

Wanted: Trained teachers to ensure every child's right to primary education

POLICY PAPER 15 / FACT SHEET 30

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This paper, jointly released by the UNESCO Institute for Statistics (UIS) and the Education for All Global Monitoring Report (GMR) on World Teachers' Day, shows that there are massive and persistent teacher shortages, especially of well-trained teachers. These chronic shortages will continue to deny the fundamental right to primary education for millions of children in decades to come if concerted action is not taken. Based on a series of projections on the numbers of teachers needed and the costs to hire them, this paper also highlights the urgent need to ramp up teacher training programmes in the immediate future.

How many teachers are needed to help every child realise their right to a primary education?

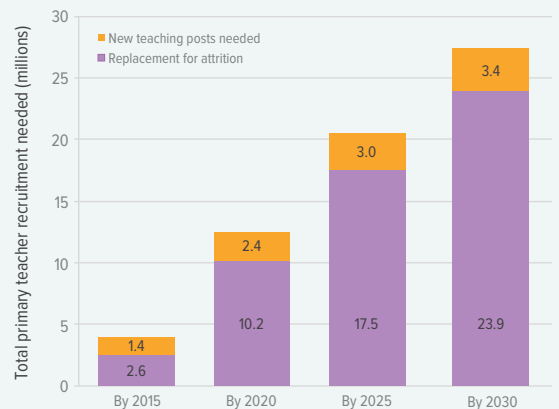
Universal primary education (UPE) will remain a distant dream for millions of children living in countries without enough teachers in classrooms. Current discussions of the post-2015 development agenda include a target to bolster the supply and training of teachers as part of efforts to ensure that every child learns in a stimulating and supportive classroom environment.¹ To help formulate and monitor possible post-2015 education targets, the UIS has released a new set of projections of the demand and supply of primary teachers at the global and national levels.²

According to the data, countries will need to recruit a total of 4 million teachers to achieve universal primary education by 2015 (see **Figure 1**). Of this total, 2.6 million will replace teachers who retire, change occupations or leave the workforce due to illness or death. The remaining 1.4 million will be needed to universalise access to primary education and underwrite quality by ensuring that there are not more than 40 students for every teacher.

UPE will not be achieved by 2015, however, as 58 million children are still out of

FIGURE 1

Total number of teachers needed to achieve universal primary education by 2015, 2020, 2025 and 2030



Source: UNESCO Institute for Statistics database

TABLE 1

Total numbers of teachers needed by region for 2015, 2020, 2025 and 2030 (in thousands)

| Regions | Number of primary teachers in 2012 (in thousands) | Total number of teachers | | | | | | | | | | | |
|----------------------------------|---|--------------------------|---------------------------|-----------------------------------|--------------------------|---------------------------|-----------------------------------|--------------------------|---------------------------|-----------------------------------|--------------------------|---------------------------|-----------------------------------|
| | | By 2015 | | | By 2020 | | | By 2025 | | | By 2030 | | |
| | | Total recruitment needed | Of which: | | Total recruitment needed | Of which: | | Total recruitment needed | Of which: | | Total recruitment needed | Of which: | |
| | | | Replacement for attrition | New teaching posts to achieve UPE | | Replacement for attrition | New teaching posts to achieve UPE | | Replacement for attrition | New teaching posts to achieve UPE | | Replacement for attrition | New teaching posts to achieve UPE |
| Arab States | 2,267 | 464 | 279 | 185 | 1,284 | 938 | 346 | 2,023 | 1,573 | 450 | 2,582 | 2,133 | 449 |
| Central and Eastern Europe | 1,179 | 244 | 178 | 66 | 632 | 491 | 142 | 914 | 786 | 128 | 1,119 | 1,052 | 67 |
| Central Asia | 340 | 81 | 52 | 30 | 231 | 150 | 82 | 326 | 244 | 82 | 384 | 326 | 57 |
| East Asia and the Pacific | 9,658 | 464 | 445 | 19 | 2,958 | 2,928 | 30 | 5,207 | 5,155 | 52 | 6,700 | 6,627 | 72 |
| Latin America and the Caribbean | 3,121 | 267 | 242 | 25 | 1,100 | 1,063 | 37 | 1,815 | 1,767 | 48 | 2,499 | 2,448 | 50 |
| North America and Western Europe | 3,667 | 598 | 518 | 80 | 1,622 | 1,441 | 181 | 2,626 | 2,391 | 235 | 3,607 | 3,311 | 296 |
| South and West Asia | 5,470 | 452 | 328 | 124 | 1,760 | 1,575 | 184 | 3,051 | 2,871 | 179 | 4,213 | 4,060 | 153 |
| Sub-Saharan Africa | 3,433 | 1,394 | 510 | 884 | 2,934 | 1,572 | 1,362 | 4,552 | 2,717 | 1,835 | 6,237 | 3,944 | 2,292 |
| World | 29,136 | 3,964 | 2,552 | 1,412 | 12,520 | 10,157 | 2,364 | 20,512 | 17,504 | 3,007 | 27,340 | 23,902 | 3,438 |



