

**Tanzania has registered impressive progress in its education sector over the past decade or so.**

Completion rates in primary increased from 55 percent in 2000 to 80 percent in 2012. Tanzania has also achieved gender parity for both pupils and teachers. Amid these very positive developments, it has been shown that a large proportion of Tanzanian pupils are not learning in school. An outcome which is most likely related to poor quality of service delivery. The Tanzanian education system needs now to deliver quality to its pupils to get them equipped to face competition in the national, regional, and international labor markets.

**Highlights**

**Input availability**

- In Tanzanian primary schools, significant gaps existed in the availability of inputs at the frontline. Only 41 percent of schools had the required minimum infrastructure; 47 percent had toilets meeting the standard; and 61 percent had minimum teaching materials. While in the classroom, one in four pupils (25 percent) had a mathematics or English textbook. Classroom observation revealed an average pupil-teacher ratio of 43 pupils per teacher, slightly below the expected norm of 45:1.

**Teacher effort**

- On average, 14 percent of teachers were found to be absent from school. Absence from classroom was much higher with 37 percent of teachers *who were in school but* not in the class teaching. While in the classroom, teachers spent about 12 percent of the time on non-teaching activities. Combining these three indicators, the results show that pupils only had 2 hours and 47 minutes of teaching time every day.

**Teacher ability**

- The vast majority of teachers lacked the necessary academic and pedagogical skills to teach. Although the average score on the English and mathematics assessment was 59 percent, only 21 percent of the teachers scored 80 percent or above on these assessments.

**Pupil performance**

- Pupils scored much higher in the Kiswahili version of the test (65 percent) compared to the test given in English (50 percent). The average score on the English section was low at 37 percent, whereas, on the Kiswahili section, the average score was 81 percent. Strikingly, pupils' mathematics score was identical, averaging 58 percent, irrespective of the language.

**Service Delivery Indicators in the Education Results Chain**

**Input Availability**



- Infrastructure 41%
- Teacher Equipment 61%
- Pupils with textbooks 25%
- Pupil-Teacher ratio 43:1

**Teacher Effort**

- School Absence 14%
- Classroom Absence 47%

**Teacher Ability**

- Test Score 59%
- Minimum Knowledge 21%

**Gender**

- Female Primary Teachers 50%
- Female Head Teachers 18%

**Learning Outcomes**



- English 37%
- Kiswahili 81%
- Mathematics 58%

- The mathematics test revealed that most pupils did not perform well at the standard three level. For example, only 40 percent of the standard four pupils could perform  $6 \div 3$  or  $7 \times 8$ .

**Gender Issues**

- Tanzania achieved gender parity in the teaching workforce, however, only 18 percent of women were tapped to become head teachers. Female teachers were thus 5 times less likely to manage a school compared to men. Female-headed schools had 27 percent more female teachers. The gender gap was most noticeable in rural schools headed by men, which had a 2:1 male-to-female teacher ratio.
- Considering correlations between teacher's gender and pupils' test performance, the results show that boys scored worse in mathematics with a female teacher. However, a teacher's performance on both the English and mathematics assessment had a strong positive effect on girls' mathematics scores. The higher the share of female teachers in a school, the better girls performed in English, although boys' performance was not affected.

**Correlation between teacher's effort and performance and pupils' learning outcomes**

- On a daily basis, Tanzanian teachers showed up at school, but once there, many did not spend much time in the classroom. This reality caused Tanzanian pupils to lose more than 50 percent of the scheduled teaching time and to interact with their teachers for only 2 hours and 47 minutes per day.

## SDI Results

### Availability of Key Inputs

In terms of the availability of teaching resources, only 61 percent of Tanzanian primary schools possessed the minimum required. All sub-indicators were close to 100 percent except “sufficient contrast to read the board”. In more than 25 percent of the standard four classrooms, writing on the blackboard could not be discerned from the back of the classroom.

