



2014/ED/EFA/MRT/PI/19

Background paper prepared for the  
Education for All Global Monitoring Report 2013/4

*Teaching and learning: Achieving quality for all*

# **Teacher supply, training and cost in the context of rapidly expanding enrolment: Ethiopia, Pakistan and Tanzania**

Lee E. Nordstrum

2013

*This paper was commissioned by the Education for All Global Monitoring Report as background information to assist in drafting the 2013/4 report. It has not been edited by the team. The views and opinions expressed in this paper are those of the author(s) and should not be attributed to the EFA Global Monitoring Report or to UNESCO. The papers can be cited with the following reference: "Paper commissioned for the EFA Global Monitoring Report 2013/4, Teaching and learning: Achieving quality for all" For further information, please contact [efareport@unesco.org](mailto:efareport@unesco.org)*

# Teacher supply, training and cost in the context of rapidly expanding enrolment: Ethiopia, Pakistan and Tanzania

---

**Lee E. Nordstrum, PhD<sup>1</sup>**

*Background paper prepared for the 2013 EFA Global Monitoring Report<sup>2</sup>*

## Abstract

Education for all and universal primary enrolment require that due attention is paid to teacher supply and training, if EFA Goal 6 (quality of education) is to be taken seriously. Unfortunately, there are numerous examples of countries that have expanded pupil enrolments without a counterbalancing growth in teacher supply and quality. This background paper presents case studies of three countries that have successfully and significantly expanded primary and lower secondary enrolments over the past two decades: Ethiopia, Pakistan and Tanzania. The paper details growth in student and teacher numbers in the three countries, and analyses the various approaches employed for teacher training in each. Four key policy messages are enumerated and discussed for teacher supply and education under conditions of increasing student numbers. Nations could: embrace alternative modalities of teacher training; utilize technology even in remote areas; develop training modules for both teachers and teacher trainers; and expand practical teaching experience by reducing theoretical course content in pre- and in-service training.

## Introduction

It is widely recognized that meeting the Education for All goals requires not only investments in children, but also in teachers. Expanding enrolments necessitates that countries match their supply of teachers with the increased demand on the educational system (and, in many cases, surpass it). Moreover, they must do so without an equivalent growth in resources and educational spending. In short, governments must do more with relatively less.

Ethiopia, Pakistan and Tanzania are three such countries. They have each significantly and substantially increased enrolment in primary schooling over the past two decades through the employment of various measures (e.g., fee abolition, private sector expansion) and therefore have needed to train and produce increasing numbers of teachers, as well as enhance the qualifications of the current labour force. This background paper attempts to understand how they did so by analysing recent policy reforms, teacher education programmes, and the relative efficacy of costs of teacher education. As such, the paper employs a (brief) case study approach to define the national context and describe reforms in teacher education and training, both pre- and in-service. While the

---

<sup>1</sup> [lee.nordstrum@gmail.com](mailto:lee.nordstrum@gmail.com)

<sup>2</sup> Many thanks to Albert Kwame Akyeampong and other members of the EFA GMR team for their extensive comments and guidance on earlier versions of this paper.

three country cases embody divergent approaches to augmenting teacher numbers in the context of rising student enrolment, they also give rise to four key policy messages, which are presented and discussed at the end of the paper.

## **Methods and data**

This background paper constitutes three case studies of national educational systems that have significantly expanded primary and lower secondary enrolments over the past two decades. Ethiopia, Pakistan and Tanzania were chosen as they are all three widely recognized for having made substantial progress in terms of the accessibility, or at least the take-up, of primary schooling. The paper attempts to draw connections between pupil enrolment, teacher supply, costs and training approaches in the three countries. As such, longitudinal data on enrolments, teacher numbers, qualifications, pupil-teacher ratios, and national expenditure on education were obtained from respective ministries of education. Data on approaches to teacher training were also obtained from ministries of education, external evaluations and, in some cases, donor agencies.