Ms. Badawala, principal of this junior secondary school in the Eastern Cape, South Africa, said: "Here at school, the only class with few pupils is Grade 4 with only 66 learners. But all the others are above 100. The most crowded class is Grade 1 with 174 learners in the same classroom."

The first challenge of large class sizes is the lack of individual attention. You know, you can't get to the bottom of a child's main problem because they're packed here in the same place. The pupils can dodge you. You aren't able to see that everyone has brought their assignment, their homework, and whatever the work that he has been doing. So you can't be really sure. As a result, it can affect our curriculum and our results too. But we are trying."

Photo credit: Eva-Lotta Jansson/UNESCO

school. For this reason, the analysis presented in this paper determines how many teachers would be needed if the goal of achieving UPE was shifted to 2020 or 2030. To achieve UPE by 2020, for example, countries will need to recruit a total of 12.6 million primary teachers. This includes the creation of about 2.4 million new teaching positions and the replacement of 10.2 million teachers expected to leave the profession due to attrition. By 2030, the total demand for teachers would rise to 27.3 million, with about 3.4 million new posts needed for UPE and the remaining 23.9 million to compensate for attrition.

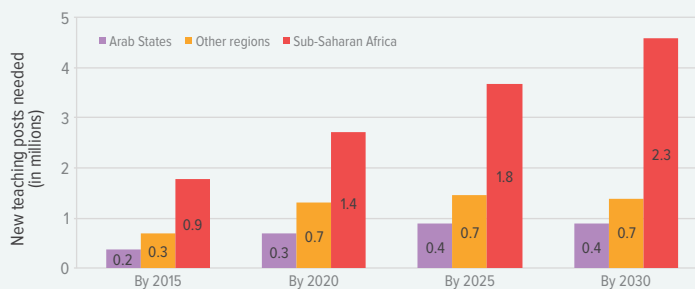
Some regions need more teachers than others

The region facing the greatest challenges by a large margin is sub-Saharan Africa, which accounts for more

than one-half (63%) of the additional teachers needed to achieve UPE by 2015 or two-thirds (67%) by 2030 (see **Figure 2**). Across the region, more than 7 in 10 countries are faced with an acute shortage of teachers. And the situation in many countries may deteriorate as governments struggle with overcrowded classrooms and the rising demand for education from growing school-age

FIGURE 2

Number of new teaching posts needed to achieve UPE by 2015, 2020, 2025 and 2030



Source: UNESCO Institute for Statistics database

populations: for every 100 children in 2012, there will be 147 primary school-age children in 2030. Sub-Saharan Africa alone will need to create 2.3 million new teaching positions by 2030, while filling about 3.9 million vacant positions due to attrition.

The Arab States is the region with the second-largest shortage of teachers, largely due to growth in its school-age population. Between 2012 and 2030, the region will need to accommodate an extra 7.7 million children in classrooms. Fortunately, governments have put in place policies to steadily increase teacher recruitment over the past decade. If they continue along this path, the gap between the supply and demand for teachers should stabilize by 2025, even though the number of children starting school will continue to grow. To achieve UPE in 2030, the region will have to create 0.5 million new teaching positions while filling about 2.1 million vacant positions due to attrition.

Which countries will close the gap and by when?

Most countries and territories (57%) currently have a shortage of teachers.

Figure 3 shows that only 29 countries – or 31% – of the 93 countries facing the biggest challenges in achieving UPE will have enough primary teachers in classrooms by 2015 and the share will rise to 51% by 2020. However, 28 countries – or 30% – will still not have enough teachers to achieve UPE until after 2030 if current trends continue.