There was near universal access to toilets in Tanzania’s primary schools and almost all of them were accessible and clean. Due to the fact that in many schools (particularly in the rural areas), teachers did not have separate toilets from the pupils, it was considered that fewer than 57 percent of the schools had private toilets. Roughly, only 25 percent of pupils had access to an English or mathematics textbook in a typical standard four classroom. In 42 percent of the schools, none of the pupils had a textbook during the lesson.

### Teacher effort: What providers do?

Absence from school was relatively low with 14 percent of teachers not present at school at the time of the surprise visit. However, close to 37 percent of the teachers *found in school* were not in the classroom teaching. This increased the classroom absence rate to 47 percent nationally. Therefore, at any point in time, almost half of Tanzanian primary teachers were outside the classroom not teaching. As expenditure

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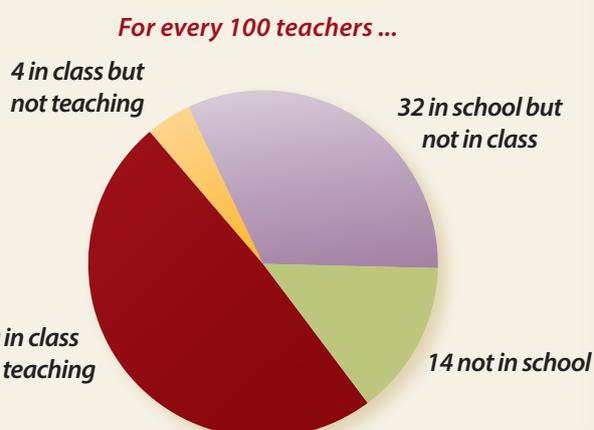
**Pupils received an average of 2 hours and 46 minutes of teaching per day instead of the official 5 hours and 56 minutes.**

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on teachers represents the largest share of education spending in Tanzania, this high absence from classroom clearly constitutes an important waste of time and resources. Classroom absence rate was most likely a school leadership and management issue because the majority of the teachers were, in fact, in the school.

In order for pupils to learn, a teacher has to be present at school, in the classroom and actively teaching. The SDI results show that 14 percent of teachers were not in school during an unannounced visit, which translates into a loss of 51 minutes of teaching time; and a further 37 percent were at school, but not in the classroom when they were supposed to be teaching, leading to another 1 hour and 54 minutes of lost teaching time. When in the classroom, teachers taught 88 percent of the time, leading to a loss of 23 minutes of teaching time. Cumulating the sources of lost instructional time, pupils received roughly 39 percent of the scheduled teaching time. This means that pupils received an average of 2 hours and 46 minutes of teaching per day instead of the official 5 hours and 56 minutes.

**FIGURE 1. Teachers’ whereabouts during unannounced visit (percent)**



### Teacher ability: What providers know?

Content knowledge among Tanzanian teachers was poor. Only 1 out of 5 teachers scored more than 80 percent on the combined English and mathematics tests. Nationally, the vast majority of teachers displayed low levels of content knowledge, which were primarily due to the poor results on the English section - only 1.1 percent of teachers were above the 80 percent cut-off. Mathematics teachers fared better with 1 out of 3 who scored 80 percent or better on the test.

Taking English and mathematics together, teachers correctly answered 59 percent of the questions.

<sup>1</sup> Note that for this indicator a number of schools did not, in fact, have information on cleanliness and accessibility. The specific schools with missing information were those where teachers and pupils used the same toilets. For such schools, a skip was inadvertently included in the Kiswahili version of the questionnaire. We considered that those schools did not meet the privacy criterion for pupils. The toilets were, however, still considered accessible and clean by default. Therefore, the infrastructure indicator was an overestimate of the true state of infrastructure in Tanzania’s primary schools.

Teachers scored poorly in English (42 percent), and in pedagogy (36 percent).

The poor performance on the English test indicates that teachers had not mastered half of the standard four curriculum. Teachers recorded their lowest performance on the composition exercise (21 percent). When given the task to correct a letter containing 21 mistakes, like punctuation or capitalization or vocabulary, the average Tanzanian primary school teacher caught only 4.6 of them.