## **Case study 1: Ethiopia**

### **Background and educational system**

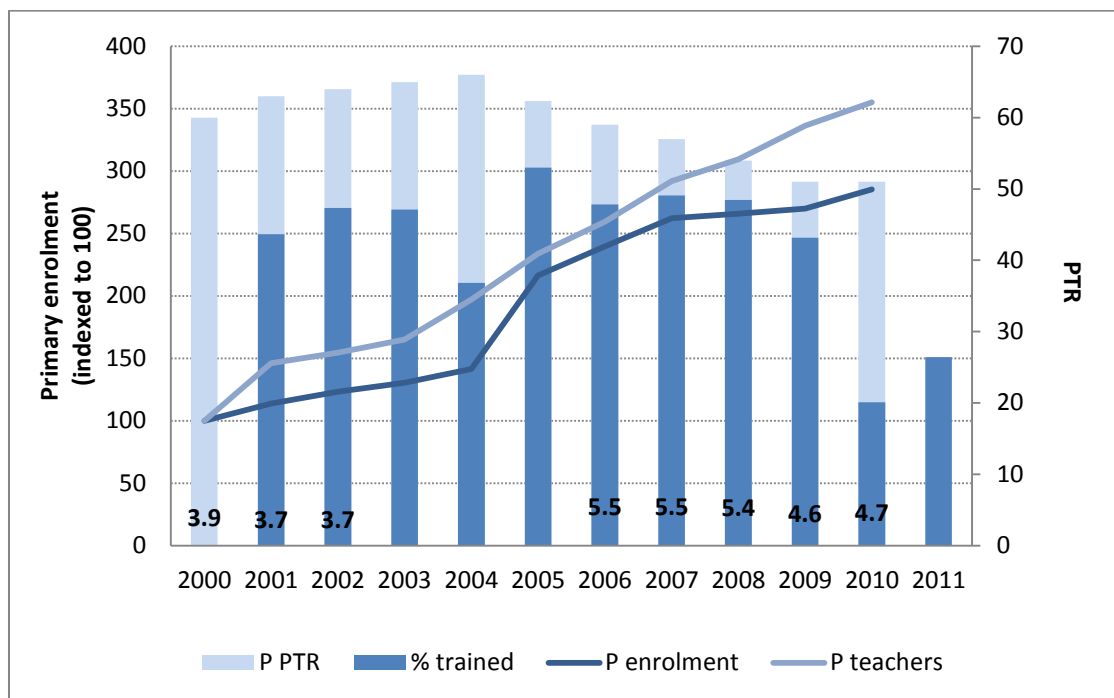
Primary education in Ethiopia consists of two cycles of four grades: the first cycle includes Grades 1-4 and second cycle extends through Grade 8. Lower secondary schooling comprises Grades 9 and 10. The educational system is the joint responsibility of federal, regional and woreda level government administration. At the federal level, the Ministry of Education develops national education strategies and policies, sets national targets and standards, develops the national curriculum framework and minimum learning competencies, provides textbooks for secondary schools and sets national examinations. It conducts learning assessments, trains secondary school teachers, promotes private investment for the development of education, provides technical support for regional offices and collates national school census data. Regional bureaus of education set standards relevant to woredas, prepare regional plans and programmes, train primary school teachers, procure and distribute textbooks for primary education, prepare and conduct 8th grade examinations, supervise preparatory schools, build the capacity of woreda- and school-level staff, and collate regional data. Woredas are responsible for implementing policies and standards, preparing woreda plans, establishing schools, recruiting and paying teachers, distributing textbooks, supervising schools and compiling woreda-level data.

### **Enrolment growth, teacher supply and cost in Ethiopia**

There has been a substantial and regular increase in primary student enrolment from 2000-10, from 5.8 million to 14.3 million pupils (see Figure 1). Teacher supply kept pace with enrolments throughout the time period shown in Figure 1. Ethiopia increased the numbers of primary teachers from 86,000 in 2000 to over 308,000 in 2010. This is also evidence of an overall drop in the pupil teacher ratio from 60 to 51 during the same period. The average pupil-teacher ratio (PTR) remains quite high, however, and earlier data from the MoE make clear that the current state of the PTR is actually higher now than it was during the mid-1990s (i.e. approximately 30 pupils per teacher). It should be noted, though, that such low PTRs were due in no small part to very low enrolment levels; the GER in primary and lower secondary in 1994 was only 27 and 15, respectively. In contrast, by 2010 the primary and lower secondary GERs were 102 and 45. While lower secondary enrolment certainly still lags behind that of primary and there is substantial room for expansion in post-primary

phases, such impressive gains in a relatively short duration were bound to engender strain in the educational system. Such quantitative increases in demand for educational services, particularly at the primary level, required a parallel increase in the supply of classroom places and teachers which the MoE and regional education bureaus were unprepared for. As such, the supply of teachers has not kept pace with the vast expansion of primary education in Ethiopia since the early 90s, and it took the better part of a decade before the supply of teachers began to outpace that of students. After a peak of approximately 66 pupils per primary teacher in 2004, the PTR decreases thereafter to approximately 51 in 2010. This aggregate figure, of course, disguises substantial variation across regions; rural areas in particular experience much higher PTRs.

**Figure 1: Growth in enrolment, teacher supply and pupil teacher ratios, Ethiopia 2000–10**



Source: Author’s calculations based on Ministry of Education data  
Note: Numbers in figure indicate percent of GDP allocated to education.

