BACKGROUND

In November 2014, Zambia’s Ministry of Education, Science, Vocational Training and Early Education (MESVTEE) and the Examinations Council of Zambia (ECZ), with support from the United States Agency for International Development (USAID) and the British Department for International Development (DFID) and technical assistance by RTI International, conducted the Grade 2 National Assessment Survey (NAS). This test incorporated the Early Grade Reading Assessment (EGRA) in seven local languages along with some English-language subtasks; and the Early Grade Mathematics Assessment (EGMA). The purpose of this study was to generate data that could be translated into an evidence base to inform policy decisions and interventions.

The findings of the Grade 2 NAS showed quite clearly that the vast majority of pupils were neither reading fluently nor reading with comprehension. On average, the oral reading fluency rate for the local languages ranged from 1.84 to 8.40 words per minute, indicating that the typical grade 2 pupil could sight-recognize a few words but struggled to string the words from a passage into a coherent sentence. And, on average, across the local languages, only about 2% of grade 2 pupils were reading with comprehension—the goal of reading instruction.

The generally high level of zero scores on the reading comprehension task (ranging from 62% to 94% across the local languages) suggested much work remaining to be done. In other words, these grade 2 pupils were not, on average, attaining a level of reading skills adequate to ensure full comprehension of what they read.

The trend on the EGMA also was very clear. Although pupils performed better on the more procedural tasks (i.e., basic addition and subtraction facts), they struggled to apply this procedural knowledge to solve tasks that were more conceptual in nature.

These results begged the question, “What is an acceptable level of reading and mathematics achievement for Zambian pupils in the early grades of primary school?”

A National Policy Dialogue Workshop was held on July 1, 2015, followed immediately by a Benchmark Setting Workshop July 2–3, to address this question.

Representatives of the MESVTEE, the ECZ, the Curriculum Development Centre, the Zambia National Education Coalition, provincial and district education officers, and local and international nongovernmental organizations working in the field of early grade education attended this workshop to begin Zambia’s efforts to define standards for pupil performance in key areas of reading and mathematics skill development in grade 2.

Only a handful of developing countries have taken on the challenge of setting benchmarks for reading skills in the early grades. Mexico did so several years ago, and Ghana, Kenya, and Tanzania did recently. Egypt and Liberia have defined benchmarks, and Kenya and Tanzania have officially adopted a standard for oral reading fluency
in both English and Kiswahili. Thus, Zambia is among the leaders of this effort.

The results of the Grade 2 NAS in Zambia provided an evidence base from which to discuss what benchmarks might be most appropriate for the current Zambian context.

THE BENCHMARK SETTING WORKSHOP

The two-day Benchmark Setting Workshop brought together a wide range of experts and interested parties to begin a process of defining benchmarks for specific skill areas of early grade reading and mathematics. The objectives of the workshop were:

- To share the most recent assessment results from the Grade 2 NAS using EGRA, EGMA, and SSME in Grade 2 in Zambia
- To orient and engage a cross-section of Zambian stakeholders in a participatory process of setting reading and mathematics benchmarks for grade 2.

During the first session of the workshop, data from the Grade 2 NAS using EGRA, EGMA, and SSME were shared and discussed with the participants.

After the presentation, the participants were engaged in a discussion of benchmarks. The facilitators clarified what they are and how to set them by combining empirical data from Zambia, working knowledge of Zambia’s education sector, and common sense.

The objective of the benchmarking process was to determine:

- The benchmark value for the indicator for each identified subtask in reading and mathematics
- Targets for the percentage of pupils who would be meeting that benchmark in five years
- Targets for the percentage of pupils who would be scoring zero on that indicator in five years.

Small working groups arranged according to the different local languages took on the challenge of analyzing the available information, discussing and debating what seemed possible, and then defining an initial set of benchmarks for grade 2.

The groups’ suggestions were recorded, and the areas of convergence and divergence in recommended benchmarks were identified and discussed so as to generate further convergence.