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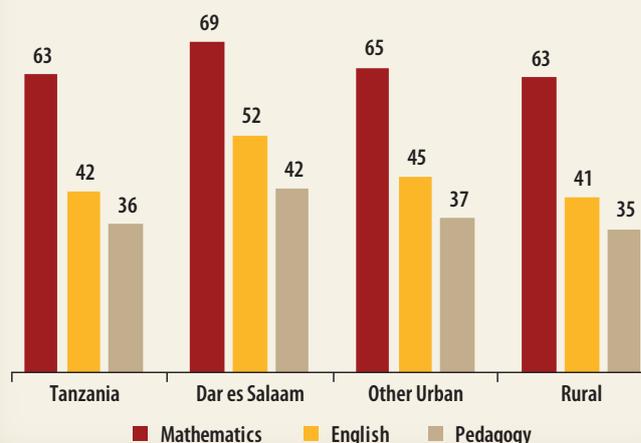
On the mathematics test, the average score was 63 percent with a large and significant difference (19 percentage points) between scores on the lower and upper parts of the primary curriculum. This means that teachers were more at ease with simple operations, such as adding two- or three-digit numbers, than with slightly more complex computations, such as comparing fractions.

On the pedagogy section, teachers only managed about one-third of the tasks on the test. All teachers seemed to have poor pedagogical skills, which was clearly illustrated by the “minimum knowledge” indicator, whereby only 1 out of 1000 (0.1 percent) teachers scored more than 80 percent. These results imply that teachers knew little more than their pupils and what they did know, they could not teach adequately.

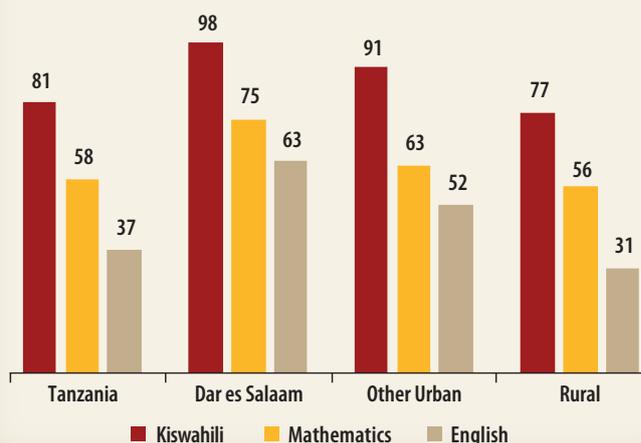
### **Pupil performance**

Unsurprisingly, pupils scored much higher in the Kiswahili version of the test compared to the English version. The pupils who sat for the Kiswahili version of the test correctly answered 65 percent of questions on the overall test compared to 50 percent for those tested in English. The average score in the English section was only 37 percent, whereas the pupils scored an average of 81 percent in Kiswahili section. It is interesting to note that both groups

**FIGURE 2. Teachers’ average score on English, mathematics, and pedagogy test (percent)**



**FIGURE 3. Pupils’ performance - average scores (percent)**



of pupils had the exact same average score on the mathematics test (58 percent). Dar es Salaam pupils significantly outperformed pupils in all other parts of the country. However, girls and boys performed at par.

For Kiswahili, close to 9 out of 10 pupils managed the simplest tasks, such as identifying a letter or recognizing a simple word. Actually, Kiswahili test takers performed well even with reading a fifty-word paragraph (75 percent). However, for English, pupils were unable to identify a simple alphabet letter 1 out of 4 times they were asked to do so. When considering more complex tasks, 1 out of 3 pupils could read a ten-word sentence and 2.7 percent could fluently read the 58-word paragraph they were presented.

In mathematics, 60 percent of the pupils could add 2 three-digit numbers and 42 percent could subtract two-digit numbers, but their performance dropped to -18 percent for two-digit division, and to -12 percent for two-digit multiplication. The test revealed that most standard four pupils did not perform well at the standard three level. Only 40 percent of the standard four pupils could perform  $6 \div 3$  or  $7 \times 8$ , which are clearly part of the standard three curriculum. Pupils in Dar es Salaam performed significantly better across the board, followed by pupils in other urban areas, who also performed significantly better than rural pupils.