Figure 1 also depicts the proportion of primary teachers who meet national norms for adequate training. This ratio remained relatively high from 2001–2009; approximately 70 percent of primary educators met the minimum training requirements during this nine year period, with the exception of a momentary decline in 2004 (55.8 percent). It is notable, though, that the proportion of teachers meeting the national definition of ‘trained’ has decreased dramatically since 2009, from more than 80 percent to less than 40 percent in the subsequent year. Prior to 2009, the definition of a qualified teacher was one that had 10 years of education (i.e. general education plus two years of secondary) as well as a one- or two-year teacher training certificate. While the majority of the country’s teaching force was considering ‘qualified’, most teachers, especially in the lower grades, were the bearers of teaching certificates rather than diplomas or degrees. In 2010, the MoE nullified the qualification of the one- or two-year teaching certificates, and upped the pre-service requirement to include the diploma level (MoE, 2010). This was a bold step, in essence a public declaration that the previously followed means of training primary teachers was inadequate and required significant upgrading. Notwithstanding these most recent developments in teacher qualifications, Figure 1 shows that the country has begun to match education demand with teacher supply. Growth in

teacher numbers has surpassed that of general education (Grade 1–8) enrolments since 2000 and the PTR has been reduced from its peak in 2004. Moreover, the proportion of primary teachers meeting the minimum criteria for adequate qualification has increased year-on-year, with the exception of 2004 and 2010. The rationale for the latter drop in qualified teachers has been discussed, and it not a drop as such; indeed, the definition of a ‘qualified teacher’ was changed by the Ministry while the credentials of the teachers did not. Further, though not shown in the Figure, the proportion of trained teachers has risen to approximately 48 percent in 2011 (MoE, 2011).

These are significant accomplishments at a time of elevated stress for the educational system caused by huge enrolment growth, and have required substantial investment. While Figure 1 also shows that the percentage of GDP allocated to education has increased rather modestly from 2000–10 (i.e. from 3.9 to 4.7 percent), because of healthy increases in national budgets this proportion translates to large real increases in educational resources (MOE, 2010). From 2005 to 2010, the budgetary allocation to education increased nearly three-fold, an average annual growth rate of 27.3 percent. During the same period, total government expenditure increased by 16.5 percent per year. The amount of the overall budget allocated to education also rose from 17.8 percent in 2005 to 25.4 percent in 2010.

Table 1, overleaf, disaggregates the numbers and percentage of qualified teachers in primary and secondary schools in Ethiopia by region for the 2010-11 academic year. The drop in proportions of qualified teachers seen in 2010 in Figure 1, above, are largely attributable to the change in credential requirements in the first phase of primary school. The second phase (5-8) and secondary schools are characterized, by contrast, with a relatively high percentage of qualified teachers: 83 and 87 percent, respectively, on average. These aggregates of course conceal substantial regional differences. More rural regions, such as Afar, SNNP (the most rural), and Somali have extremely low proportions of first phase primary teachers who are qualified, though the same does not necessarily hold for the second phase of primary or secondary teachers (i.e. the SNNP region has high percentages of trained teachers in these phases). Nevertheless, the Afar and Somali regions have some of the lowest percentages of trained teachers when compared to other regions. However, it should be noted that some urban regions (indeed, the most urban) are characterized by lower than average rates of teacher qualification in some phases. Qualification rates in Addis Ababa, the largest city and the national capital, are approximately one-half that of the national average in the second primary phase (49 versus 83 percent) and approximately one-third of the national average in secondary (25 versus 87 percent). Dire Dawa, the nation’s second-largest city, also has lower than average teacher qualification rates in the first phase of primary, though this difference may not be statistically significant (19.3 versus a national average of 20.1 percent).

Thus, Ethiopia has accomplished much in primary education: large enrolment gains, more than tripling teacher numbers, lowered PTRs, and embarked on a more ambitious teacher qualification scheme. This has required no small amount of investment on the part of the national government and a high level of commitment. The next section outlines the most recent developments in teacher training and national education policies in order to enumerate how the above (mostly) positive evolutions were possible.

**Table 1: Number and proportion of qualified teachers in Ethiopia by region, 2010-11**

Region	Primary (1-4)			Primary (5-8)			Secondary (9-12)		
	Teachers	Qualified	% qualified	Teachers	Qualified	% qualified	Teachers	Qualified	% qualified
Tigray	12990	2679	20.6	10597	7671	72.4	4124	4042	98.0
Afar	1481	56	3.8	697	473	67.9	206	136	66.0
Amhara	50089	6076	12.1	34415	29744	86.4	14162	13825	97.6
Oromiya	61558	17666	28.7	42081	35939	85.4	18212	16955	93.1
Somali	4820	60	1.2	950	168	17.7	949	634	66.8
Benishangul-Gumuz	2129	825	38.8	1781	1625	91.2	731	691	94.5
SNNP	37117	4846	13.1	24785	23261	93.9	8311	7205	86.7
Gambella	1276	160	12.5	1049	911	86.8	420	312	74.3
Harari	761	287	37.7	525	431	82.1	272	242	89.0
Addis Ababa	8688	3748	43.1	8390	4079	48.6	4876	1218	25.0
Dire Dawa	1335	257	19.3	832	734	88.2	468	442	94.4
<b>Ethiopia</b>	<b>182244</b>	<b>36660</b>	<b>20.1</b>	<b>126042</b>	<b>105036</b>	<b>83.3</b>	<b>52731</b>	<b>45702</b>	<b>86.7</b>

