sample methodology.

Schools were stratified by 26 regions³ and 25 schools were randomly sampled from each region for a total of 650 schools. Schools within each region were then sorted by district, ward, enrollment, and school code. The schools were sorted as such to ensure that the sampled schools spanned the region. Finally, schools were sampled with probability proportional to enrollment within each region. For each originally sampled school, two schools that most resemble the originally sampled school (by district, ward, and enrollment) were automatically sampled as replacements. These two schools act as possible replacements schools in case the original school is deemed to be unfit for assessment (for more information, see the Verification of Sampled Schools section in this document).

Once the Data Collection Team visits the verified sampled school, one Standard 2 teacher will be sampled with equal probability within the selected school. Assessors will use the Teacher Questionnaire, Classroom Observation, and Classroom Inventory instruments to collect information from the sampled teacher.

¹ The 66 schools that were visited by NECTA in November 2015 for the NECTA Standard 2 Pilot study were excluded.

² Exclusions were made for the following reasons:

n = 371 Non-government schools

n = 66 Schools because they were visited in November 2015 for the NECTA Standard 2 Pilot Study

³ “26 Regions” includes the 25 mainland regions and combining the islands of Zanzibar and Pemba into one region.

Completely independent of the Standard 2 teacher selection, 12 Standard 3 students will be sampled within the selected schools. Students will be stratified by gender. Six female and six male students will be sampled from each school, which will result in approximately 7,800 Standard 3 sampled students. Assessors will use the EGRA and Pupil Questionnaire to collect information from the sampled students.

Table 1. Sample Methodology Summary

Stage Number	Item Sampled	Stratified by	Probability of Selection
1	Schools (650)	Region (26) 25 Schools per region	Proportion proportional to enrollment ^a
2	Standard 2 Teachers (650)	<none> 1 Teacher per selected school	Equal
	Standard 3 Students (7,800)	Gender (2) 6 Female and 6 male students per selected school	Equal

^a Proportional to Enrollment: For the mainland data, enrollment was the total number of students who sat for the Primary School Leaving Certificate Examination in 2014. For the data from Zanzibar and its surrounding islands, it was the Standard 2 enrollment for the 2014 census data.

The sample will provide estimates of the population that can be disaggregated by gender and will indicate, both nationally and regionally, student performance relative to the benchmarks that were developed in 2014. For example, the sample is anticipated to be able to report the estimated percentage of Standard 3 students reaching benchmark within each region with a predicted 95% confidence interval band of approximately $\pm 6.5\%$ of students reaching benchmark. The national estimate should have an even tighter 95% confidence interval band of approximately $\pm 2.0\%$ of students reaching benchmark.

1.3 Verification of Sampled Schools

Once schools are sampled and before the actual data collection, schools will need to be verified to ensure that they meet the appropriate requirements for assessment. If a school does not meet *all* of these criteria, then the school will be removed from the sample, and the first replacement school will be contacted to verify that it meets the requirements. Once a school is verified to meet all of the requirements, then Data Collection Teams will be ready to visit the school during data collection. The requirements for the 2016 data collection for the Tanzania National EGRA are that the school must

- Be open at some point during the data collection time period
- Be located in the correct region
- Be government-funded
- Have a Standard 3 enrollment.

1.4 Logistics Plan

The data collection period for the Tanzania National EGRA is scheduled to take place during 15 school days (February 8 through February 26, 2016). During this period, 44 four-person teams will visit one school per day for a total of 650 schools, assess 12 students at each school for a total of approximately 7,800 Standard 3 students, and observe at least one Standard 2 teacher per school conducting a lesson in Kiswahili reading. The teams will visit schools that are within the sampling framework to ensure that the data collected meet the needs of the analysis and reporting demands.

This plan focuses on logistics (i.e., teams, instruments, and data collection); discusses the data cleaning, processing, and analysis; and describes the two-stage process for reporting.

1.5 Teams

Given the large sample size, the teams will be trained to administer the assessments according to a cascade training model. Qualified Master Trainers will be trained and will, in turn, train the assessors and supervisors at five simultaneous Regional Assessor Training Workshops. Of the 18 trained Master Trainers, 15 will be selected to continue as Master Trainers at the Regional Assessor Training Workshops. The selected Master Trainers will have passed a certification process involving daily quizzes and inter-rater reliability (IRR) process. These Master Trainers will then train 220 total assessors and supervisors across the five training locations. Approximately equal numbers of participants will be trained in each of the Regional Assessor Training Workshop locations. From the cohort of trained assessors and supervisors, 44 team supervisors and 132 assessors will be selected to compose the 44 teams that will conduct the data collection activities. The final selection of assessors will be determined according to a rigorous IRR process conducted at each of the Regional Assessor Training Workshop locations. The teams will consist of the highest performing assessors who reached or exceeded the agreed upon benchmark of 90% compliance with the Gold Standard.

Each of the 44 data collection teams will consist of four members (i.e., one team supervisor and three assessors). The supervisor will serve as the team coordinator. In this capacity, this person will be responsible for the logistics, progress, materials, and reporting of the team during each day of data collection. The supervisors will be identified by the subcontractor, DataVision, from a pool of assessors contracted by them. This relationship allows DataVision to maintain close oversight for the teams through regular communication with the supervisors. The Ministry of Education and Vocational Training (MoEVT), NECTA, and other government branches will be responsible for recruiting the remaining three team members (i.e., the assessors [also referred to as data collectors]).