## **Gender Issues**

### **Gender in the teaching force**

Tanzania has succeeded in achieving gender parity for teachers in its primary education system. Women constituted 50 percent of the primary school teacher body. Dar es Salaam had 84 percent of teachers that were female, while in other urban areas women accounted for 74 percent of teachers. In contrast, only 40 percent teachers were female in rural schools.

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However, in school management, females were grossly under-represented with only 18 percent of the head teachers a woman. They were 5 times less likely to head a school as compared to men, even though they were equally represented in the teaching force. Rural areas displayed the biggest deficit of female school managers (14 percent), but it was in Dar es Salaam that the gender gap (38 percent) was the greatest.

Female-headed schools had on average 27 percent more female teachers, a strong and significant difference. On average, 7 out of 10 teachers were women in schools managed by a woman, compared to slightly more than 4 out of 10 female teachers in schools headed by men. Women, in fact, constituted the majority of the teaching force in all schools, except in rural schools headed by men, where there was a 2:1 male-to-female teacher ratio.

## **Teacher Gender & Pupil Outcomes**

The data revealed the effects of a teacher's gender on pupils' test performance. The results show that having a female teacher impacted negatively on pupils' mathematics scores, and most significantly on boys' performance, meaning that boys performed better in mathematics with a male teacher but for girls it did not matter. However, a teacher's performance on both the English and mathematics assessment had a strong positive effect on girls' mathematics scores (i.e., the higher the teacher score, the better the girls' mathematics performance). Finally, the more female teachers in the school, the better girls performed in English, but boys' performance was not affected.

## **Association between teacher effort and performance and pupils' learning outcomes**

The majority of Tanzanian teachers showed up at school on a daily basis, but once they were there, many of them did not spend much time in the classroom teaching their pupils. In a large share of classrooms, pupils were by themselves while the teacher was engaged in activities not related to teaching. Because of this fact, Tanzanian pupils lost more than half of the teaching time they were supposed to receive and were able to interact with their teachers for only 2 hours and 46 minutes per day, in lieu of the official 5 hours and 56 minutes. *The results also suggest that pupils' mathematics scores would increase as teachers' mathematics ability improved significantly or if class size was reduced significantly.*