Further analysis is possible by comparing the average annual growth rate in teacher recruitment (from 1999 to 2012 or latest year available) with the growth rate required to ensure that all primary school-age children are in classrooms with no more than 40 pupils per teacher³ (see **Figure 4**).

Figure 4(a) shows countries that, at the current rate of recruitment, should have sufficient numbers of teachers in classrooms by 2015. For example, Cameroon has put in place policies to increase the rate of teacher recruitment by an average of 6.3% since 1999. If this growth continues, the country should be able to accommodate all primary school-age children by 2015, while reducing the number of pupils per teacher from 46 to 1 in 2012 to 40 to 1.

Figure 4(b) shows countries that will miss the 2015 deadline for UPE but could have enough teachers in classrooms over the next decade (see Annex 1 for the estimated year). In the Central African Republic, for example, the supply of teachers has been growing by an average of 9% per year. Yet to achieve UPE, the workforce would need to grow by 33%. So if current trends continue, the country would not have enough teachers in classrooms until about 2024. Countries such as Congo and Senegal are expected to meet their teacher needs by 2016.

Figure 4(c) shows countries where the situation is getting worse rather than better and will continue to deteriorate unless action is taken. If current trends continue, there will be more children needing primary teachers in 2030 than

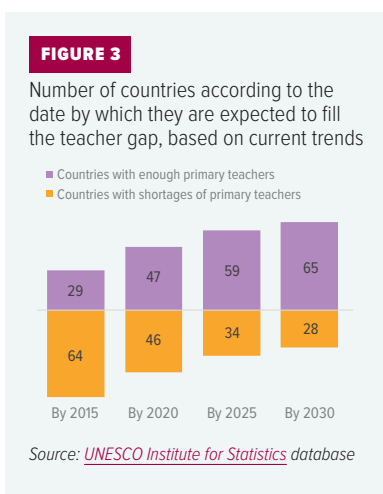
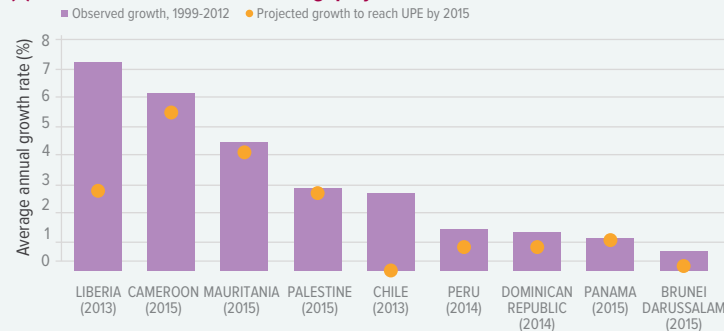


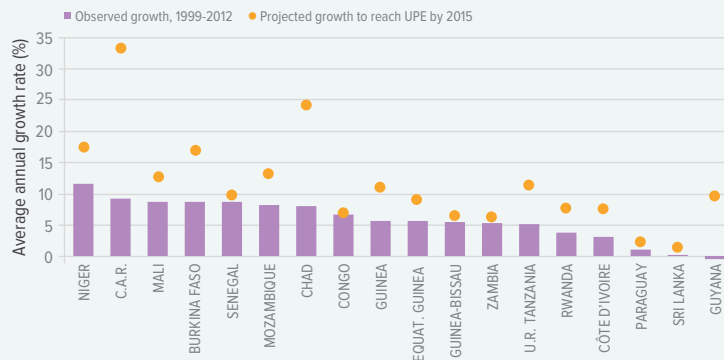
FIGURE 4

Average annual growth rate of primary teacher workforce and projected growth rate needed to achieve UPE

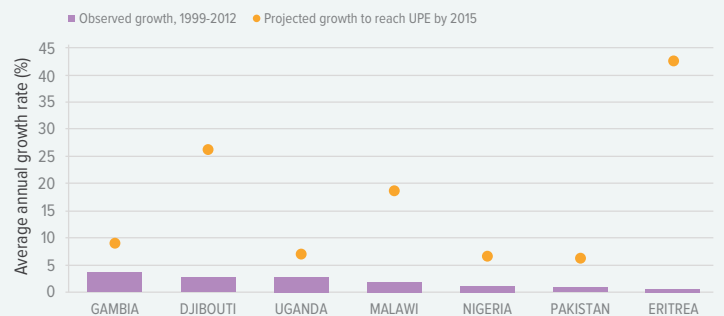
(a) Countries on track to close the gap by 2015



(b) Countries expected to close the gap between 2016 and 2030



(c) Countries expected to close gap after 2030



Note: Number between parentheses is year in which the country is expected to close the primary teacher gap.