Source: MOE 2011

## Teacher training in Ethiopia

### *Background*

Within the framework of the National Education and Training Policy (ETP) of 1994, the MOE launched its first five-year Education Sector Development Plan (ESDP) in 1997 as initial instalment of a 20-year education plan. The target for ESDP I was increasing primary enrolment from 3.7 to 7.0 million; this was exceeded in 2000/01 reaching 8.1 million and 11.5 million pupils in 2005/2006. The primary GER increased from 62 to 91 percent during this time and repetition dropped.

With the increase in student numbers, educational remained a concern. The 2007 National Learning Assessment (NLA) identified the lack of teacher training on new materials as one of the key factors relating to low student achievement (MOE, 2007). In addition, the Assessment found that the vast majority of recurrent education expenditures (i.e. over 90 percent) were consumed by educator salaries; little was left over for other expenditures relating to quality improvements in teaching and learning (e.g. teacher training).

In this context ESDP III launched in 2005/06 and prioritized quality improvement at all levels of the education system. Part of ESDP III is the General Education Quality Improvement Package (GEQIP), the purpose of which is to improve the quality of general education throughout the country. The plan will be implemented in two four-year phases (i.e. 2009–12 and 2013–16) and will be financed through a pooled funding mechanism into which a group of development partners will contribute.<sup>3</sup> GEQIP is comprised of four components: 1) Teacher Development Program (TDP);<sup>4</sup> 2) curriculum, textbooks, assessment and inspection; 3) Management and Administration Programs (MAP) and an EMIS sub-component; and 4) School Improvement Program (SIP) with a School Grant sub-component.

Most germane to this paper is the Teacher Development Program (TDP), which is intended to support the government's efforts to increase the supply of effective teacher educators, teachers and facilitators in primary and secondary education through the implementation of teacher education and development programmes (both in-service and pre-service. TDP 1 concluded in June 2008 and focused its efforts largely on increasing the quality of teacher educators at Teacher Education Institutions (TEIs) through reformed practicum and selection processes, and improved in-service teacher professional development activities. While the program did garner some success, but also encountered numerous problems, including overambitious objectives, insufficient staff implementation capacity, and a very modest impact on the classroom practices of teachers (MOE, 2008).

### *Current efforts toward teacher supply and education: TDP II*

TDP II is managed by the Education Programmes and Teacher Education Department (EPTED) of the MOE, and implemented in TEIs and local schools. TEIs comprise both university for secondary teacher education and Colleges of Teacher Education (CTEs) for primary teacher education. Table 2, below, describes objectives and key indicators for pre-service and in-service elements of TDP II.

---

<sup>3</sup> Other agencies have declared their support of the implementation process through their own separate programs. The MOE will coordinate the non-pooled partners at the federal and regional levels in line with the Paris Declaration on Aid Effectiveness.

<sup>4</sup> This includes the English Language Quality Improvement Program (ELQIP).

**Table 2: Elements of pre- and in-service teacher development in TDP II**

		Objective	Key indicators
Pre-service	Selection	Improved quality and equity of the CTE pre-service teacher training selection process	90% of candidates assessed based on new criteria (exams and interviews) 50% teacher candidates are female; 55% from rural areas; 65% indigenous
	Practicum	Improved quality and relevance of the practicum	22,000 CTE teacher candidates go through all 4 practicum stages 16,000 university teacher candidates go through all 4 practicum stages
	Module Development	Improved quality, reduced cost of professional studies and supervisor related modules	Module quality guidelines created 117 modules written
	Higher diploma program	Improve the quality of pedagogy in TEI as indicated by teacher educators' use of improved teaching skills	754 teachers qualified with a higher diploma each year
	English Language improvement centres	Enhance quality of pre-service and education for teachers of English and core subjects taught in English	75% of TEIs established an ELIC in their institution 50% of established ELICs regionally networked 25% of established ELICs expanded
	Alternative Basic Education	Increase supply of qualified alternative basic education facilitators	4,000 facilitators qualified to 3 month certificate level by year 3
	In-service	Continuous PD	More teachers using better teaching practices
ELQIP		Improve quality of English language teaching & teaching of core subjects in English	9,100 G1-12 take English Language Teaching training 2,995 G1-12 English teachers take School-Based English Mentoring training 1 Content & Language Integrated Learning module prepared training of other English teachers
Upgrading, licensing and re-licensing		Improve quality of pedagogy by upgrading teachers' qualifications	12% of G1-4 teachers qualified (diploma) 60% of G5-8 teachers qualified (diploma)

Source: MOE 2008

The aspects of TDP II tabulated in Table 2 are all germane to teacher education and training, but we will concentrate here on those most relevant to the discussion at hand.