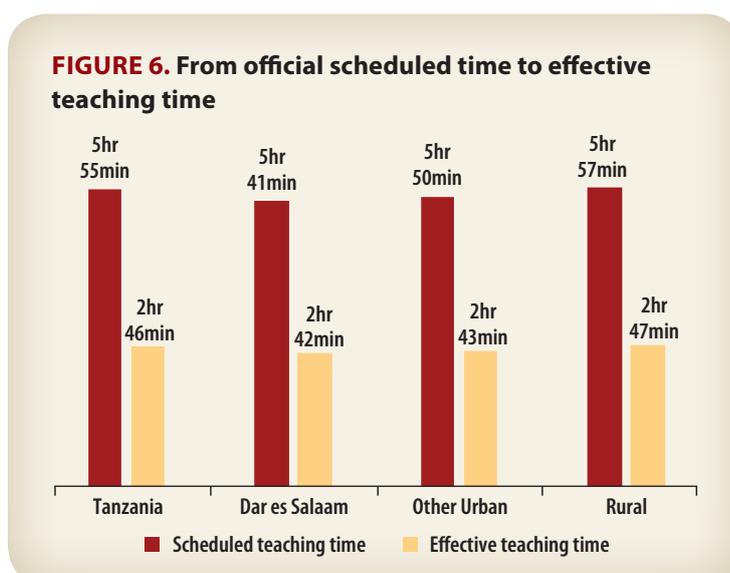
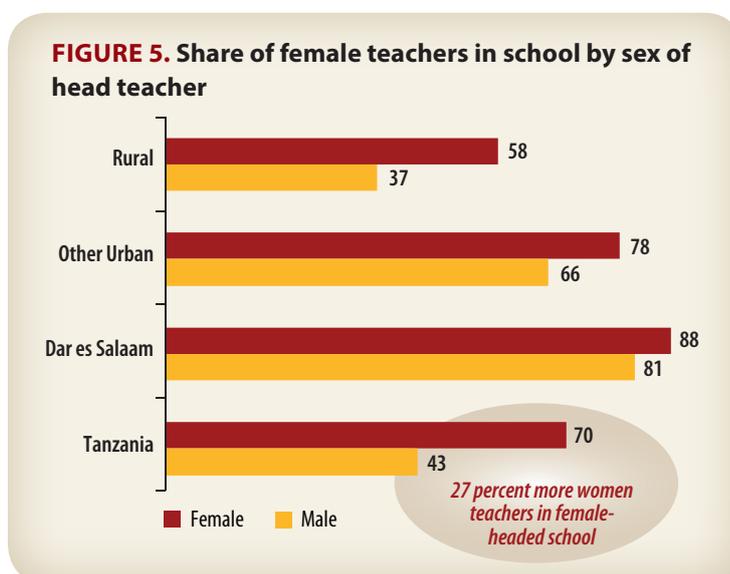
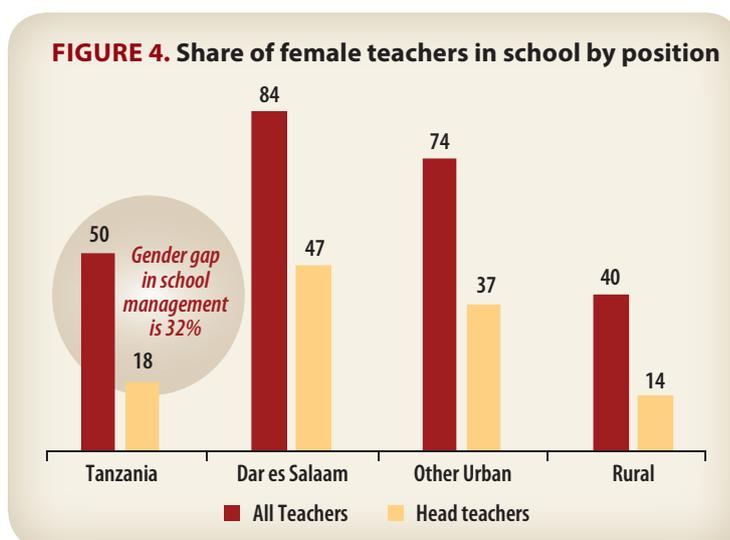
## **How does Tanzania compare to other SDI countries?**

For traditional quality indicators, such as inputs or infrastructure, Tanzania was performing poorly compared to its EAC neighbors. Only 61 percent of Tanzania's primary schools had minimum teaching resources compared to 81 and 79 percent for Ugandan and Kenyan schools respectively. However, Tanzanian schools fared better with teaching resources than Nigeria (48 percent) or Togo (24 percent). Tanzanian pupils were 4 times more likely to use a textbook in the classroom than their Ugandan peers. In contrast, Togolese and Nigerian pupils had an even greater likelihood of using a textbook in class with 76 percent and 34 percent of pupils, respectively, doing so. When it comes to teachers' effort, Tanzania and Kenya

displayed patterns with relatively low school absence but high classroom absence, with almost half of the teachers not found in classroom at any point in time. Uganda had significantly higher absence rates for both. Tanzanian teachers, along with their Kenyan (the top performer) and Ugandan neighbors, significantly outperformed Nigerian and Togolese teachers in knowledge. Tanzanian teachers ranked last on language skills among the five countries. In mathematics, Tanzanian teachers were only second to those in Kenya; although, they managed to score better than Kenyan teachers on comparing fractions, where they also doubled the score of Ugandan teachers. In pedagogy, Tanzanian teachers were on par with Kenyans and outperformed Ugandans. They doubled the score of the West African teachers. Teachers in Tanzania outscored all others in “preparing a lesson plan,” but lost ground on skills for “assessing children’s abilities”.