Source: UNESCO Institute for Statistics database

today in Eritrea, Gambia, Malawi, Nigeria and Uganda. This is largely due to a growing demand for teachers due to increasing populations of school-age children. High attrition rates of teachers are also increasing the challenges ahead, while teacher recruitment rates are too low to keep up.

For example, Djibouti will continue to face an acute shortage of teachers even after 2030 if current trends continue. In 2013, only 58% of primary school-age children were enrolled in primary school. To achieve UPE by 2015, the country would have to recruit 26% more teachers each year. This is highly unlikely given the current average annual growth rate of just 3%.

How much will it cost to hire enough teachers in sub-Saharan Africa by 2020?

Almost 9 in 10 (87%)⁴ countries in sub-Saharan Africa will need to create new teaching positions to achieve UPE by 2020. To help evaluate the costs of closing this gap, the UIS has developed a set of financial projections based on the current levels of education spending and projected economic growth.

According to UIS data, sub-Saharan Africa will have to spend an extra US\$5.2 billion per year to pay the salaries of the additional teachers the region requires by 2020. Nigeria alone accounts for about 35% of this required additional spending on salaries. With the greatest number of children out of school, Nigeria

will have to allocate an extra US\$1.8 billion per year to cover the salaries of additional teachers. Teacher costs are expected to rise by US\$0.8 billion each year in South Africa and by US\$0.3 billion in Ethiopia and the United Republic of Tanzania.⁵

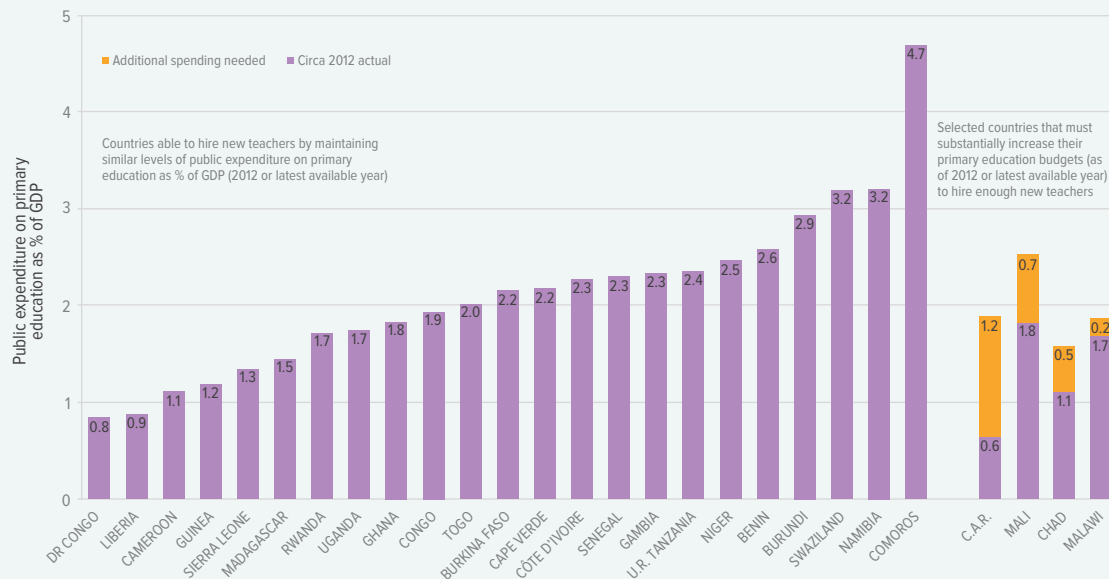
Can governments afford to hire more teachers?

To better evaluate the financial resources required to hire more teachers, the UIS has conducted an analysis of 27 countries with sufficient data, comparing current levels of primary education spending as a share of the gross domestic product (GDP) and the average rate of growth in these budgets. Across the region, the analysis shows that education budgets have been increasing at a rate of 7% in real terms since 2000, which is very positive. If this rate continues, 23 out of the 27 countries should be able to pay for the additional teachers needed to achieve UPE by continuing to spend the same share of GDP on primary education as they did in 2012 (see **Figure 5**).