**Practicum:** Historically, teacher candidates were not provided with many meaningful opportunities to practice instruction in the classroom before becoming teachers. These opportunities are further



constrained by a lack of transport, particularly in rural areas. Under TDP II, the practicum is a four stage program conducted over three years during which teacher candidates will work in schools with mentor teachers and supervisors. The MOE will provide vehicles for transport for TEIs and will pay costs of travel and subsistence for approximately 25,000 (yearly) teacher candidates and their supervisors while on placement.

**Higher Diploma Programme:** This programme was established to enhance the quality of teacher educators and is offered as a part-time one-year course in TEIs. Modules of active learning, continuous assessment, practicum and action research are included in the course.

**Alternative basic education:** Alternative basic education (ABE) is provided in rural areas and designed to reach nomadic people groups. Most ABE facilitators (i.e. teachers) are untrained and some have not completed lower secondary schools (i.e. through Grade 10). A three-month certification program will be held for ABE facilitators and opportunities for facilitators to complete Grade 10 if they have not already done so. NGO training will also be recognized (where possible) as equivalent to the certificate course.

**Continuing professional development:** Previous rounds of professional development had relied on the “ineffective” cascade model of training (MOE, 2008). TDP I attempted to implement a cluster system (i.e. regional training centres), but this has not been implemented in all regions. Where it has, teacher practice has not altered substantially, due in part to language of instruction and materials (i.e. English), inappropriate didactic training methods on the part of teacher trainers and variation in supervisor support to teachers.

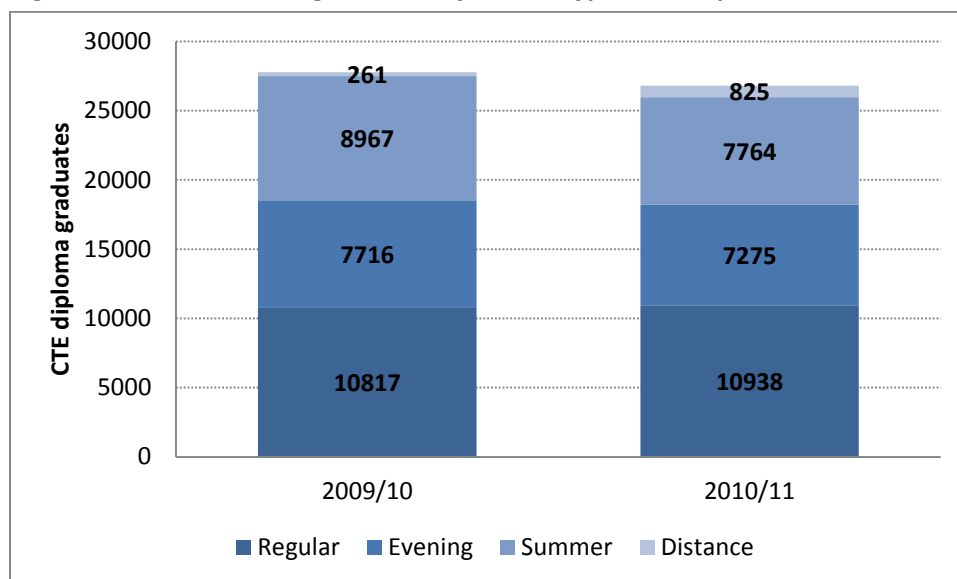
**English Language Quality Improvement Programme:** English Language Teaching Improvement Programme designed as 120 contact hours during four weeks in the summer. The School-Based English Mentoring training is 120 hours of contact time plus reflective action tasks undertaken over three sessions during a 14-month period.

**Up-grading teacher licensing and re-licensing:** The recent decision to nullify the one-year certificate as constituting qualification for primary teachers and require diploma level qualification means that there are substantial numbers of newly unqualified teachers. They will be able to upgrade their qualification through a three-year in-service program comprised of self-study models, two three-day tutorials per year and a six-week residential training component in CTEs during each of the three summer vacations. TDP II will cover the costs of training materials and transport/lodging for more than 20,000 teachers who are expected to participate each year.

### ***Current teacher training modalities and expenditure in Ethiopia***

The above brief description of TDP II and GEQIP indicates that while a number of teacher training modalities are offered by TEIs, most programme components rely, at least to some extent, on traditional residential modules at universities or CTEs. In 2009/10, there were 142,935 teacher candidates enrolled in teacher colleges and training institutions. Of these, 0.6 percent was enrolled in distance courses, and this modality is only provided at one teachers’ college. The remainder of candidates and trainees are involved in residence courses, though there is some flexibility in terms of the scheduling of these courses (e.g., summer and evening courses are available). Figure 2 depicts the number of CTE graduates (i.e. future primary teachers) in 2009/10 and 2010/11, respectively, by course modality.