### Comparing Tanzania to itself

Tanzania, along with Senegal, piloted the SDI in 2010. By and large, it was possible to look into the trends in service delivery between 2010 and 2014. In terms of access to basic infrastructure there was no noticeable improvement in the four years since the first SDI. Only 2 percent of the schools had electricity, clean water, and improved sanitation in 2014, down from 3 percent in 2010. The number of pupils in a standard four classroom dropped significantly from 52 pupils to 43, a reduction of almost 20 percent. There was impressive progress with school absence, which dropped from 23 percent in 2010 to 14 percent in 2014, a 40 percent reduction. However, it was disappointing that although classroom absence decreased from 53 percent to 47 percent, the decline was not statistically significant and, therefore, about half of the teachers were still not in the classroom. The reduction in teacher absence rates benefitted pupils who, between 2010 and 2014, gained 43 minutes of teaching time per day. Over the school year (an average of 194 days), this was a gain of 24 full teaching days. Most impressively, urban pupils doubled their teacher contact time from 47 days in 2010 to 94 days in 2014. However, one must keep in mind that Tanzanian primary pupils are still losing more than half of their allotted teaching time. Teachers’ low level of subject knowledge showed no improvement between 2010 and 2014, with teachers’ English performance worsening in this time period. Pupils’ test performance improved in some areas. Although their English performance remained poor with an average



score around 40 percent, pupils’ overall mathematics score significantly improved from 39 percent to 58 percent during this four year period.

## What does this mean for Tanzania?

Recognizing the importance of education for economic development, Tanzania has increased its investment in the education sector over the past decade. The country did earn a return on this investment as primary completion rate increased from 55 percent in 2000 to over 80 percent in 2012. Gender parity has also been achieved in primary education and girls are catching up fast in secondary. However, the recent 2012 catastrophic form four exam results were a wake-up call for the Government of Tanzania and all education stakeholders that beyond access indicators, the quality of education is a critical dimension not to be overlooked.

The 2014 Service Delivery Indicators (SDI) results show that Tanzania is doing relatively well in terms of teachers' school absence rates. However, teachers need to be better managed because finding teachers

at school does not necessarily mean that they are in the classroom teaching. The SDI also shows that Tanzanian primary schools need some upgrading in terms of infrastructure and teaching equipment.

With only one out of five teachers mastering the curriculum they teach, teachers' capacity (or its lack thereof) to teach their subject matter is critical and needs to be addressed. Lack of pedagogical skills is an even more pressing issue with only 1 in 1000 teachers scoring above the 80 percent required score. There is a wealth of evidence that teachers' knowledge and their capacity to transmit it (i.e., pedagogical skills) is a major determinant of pupils' learning outcomes.

It is now time to invest in the *quality of education* and the government has started this process with the Education Big Results Now initiative that clearly recognizes quality as the next frontier and a smart way to improve value-for-money of education public spending.

## At-A-Glance

**TABLE 1: Comparing SDI results by Geographic Area**

Indicators	TANZANIA	Dar es Salaam	Other urban	Rural	EQUIP-T	All Rural	All Urban
<i>What providers do (effort)</i>							
School absence rate (% of teachers)	14.4	17.8	13.7	14.3	8.3	14.3	14.6
Classroom absence rate (% of teachers)	46.7	42.9	46.7	47.0	43.5	47.0	45.8
Classroom teaching time (ToT)	2h 46min	2h 42min	2h 43min	2h 47min	2h 32min	2h 47min	2h 42 min
Scheduled teaching time	5h 56 min	5h 41min	5h 50min	5h 57min	5h 58min	5h 57min	5h 48min
<i>What providers know (ability)</i>							
Teachers' minimum knowledge	21.5	26.2	22.3	21.0	19.5	21.0	23.2
<i>What providers have to work with (availability of inputs)</i>							
Observed pupil-teacher ratio	43.5	69.8	58.9	40.7	46.1	40.8	60.4
Share of pupils with textbooks (%)	25.3	31.0	14.1	26.7	22.2	26.7	16.7
Minimum equipment availability (%)	61.4	83.2	80.1	58.3	58.9	58.3	80.4
Minimum infrastructure availability (%)	40.4	67.0	61.4	36.8	34.3	36.9	62.3
Infrastructure Availability	2.3	15.7	9.6	0.8	0.0	0.9	10.2

Notes: (a) Comparable to SDI 2010 (i.e., school has electricity, toilet, and clean water). Source: Tanzania SDI 2014 and author's calculations.