However, four countries will need to significantly increase their education budgets presumably with the support of donors. The most extreme situation is found in the Central African Republic, where only 72% of primary school-age children are enrolled in school and the pupil-teacher ratio is the highest in the world at 80:1. To hire enough teachers by 2020, the country would have to triple public spending on primary education. Mali will also have to inject new resources into its education budget in order to increase spending from 1.8% to 2.5% per year (as a share of GDP), followed by Chad (1.1% to 1.6%) and Malawi (1.7% to 1.9%).

FIGURE 5

Which countries can afford to hire more teachers based on current spending patterns?



Source: UNESCO Institute for Statistics database

It is important to note that these spending projections only cover the salary costs of hiring more teachers to achieve UPE. In addition, countries will need to pay for teacher education programmes, as well as school construction and learning materials to ensure that children receive an education of good quality.

A lack of trained teachers: A persistent quality issue

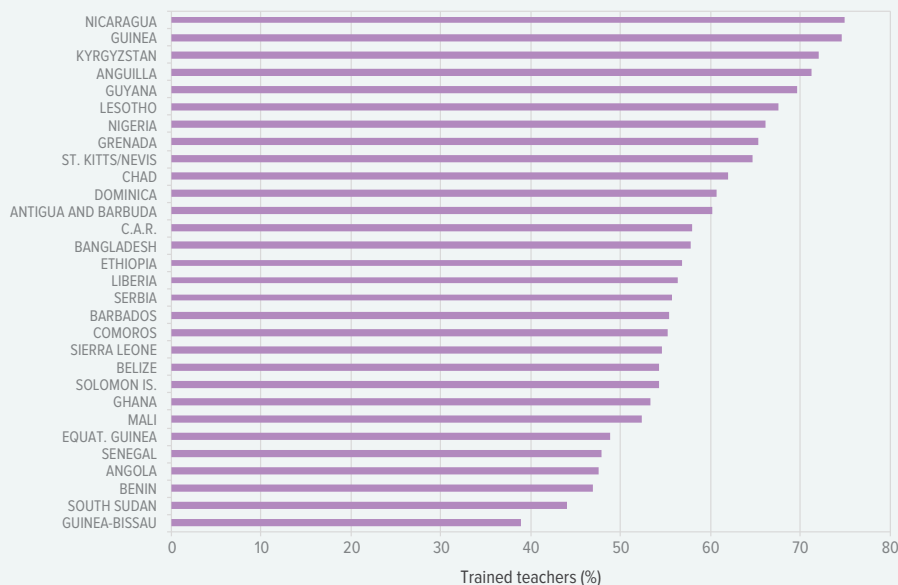
Having enough teachers is a necessary but not a sufficient condition to improve education quality: newly hired teachers also need to be motivated, well trained and willing to expand their pedagogical toolkits. To fully understand the challenge at hand, it is crucial to know how many trained teachers each country has and how many additional trained teachers are needed. Unfortunately, in many low-income countries reliable information of this nature is lacking. In addition, national teacher education programmes differ widely in terms of their content, duration and qualification levels, so global and regional comparisons should be interpreted with caution.

Countries face a huge challenge in recruiting trained teachers

Where primary education systems have expanded rapidly, many teachers have been recruited without the necessary training. According to UIS data, in 30 of the 91 countries with data, less than 75% of primary school teachers were trained according to national standards in 2012 (see **Figure 6**). More than one-half (17 out of 30) of these countries were in sub-Saharan Africa, with the percentage of primary trained teachers below 50% in Angola, Benin, Equatorial Guinea, Guinea-Bissau, Senegal and South Sudan.

FIGURE 6

Percentage of trained teachers, countries with less than 75% of trained teachers, 2012 or latest available year

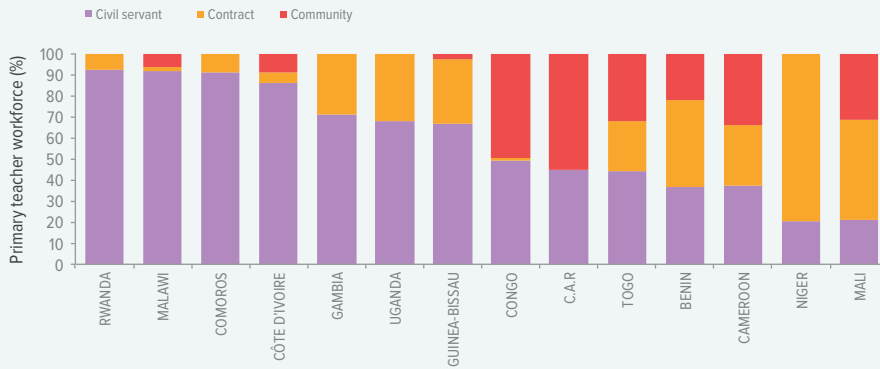


Source: [UNESCO Institute for Statistics database](#)