Figure 2: Number of CTE graduates by course type in Ethiopia, 2009/10 and 2010/11



Source: Author's calculation based on Education Statistics Annual Abstract data

While the highest proportion of recent diploma graduates were enrolled in traditional residential courses, many teacher candidates undertook alternatively scheduled courses. Distance courses have the lowest enrolment and graduation numbers, though its share of total graduands increased in 2010/11. Figure 2 does show an overall flexibility on the part of CTEs in terms of when teachers are trained and the types of course scheduling offered, but there is still a heavy reliance upon residential teacher education wherein trainees are required to be present at CTEs for a set duration, with supplemental services and contact time provided between residencies.

In addition to these strictures relating to learning modalities in Ethiopian pre-service teacher education, allocating planned programme funds remains a challenge in GEQIP and TDP II. Table 3 presents both planned and actual expenditure by GEQIP components for fiscal year 2010/11.

Table 3: Planned and actual expenditure in GEQIP components, 2010/11

	Planned expenditure		Actual amount (USD million)	Actual as % of planned
	Nominal amount (USD million)	Percent of total		
Curriculum reform & implementation	5.04	1.8	2.20	43.7
Teaching & learning materials	200.09	14.5	17.67	8.8
Assessment & examination	0.30	0.0	0.0005	0.2
Pre-service quality improvement	37.20	13.8	16.79	45.1
In-service quality improvement	21.82	8.9	10.85	49.7
School improvement programme	0.71	0.6	0.76	107.0
School grant	91.16	55.3	67.67	74.2
Development for ed. sector planning	0.86	0.8	0.92	107.0
Development for school planning	4.90	0.6	0.68	13.9
EMIS	4.33	1.0	1.21	27.9
Programme coordination	6.10	1.8	2.22	36.4
Monitoring and evaluation	1.32	0.7	0.89	67.4
<b>Total</b>	<b>373.83</b>	<b>100.0</b>	<b>121.86</b>	<b>32.6</b>

Source: MOE 2011

On average, only 32.6 of planned expenditure was spent on programme components in 2010/11. Components relating directly to TDP II (pre- and in-service quality improvement) fared slightly better, but still spent less than half than budgeted. This has obvious implications for the capacity to implement the programmes, particularly since administrative coordination components are significantly underspent: school planning only spent 13.9 percent of budgeted funds and programme coordination spent just over one-third of its budget.

### Case study 2: Pakistan

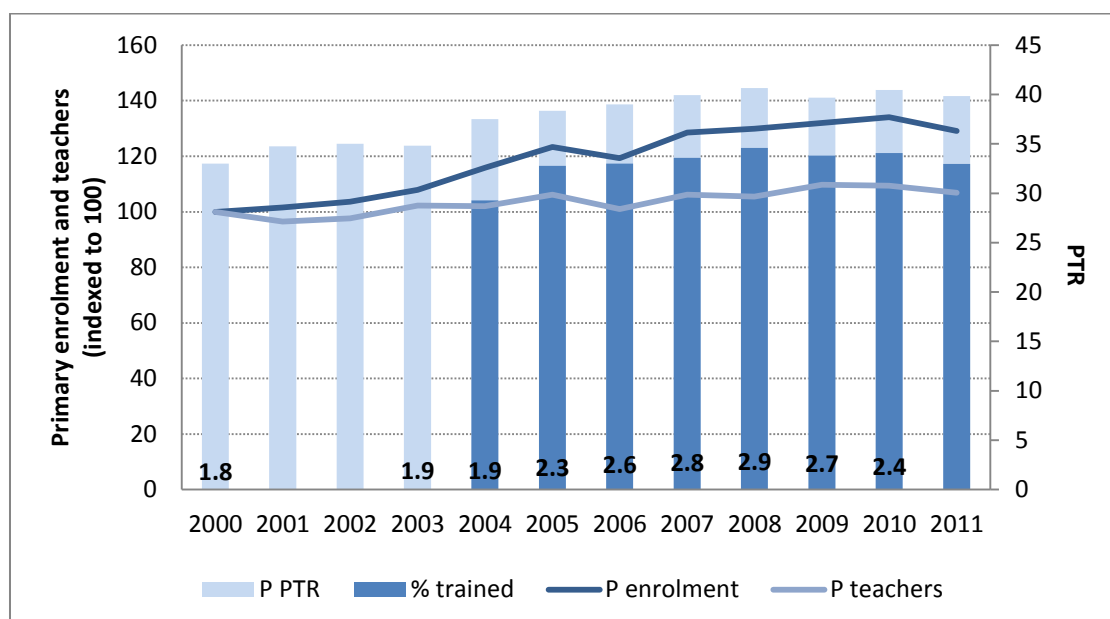
Pakistan represents another country that has rapidly expanded primary enrolment over the past two decades and therefore constitutes an interesting case study of how the issue of teacher supply has been addressed. Primary education in Pakistan constitutes Grades 1–5, and middle school comprises Grades 6–8.