During the data collection phase, supervisors of the teams will be responsible for performing the following important duties at each school visited:

- When the team arrives at the school, introducing the project to the Head Teacher
- At the assessment venue, arranging the desks in an appropriate configuration in an empty classroom or quiet space
- Ensuring that the students at the school are sampled properly according to the protocol agreed upon during the Regional Assessor Training Workshop
- Overseeing the assessments conducted by the other three team members

- Ensuring that the assessors properly upload their data at the end of the day
- Ensuring that all tablets are fully charged and turned in by the team members
- Communicating daily progress back to DataVision’s headquarters at the end of each day.

Of the three assessors, two will administer the student-level instruments, and one will administer the teacher- and classroom-level instruments (for more details regarding the instruments, see the Instruments subsection in this document). The student-level instruments are the EGRA in Kiswahili and the Pupil Questionnaire. The teacher-level instrument is the Teacher Questionnaire. The classroom-level instruments are the Kiswahili Reading Classroom Observation and the Classroom Inventory. The assessors responsible for the student-level instruments will each conduct six student assessments. Each EGRA will contain two passages. It is important to note that the order of these passages in the EGRA assessment will rotate to ensure that no performance bias occurs. By dividing the team into specializations, the team is able to cover the large number of student assessments, questionnaires, observations, and inventories demanded by the study during the limited hours of the school day.

1.6 Instruments

The Data Collection Teams will conduct the assessments, observations, questionnaires, and inventories by using the RTI International–developed Tangerine[®] software on Google Nexus 7 (or similar) tablets, along with paper-based student stimulus sheet booklets. The teams will also have paper-based instruments in the field as a backup measure in case significant malfunctions should occur with the electronic format. Using the electronic data collection system will allow for daily data quality checks and uploads from the field. Before the data collection effort begins, the Data Collection Teams will receive training on how to properly use the instruments for the assessment. The instruments, which were developed at and following the Design Meetings in mid-November 2015, will be modified and finalized after the pilot study data analysis. The pilot effort will be held immediately after the Regional Assessor Training Workshops on January 25, 2016. During that training workshop, the Data Collection Teams will use the same tablets as those employed for data collection. During the Regional Assessor Training Workshops, the Data Collection Teams will be instructed on how to properly upload data results from the field and how to handle all of the logistics and procedures that occur during a school visit.

The instruments include the EGRA in Kiswahili and a suite of Snapshot of School Management Effectiveness (SSME) questionnaires, observations, and inventories. Each instrument consists of the following subtasks:

- **EGRA Kiswahili:** Syllable Naming,⁴ Non-word Reading, Oral Reading Fluency, Reading Comprehension, and Dictation of Sentences
- **SSME:** Teacher and Pupil Questionnaire, Kiswahili Classroom Observation, and Classroom Inventory.

⁴ The Syllable Naming subtask will be included in the pilot effort. The data from the pilot effort will be analyzed to determine whether this subtask is appropriate to retain for the full data collection.

1.7 Data Collection

DataVision staff will brief the supervisors of the teams during the interim period between the Regional Assessor Training Workshops and the start of data collection. During this briefing, the supervisors of the teams will be given any necessary updates. Then, the supervisors will develop final routing plans for school visits and ensure that all necessary materials are organized for the departure to the field. These necessary materials included paper copies of instruments, tablets loaded with the finalized instruments, and accessories to ensure that the tablets properly function in the field.

The Data Collection Teams will be routed to maximize efficiency during the specified data collection period. Each team will be assigned a group of schools from the sample selected as per the sampling framework (see the previously mentioned Sampling Plan). Given the size of the country and the limited time frame, local knowledge and in-country logistical expertise from the subcontractor are critical in ensuring smooth planning for the limited data collection window.

During data collection, teams will employ quality control measures to ensure high-quality data. These measures will include Field Supervisors⁵ and DataVision staff visiting teams during data collection to provide oversight and practice field IRR, which is one of the quality control measures being used during the data collection effort.⁶ The Statistician Team will provide ongoing monitoring of data quality as data are uploaded to the RTI server.

1.8 Data

Throughout the data collection period, all data will be uploaded to the RTI server. Once the uploads have been finalized and the data have been confirmed, the Statistician Team at RTI will clean and process these data. The cleaning process will ensure that all uploaded data are in the proper format and are usable during the processing and analysis phases.

The Statistician Team at RTI, with contributions, if needed, from the subcontractor (DataVision), will lead the cleaning, processing, and analysis of the data. These data will then be shared with the RTI technical team of experts in EGRA and SSME, so they can compile the findings during the reporting phase of the project.

⁵ The Master Trainers who trained the assessors and supervisors will go on to serve as Field Supervisors during data collection. The Field Supervisors will provide oversight and quality control to a group of data collection teams.

⁶ Field IRR involves the EGRA assessors selecting one student at the school for which both assessors will record the student responses on the EGRA. One assessor conducts the EGRA, but both mark the student responses. The responses recorded by the two assessors are then compared for consistency.

1.9 Reporting

RTI will report the findings in a two-stage process as follows:

- **Stage 1:** The Preliminary Results Report will be made available by May 2016 to allow information to be reviewed and used at the National-Level Dissemination Workshop and by appointed MoEVT and NECTA representatives.
- **Stage 2:** By the end of June 2016, the Final Report for the Tanzania National EGRA study will be made available for the four regional dissemination workshops in late June and July 2016, reflecting the discussions and decisions from the national-level workshop.