Since 2000, many policymakers have responded to the need to expand education systems rapidly by recruiting teachers on temporary contracts with little formal training. **Figure 7** indicates that by the latter part of the current decade, there were far more teachers on temporary contracts than on civil service contracts—the proportion reaching almost 80% in Mali and Niger and over 60% in Benin and Cameroon.

FIGURE 7

Teacher workforce by type of contract, selected sub-Saharan African countries, circa 2010



Source: Pôle de Dakar database

Increasing the supply of contract teachers has enabled some countries with the largest teacher shortages to significantly reduce their pupil-teacher ratios. However, this policy response raises important quality issues since most contract teachers are not fully trained.

The ratio of pupils per trained teacher should not exceed 40:1. At the current rate of recruitment, however,

some of the countries – for example, Cameroon, Congo, Guinea-Bissau and Senegal – appear on course to have sufficient teachers to achieve UPE by 2015 or 2020, yet they are unlikely to both achieve this goal at the same time as maintaining an acceptable ratio of pupils to trained teachers.

Senegal recruited teachers at a rate of 9% per year over the past decade which helped lower the number of pupils per teacher from 49 in 1999 to 32 in 2012. However, recruitment of trained teachers was slower, at about 6%, or 1,000 per year, between 2001 and 2010. As a result, over one-half of Senegalese primary school teachers remain untrained and the ratio of pupils per trained teacher stands around 70:1. Based on its past trend of trained teacher recruitment, Senegal would not achieve a ratio of 40 pupils per trained teacher until after 2030.

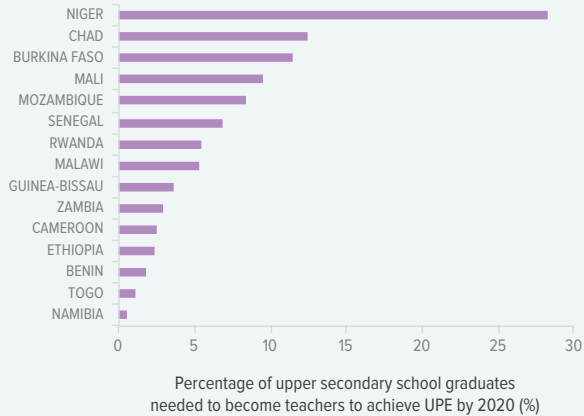
The shrinking pool from which to draw future teachers

People entering the teaching profession need to have completed at least secondary education of appropriate quality and relevance. They can then have a sound knowledge of the subjects they will be teaching, the pedagogical strategies they use, and the ability to acquire new knowledge and skills as needed.

Yet, in many low-income countries, those who completed upper secondary school are in short supply and are projected to remain so in the immediate future. Analysis by the EFA Global Monitoring Report shows that among 15 sub-Saharan African countries with data, Burkina Faso, Mali and Mozambique would need to direct at least 10% of their expected upper secondary school graduates into primary teacher education programmes to achieve UPE by 2020

FIGURE 8

Projected percentage of upper secondary school graduates who would need to become primary teachers to achieve universal primary education by 2020, selected sub-Saharan African countries



Note: This analysis was made by extending projections on achievement of universal primary and lower secondary education to predict growth in the percentage of the population with upper secondary education.

Source: EFA Global Monitoring Report team calculations (2014) based on UNESCO Institute of Statistics database



Mubarak Ali, teacher at a primary school in The Punjab, Pakistan "Recently, I attended training through the Department of Staff Development (DSD) Punjab. Before this, our teaching methodology could be compared with following the herd mentality. We did not use any audiovisual aids, we did not plan our lessons, we did not keep reflective diaries. Since the training, we use books to learn and understand so we can respond to students' queries. It's not like we used to teach – writing on the board and not being concerned about whether students understood anything or not. Through the training we have started involving students in the classroom. The teacher has turned into a facilitator and a guide. The rest is up to the children – they actively take charge of their learning."