#### Enrolment growth, teacher supply and cost in Pakistan

Figure 3 details the growth in primary enrolment, teacher numbers and qualified teachers, as well as PTRs in Pakistani primary education from 2000–11. Growth in primary enrolment has been modest from 2000–11 in terms of a percentage change (i.e. increase of approximately 30 percent since 2000). In nominal terms, however, enrolment has grown by approximately 4 million pupils (from 14.1 to 18.1 million). As measured by the GER (not shown in Figure 3), and through a slightly longer time frame, primary enrolment in Pakistan has increased from 55.3 in 1990 to 92.5 in 2011, an extremely significant evolution. Lower secondary enrolments lag somewhat behind: the GER remains less than 50 and growth has been more modest since 2002.

During this time, teacher supply has not kept pace with student enrolment: primary teacher numbers have increased from 409,000 to 453,000 (i.e. approximately 10.8 percent growth); thus, the primary PTR has risen from approximately 35 pupils per teacher to 40 in 2011. It should be noted, though, that the PTR is lower (in nominal terms) in 2011 than it was in 1990 (i.e. 41).

Figure 3: Growth in enrolment, teacher supply and pupil teacher ratios, Pakistan 2000–11



Source: Author's calculations based on Ministry of Education and Training data

Note: Numbers in figure indicate percent of GDP allocated to education.

Data on the proportion of trained teachers in primary grades are only available since 2004; the proportion of primary teachers meeting national definitions of minimum certification has risen slightly, from 78 to 83 percent. In addition, the percent of GDP allocated to education rose from 1.8 to 2.4 percent from 2000–10, an increase of approximately 33 percent over a decade.

Table 4, overleaf, tabulates the number of teachers by professional qualification in Pakistan during the 2010-11 academic year, disaggregated by region. As Figure 3 (above) suggests, the proportion of untrained teachers is relatively low in Pakistan overall, though this aggregate pattern masks regional differences, and disparities between urban and rural localities. In general, there are more untrained teachers in rural areas than urban locations across all provinces, though it should be noted that this is true of teachers nation-wide in nearly all qualification sub-groups (i.e. more teachers teach in rural areas). However, the proportion of untrained teachers is particularly skewed toward rural areas in Sindh and Gilgit-Baltistan, particularly in the primary grades. Punjab has the largest proportion of its teaching workforce as ‘other’ (i.e. unspecified or alternative qualifications), especially in rural locations: more than fifty percent of rural middle school teachers in Punjab have unspecified qualifications, as do approximately one-third of rural primary teachers. The analogous proportions in urban areas of Punjab are lower.

**Table 4: Primary and middle school teachers by professional qualification in Pakistan, 2010-11**

	Qualification	Punjab		Sindh		Kyber- PakhtunKhwa		Balochistan		AJ&K		Gilgit- Baltistan		FATA		ICT	
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
<b>P</b>	PTC	12163	59900	16336	38614	6404	49865	4320	11814	195	3136	60	647	0	8108	163	215
	CT	2205	11547	3688	5558	135	561	49	139	79	1790	53	537	0	169	213	195
	B.Ed/BS.Ed	2	21	9349	16376	1622	9489	566	720	93	2298	56	500	0	253	681	574
	M.Ed	0	17	2423	3376	366	1871	20	47	0	101	14	56	0	24	206	168
	Other	2889	26418	70	202	0	22	11	40	1	28	7	65	0	2115	28	12
	Untrained	0	0	319	2657	8	660	38	104	23	390	55	876	0	180	17	43
	Total	17259	97903	32185	66783	8535	62468	5004	12864	391	7743	245	2681	0	10849	1308	1207
<b>M</b>	PTC	4858	16005	944	807	2	28	1138	2818	105	1344	57	220	0	782	40	78
	CT	2124	8694	794	645	249	2037	309	828	67	1370	46	239	0	803	42	100
	B.Ed/BS.Ed	13	46	1386	1767	447	3661	634	1379	113	2932	121	533	0	543	100	280
	M.Ed	4	27	778	1491	200	1481	121	228	23	385	22	92	0	135	31	84
	Other	5501	29732	253	657	639	6099	489	1503	24	206	4	43	0	1431	3	17
	Untrained	0	0	74	108	0	0	55	192	17	203	37	131	0	46	1	10
	Total	12500	54504	4229	5475	1537	13306	2746	6948	349	6440	287	1258	0	3740	217	569

Source: AEPAM 2011, tables 3.7.1 through 3.7.8

## Teacher training in Pakistan

### *Background: Prior characteristics of teaching training and cost*

From the mid-1980s to the early 1990s, pre-service and in-service training was integrated and centralized through the provincial Bureaus of Curriculum (BoCs). The BoCs also assumed responsibility for examination and certification of teacher candidates. This organization worked effectively for the better part of a decade. With the expansion of educational participation in the early 1990s, however, the provincial Bureaus quickly became overwhelmed by demand. In 1994, the Provincial Institutes for Teacher Education (PITEs) were created through the Teacher Training Project funded by the Asian Development Bank. These were positioned as “apex institutions” in teacher training, and were responsible for the planning, production, implementation and evaluation in teacher education programmes.