**TABLE 2: Comparison of SDI results across countries (public schools only)**

	Tanzania* 2014	Average SDI	Kenya 2012	Mozambique+	Nigeria**	Senegal	Tanzania+ 2010	Togo	Uganda
<i>What providers know (teacher ability)</i>									
Minimum knowledge (at least 80% in language and mathematics)	22	15	40	0	4	Not Comparable	Not Comparable	2	12
Test score (language, mathematics, and pedagogy)	48	43	57	27	33	Not Comparable	Not Comparable	36	43
<i>What providers do (teacher effort)</i>									
School absence rate	14	19	14	45	14	18	23	21	26
Classroom absence rate	47	40	42	56	19	29	53	36	52.8
Scheduled teaching time	5h 55min	5h 34min	5h 37min	4h 17min	4h 53min	4h 36min	5h 12min	5h 29min	7h 18min
Time spent teaching per day	2h 47min	3h 02min	2h 49min	1h 41min	3h 26min	3h 15min	2h 04min	3h 29min	3h 18min
<i>What providers have (availability of inputs)</i>									
Observed pupil-teacher ratio	44	40	35	21	22	27	52	29.7	48
Share of pupils with textbooks	25	37	48	68	38	18	20	69	5
Minimum equipment availability (90% with pencils and notebooks)	61	61	79	77	55	Not Comparable	Not Comparable	27	81
Minimum infrastructure availability	40	38	60	29	19	Not Comparable	Not Comparable	22	54
<i>Pupil Learning</i>									
Test Score (out of 100) (language, mathematics)	40 <sup>+</sup>	50	72	21	32	Not Comparable	Not Comparable	46	49
Language test score	37 <sup>+</sup>	50	76	19	31	Not Comparable	Not Comparable	46	47
Mathematics test score	58	47	59	25	32	Not Comparable	Not Comparable	45	43

Note: (\*) Because of the very low number of private schools, only public schools are included in this second round as well. (\*\*) Values for Nigeria are the weighted average of the four states surveyed, namely Anambra, Bauchi, Ekiti, and Niger. (+) In Mozambique, Senegal, and Tanzania 2011 (round 1) only public schools were surveyed. (+\*) These test scores are for pupils who were assessed in English; for those assessed in Kiswahili they scored 76.2 on the combined test and 80.9 on Kiswahili.

**TABLE 3: Teacher competence across SDI countries**

	TANZANIA 2014	Tanzania 2010	Kenya 2012	Mozambique	Nigeria*	Togo	Uganda
Overall Score (language, mathematics, and pedagogy)	48	Not Comparable	58	29	38	35	44
<i>Language</i>							
Language Average Score	42	57	63	34	49	50	54
Grammar task	73	73	92	83	64	74	89
Cloze task	53	Not Comparable	66	35	38	30	59
Composition task	22	Not Comparable	49	10	24	26	37
<i>Mathematics</i>							
Mathematics Average Score	65	63	77	33	42	33	58
Adding decimals	64	Not Comparable	75	35	34	36	54
Comparing fractions	50	Not Comparable	40	17	16	13	21
Interpreting Data on a Graph	27	Not Comparable	60	13	20	14	27
Subtraction of decimal numbers	67	Not Comparable	83	39	45	18	57
<i>Pedagogy</i>							
Pedagogy Average Score	36	Not Comparable	35	15	18	19	25
Preparing a lesson plan	58	Not Comparable	39	19	20	27	31
Assessing children's abilities	18	Not Comparable	33	14	23	33	25
Evaluating students' progress	22	Not Comparable	29	7	6	6	11
Number of Observations	2150	Not Comparable	494	673	1490	631	1466

Note: \*Surveyed state in Nigeria were Anambra, Bauchi, Ekiti, and Niger.