Credit: UNESCO/Amina Sayeed

(see **Figure 8**). In Niger, almost 30% of all upper secondary school graduates would have to become teachers to fill the teacher gap.

Teachers with little training need further training

Hiring teachers with little training may well serve to get more children into school, but it can jeopardise education quality. Countries with high numbers of untrained teachers face a double task of recruiting trained teachers and training untrained teachers. Analysis by the EFA Global Monitoring Report shows that, in 10 out of 29 countries in sub-Saharan Africa, including Benin, Equatorial Guinea, Ghana and Liberia, the challenge of training existing teachers is greater than that of recruiting new teachers (see **Figure 9**).

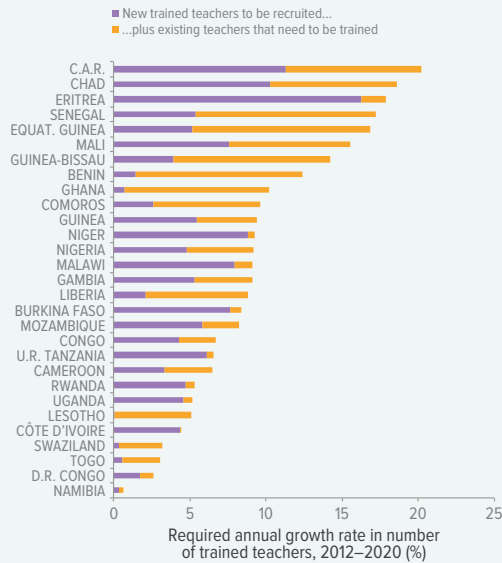
In Ghana, for example, while there has been a 61% increase in the number of primary school teachers over the decade, the percentage of trained teachers fell gradually from 72% in 1999 to 53% in 2013. The country needs to expand teacher recruitment by just 1% per year to achieve UPE by 2020, while also maintaining its pupil-teacher ratio below 40:1. This is below its 5% average annual growth rate of teachers since 1999. Yet, the number of existing teachers needing to be trained must grow by almost 10% per year to ensure that there will be 40 pupils per trained teacher in 2020, down from 59:1 in 2013. This is well above the 2% average growth rate of trained teachers since 1999.

Disadvantaged children suffer the most from weakly trained teachers

The shortage of trained teachers hits children living in disadvantaged areas the most. In Nigeria, 66% of primary school teachers were trained in 2010, which translated into a pupil-per-trained teacher ratio of 57:1. However, in the poorer northern state of Kano, the pupil-per-trained teacher ratio

FIGURE 9

Required annual growth in numbers of new and existing trained teachers to reach universal primary education by 2020



Source: EFA Global Monitoring Report team calculations (2014) based on UNESCO Institute of Statistics database

exceeded 100:1 in 2010. In more than one-half of local government districts, the situation was even worse, with at least 150 pupils per trained teacher in the most disadvantaged 25% of schools.

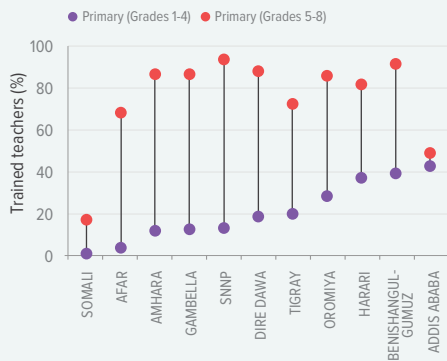
Children in early grades studying in remote regions suffer from a double disadvantage (see **Figure 10**). In Ethiopia, only around 20% of primary school teachers in Grades 1 to 4 were trained in 2010/2011, compared with 83% in Grades 5 to 8. The percentage of primary teachers who were trained was as low as 1% in the Somali region and 4% in Afar, the two most remote rural regions, compared with 43% in Addis Ababa.

Conclusion

Teacher shortages will continue to block efforts to achieve universal primary education unless action is taken now. As this paper shows, most countries can afford to hire the extra teachers needed in classrooms if they continue to steadily increase their education budgets as in the case of recent years. However, they must also prepare to accommodate a growing number of school-age children in classrooms that are already over-crowded. This pressure has led many countries, especially in sub-Saharan Africa, to resort to the hiring of untrained teachers. This short-term approach will not deliver the promise of UPE and the ambitions of the post-2015 era, whereby every child is in school and learning.