THE READING SUBTASKS

The workshop helped define benchmarks for three reading subtasks evaluated using EGRA:

- **Nonword Fluency.** This subtask evaluates a pupil’s ability to decode unfamiliar words. This subtask is timed, so the resulting measure is the number of nonwords decoded correctly per minute (cwpm).
- **Oral Reading Fluency.** This subtask evaluates how well a pupil reads aloud a short passage of connected text. This subtask is also timed and, therefore, produces a measure that is the number of words of text correctly read per minute (cwpm).
- **Reading Comprehension.** For this untimed subtask, pupils are asked questions about the text that they read aloud for the oral reading fluency portion of the assessment. The resulting measure is the percentage of correct responses.

THE MATHEMATICS SUBTASKS

The workshop helped define benchmarks for two mathematics subtasks evaluated using the EGMA:

- **Addition and Subtraction Level 2.** This untimed subtask evaluates a pupil’s ability to apply his or her basic addition and subtraction facts assessed during the Level 1 subtask to more conceptually demanding two-digit addition and subtraction problems. The resulting measure is the percentage of correct responses.
- **Missing Number (pattern completion).** This untimed subtask evaluates a pupil’s ability to discern and complete number patterns by determining the missing number in a pattern of four numbers, one of which is missing. Patterns involve counting forward and backward by ones, fives, tens, and twos. The resulting measure is the percentage of correct responses.
LINKAGES BETWEEN SUBTASKS

Data that expressed the linkages between the respective reading and mathematics subtasks were provided. For example, a scatter plot of oral reading fluency and comprehension showed that pupils who demonstrated comprehension at 80% or better were for the most part reading with oral fluency of 40 or more words per minute. Similar data were used to demonstrate the linkage between pupils’ decoding abilities (as measured by nonword reading) and their levels of oral reading fluency. In the case of mathematics, participants had to rely on their expectations of pupils’ performance on the subtasks in relation to the expectations of the curriculum to set benchmarks.

THE RESULTS OF THE BENCHMARK AND TARGET SETTING ACTIVITIES

Participants in the benchmarking workshop made two key decisions. First, they agreed that instead of developing benchmarks and targets for the individual local languages, they would develop a single set of benchmarks for all languages. This decision was informed by the fact that the performance across languages in the Grade 2 NAS was more similar than not. Second, they agreed to develop indicators for what are referred to as “emergent readers” and “emergent mathematicians,” because the number of “readers” and “mathematicians” at baseline was so low that to see a significant shift in only five years would be unrealistic. By contrast, a noticeable shift in the proportion of “emergent readers” and “emergent mathematicians” would be more reasonable in the same time frame.

Table 1 summarizes the results of the groups’ work to define benchmarks and targets for all three reading and two mathematics subtasks for grade 2.

Table 1. National benchmarks and targets for reading and mathematics in Zambia

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<thead>
<tr>
<th>BENCHMARKS AND TARGETS</th>
<th>READING</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>NONWORD DECODING</td>
<td>ORAL READING FLUENCY</td>
<td>READING COMPREHENSION</td>
<td>MISSING NUMBER</td>
<td>ADDITION AND SUBTRACTION LEVEL 2</td>
</tr>
<tr>
<td>Benchmarks</td>
<td>cwpm</td>
<td>cwpm</td>
<td>% correct</td>
<td>% correct</td>
<td>% correct</td>
</tr>
<tr>
<td>Emergent readers and mathematicians</td>
<td>15</td>
<td>20</td>
<td>40%</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>Readers and mathematicians</td>
<td>30</td>
<td>45</td>
<td>80%</td>
<td>60%</td>
<td>70%</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Targets (percentages of pupils)</th>
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<tbody>
<tr>
<td>Zero score</td>
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<tr>
<td>Baseline (2014 study data)</td>
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<tr>
<td>Proposed 5-year target</td>
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<tr>
<td>Emergent readers and mathematicians</td>
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