## Annex. Definition of the Education Service Delivery Indicators

### School absence rate

Share of a maximum of ten randomly selected teachers absent from school during an unannounced visit

### Classroom absence rate

Share of teachers who are present in the classroom during scheduled teaching hours as observed during an unannounced visit. Teachers may be found teaching outside, and these are marked as present for the purposes of the indicator.

### Time spent teaching per day (also known as Time on Task)

Amount of time a teacher spends teaching during a school day. This indicator combines data from the Staff Roster Module (used to measure absence rate), the Classroom Observation Module, and reported teaching hours. While inside the classroom distinction is made between teaching and non-teaching activities. Teaching is defined very broadly, including actively interacting with pupils, correcting or grading pupil's work, asking questions, testing, using the blackboard or having pupils working on a specific task, drilling or memorization.

### Minimum knowledge among teachers

This indicator measures teacher's knowledge and is based on mathematics and language tests covering the primary curriculum administered to all mathematics or language teachers that taught grade three in the previous year or grade four in the year the survey was conducted. It is calculated as the percentage of teachers who score more than 80 percent on the language and mathematics portion of the test. Test score: This indicator measures teacher's knowledge and it is calculated as the overall score of a mathematics, language, and pedagogy tests covering the primary curriculum administered at the school level to all mathematics and language teachers that taught grade three in the previous year or grade four in the year the survey was conducted.

### Infrastructure Availability

Unweighted average of the proportion of schools with the following available: functioning electricity and sanitation. Specifically: (i) functioning toilets operationalized as being clean, private, and accessible; and (ii) sufficient light to read the blackboard from the back of the classroom.

### Teaching Equipment Availability

Unweighted average of the proportion of schools with the following available: functioning blackboard with chalk, pencils, and notebooks. Specifically: (i) functioning blackboard and chalk, (ii) the share of pupils with pens is equal to or above 90 percent, and (iii) the share of pupils with notebooks in that classroom is equal to or above 90 percent.

### Share of pupils with textbooks

Number of mathematics and language books used in a randomly selected grade four classroom divided by the number of pupils present in the classroom

### Pupil-teacher Ratio

Average number of grade four pupils per grade four teacher.  
The indicator of teachers' availability is measured as the number of pupils per teacher in one randomly selected grade four class at the school based on the classroom observation module.



## About the SDI surveys

The SDI survey was conducted between May and September 2014. The fieldwork involved collecting information from 400 primary schools, 3,692 teachers regarding absence, 2,196 teachers for knowledge assessment, and 4,041 pupils who sat a test. The results provide a representative snapshot of the quality of service delivery and the physical environment within which education services are delivered in Tanzania's primary schools. The survey provides information on three dimensions of service delivery: measures of (i) provider's effort; (ii) provider's knowledge and ability; and (iii) the availability of key inputs, such as chalk, pencils, notebooks, or a blackboard, basic equipment and infrastructure (such as availability of toilet, clean water, etc.). Tanzania was a pioneer SDI country in 2010 and the first country to implement a follow up SDI allowing trend analysis in service delivery. SDI surveys are rapidly expanding and have been implemented in eight countries: Kenya, Mozambique, Niger, Nigeria, Senegal, Tanzania, Togo, and Uganda. This allows for comparison across countries and benchmarking of country performance.

## The Service Delivery Indicators (SDI) Program

The SDI initiative is a partnership of the World Bank, the African Economic Research Consortium (AERC), and the African Development Bank to develop and institutionalize the collection of a set of indicators that would gauge the quality of service delivery within and across countries and over time. The ultimate goal is to sharply increase accountability for service delivery across Africa, by offering important advocacy tools for citizens, governments, and donors alike; to work toward the end goal of achieving rapid improvements in the responsiveness and effectiveness of service delivery.

More information on the SDI survey instruments and data, and more generally on the SDI initiative can be found at: [www.SDIIndicators.org](http://www.SDIIndicators.org) and [www.worldbank.org/SDI](http://www.worldbank.org/SDI), or by contacting [SDI@worldbank.org](mailto:SDI@worldbank.org).

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