FIGURE 10

Percentage of trained teachers in Ethiopia by region, 2010/11



Source: Nordstrum, L. E. 2013. Teacher supply, training and cost in the context of rapidly expanding enrolments, Background paper prepared for the 2013/14 EFA Global Monitoring Report

Does your country face a teacher shortage?

See the UNESCO eAtlas of Teachers for interactive maps and graphs at <http://www.uis.unesco.org/data/atlas-teachers/en>

ANNEX 1

Primary pupil-teacher ratios and estimated year to close gaps in the supply of teachers for countries presented in Figure 3

| Countries with more than 40 pupils per teacher | | | | Countries with 31 to 40 pupils per teacher | | | | Countries with 30 pupils per teacher or less | | | |
|---|-------------------------|----------------------|------------------------|---|-------------------------|----------------------|------------------------|---|-------------------------|----------------------|------------------------|
| Country (estimated year when teachers' needs will be met) | Pupil per teacher ratio | Gross enrolment rate | Adjusted net enrolment | Country (estimated year when teachers' needs will be met) | Pupil per teacher ratio | Gross enrolment rate | Adjusted net enrolment | Country (estimated year when teachers' needs will be met) | Pupil per teacher ratio | Gross enrolment rate | Adjusted net enrolment |
| Central African Rep. (2024) | 80 | 95 | 72 | Mauritania (2015) | 40 | 97 | 70 | Liberia (2013) | 27 | 102 | 41 |
| Malawi (after 2030) | 74 | 141 | 97 | Niger (2018) | 39 | 71 | 64 | Equatorial Guinea (2019) | 26 | 91 | 62 |
| Chad (2023) | 61 | 95 | 64 | Nigeria (after 2030) | 38 | 85 | 66 | Palestine (2015) | 24 | 94 | 93 |
| Rwanda (2023) | 59 | 134 | 99 | Djibouti (after 2030) | 34 | 68 | 58 | Sri Lanka (2023) | 24 | 98 | 94 |
| Mozambique (2018) | 55 | 105 | 86 | Gambia (after 2030) | 34 | 85 | 74 | Dominican Rep. (2014) | 24 | 103 | 89 |
| Guinea-Bissau (2017) | 52 | 116 | 71 | Senegal (2016) | 32 | 84 | 79 | Guyana (2022) | 23 | 75 | 75 |
| Zambia (2017) | 49 | 114 | 98 | | | | | Panama (2015) | 23 | 100 | 92 |
| Mali (2021) | 48 | 88 | 73 | | | | | Paraguay (2030) | 22 | 95 | 83 |
| Burkina Faso (2019) | 48 | 85 | 67 | | | | | Chile (2013) | 21 | 101 | 93 |
| Uganda (after 2030) | 48 | 110 | 91 | | | | | Peru (2014) | 19 | 100 | 96 |
| Cameroon (2015) | 46 | 111 | 92 | | | | | Brunei Darussalam (2015) | 11 | 95 | 96 |
| Tanzania (2023) | 46 | 93 | 98 | | | | | | | | |
| Congo (2016) | 44 | 109 | 92 | | | | | | | | |
| Guinea (2020) | 44 | 91 | 76 | | | | | | | | |
| Côte d'Ivoire (2028) | 42 | 94 | 62 | | | | | | | | |
| Pakistan (after 2030) | 41 | 93 | 72 | | | | | | | | |
| Eritrea (after 2030) | 41 | 42 | 34 | | | | | | | | |

1. Specifically, the Proposal of the Open Working Group for Sustainable Development Goals includes the following target as of 1 September 2014: By 2030 increase by x% the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially Least Developed Countries, Landlocked Developing Countries and Small Island Developing States.
2. For further information on the methodology, see the technical note on the UNESCO Institute of Statistics and EFA Global Monitoring Report websites.
3. While the countries in Figure 3 are making important strides in teacher recruitment, there is no guarantee that they will actually achieve UPE. UIS projections indicate how many teachers would be needed to ensure that all children of primary school age are enrolled in school with a maximum pupil-teacher ratio (PTR) of 40 to 1. But in many countries, considerable numbers of children start school late and repeat grades. So as part of larger efforts to help children start and progress through school on time, governments may also need to boost teacher recruitment to accommodate these over-age children.
4. Of the 39 countries with projection data, Angola, Cabo Verde, Madagascar, Mauritius and Sierra Leone should have enough teachers for UPE by 2020.
5. Data for Ethiopia, Nigeria and South Africa are UIS estimates.

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