During this time, however, a number of issues manifested in teacher education. First, there was no special cadre of teacher trainers. Those who trained teachers lacked the skill to fully engage adult learners in meaningful professional development. Second, all teaching certificates and degrees were conducted over a single year, during which 11 or more courses were to be taught. This provided very little time to go over any portion of the curriculum in any sort of depth. Third, there was no regular yearly budgetary allocation from the BoC or PITEs for in-service training; virtually all courses and teacher development initiatives were funded by the government by resources obtained through aid projects or directly by donor agencies.

The Ministry of Education and Training (MoET), in the National Education Policy of 1998–2010, summarized the resultant situation in teacher education: “The qualitative dimension of teacher education program has received only marginal attention resulting in mass production of teachers with shallow understanding of both the content and methodology of education” (MoET, 1998: 47). The document continues: “There is no effective relationship between the demand and supply of teachers at any level of education in Pakistan. Teacher training is carried out without a viable policy and planning framework, resulting in imbalances between the demand and supply situation” (p. 48). As of 1998, the MoET estimated a 65,000 surplus of qualified teachers who were seeking employment.

The issues mentioned above meant that most teacher training courses were given in traditional methods (i.e. lectures and seminars), which did not encourage active learning and participation. Practical work experience, assignments and library study were weakly represented in curricula: only 15 percent of course time was allocated to teaching practice. Topics such as group learning and students centred instruction were taught through lecturing. These pedagogical practices are reflected in student teachers’ practical experiences: they tend to teach the way they were taught, through direct instruction. The short duration of training and lengthy syllabuses, with redundant content, was a common complaint of teacher educators at all levels. ‘One year courses’ were actually of nine months’ duration. Of this, only six weeks were given to teaching practice. The remaining 33 weeks (7.5 months) was insufficient time to study the 11 subjects in the certificate and degree courses.

Finally, the cost of training a teacher candidate in 2003/04 was between Rs. 15,000 to 110,000, depending on the teacher training institution. This was approximately 25.5 times greater than the cost of educating a secondary student. In comparison, the international average cost of training

teacher candidates is only 7.6 times the cost of educating a secondary student. Moreover, most of the unit cost in Pakistan was allocated to teacher trainer salaries (i.e. 60–99 percent).

**Current approaches to teacher education in Pakistan: USAID Teacher Education Program**

A collaborative donor-funded teacher education programme in Pakistan is the USAID Teacher Education Program, which was initiated in 2008 and runs until 2013. USAID works with the Government of Pakistan and its Higher Education Committee (HEC) to reform the teacher training curriculum in institutions of higher education, and provides teacher professional development. Similar to Ethiopia, Pakistan is increasing minimum requirements for teacher candidates from one-year certificate programmes to a two-year Associate Degree in Education (ADE) and a four-year Bachelor of Education (B.Ed. Hons) degree. The National Curriculum Review Committee (NCRC) under the HEC prepared a standardized format of studies for the B.Ed (Hons) in consultation with provincial education departments, universities, colleges and curriculum experts. As reported by USAID (2008), course curricula have been reformed away from traditional lectures and seminars, and feature a greater emphasis on practical teaching experience and child-centred pedagogy. Table 5, below, compiles the course composition of the new ADE and B.Ed. (Hons) degrees.

**Table 5: Course composition of ADE and B.Ed. teacher training programmes in Pakistan**

Courses	ADE		B.Ed. (Hons)	
	Credit hours	Percent of total	Credit hours	Percent of total
<b>Compulsory courses</b>	16	23.9%	19	14.1%
<b>Professional courses</b>	21	31.3%	51	37.8%
<b>Foundation courses</b>	15	22.4%	24	17.8%
<b>Content courses</b>	9	13.4%	26	19.3%
<b>Teaching practice</b>	6	9.0%	15	11.1%
<b>Total credit hours</b>	67	100.0%	135	100.0%

Source: USAID (<http://www.pakteachers.org/Become-21st-Century-Teacher>)

Note: Percentages may not total 100 due to rounding.

Practical teaching experience is scheduled during the second (6 credit hours) and fourth years (9 credit hours) of the new teacher education curriculum. According to the course syllabi, three credit-hours translate to approximately 120 hours spent (i.e. three full weeks) in the classroom. As such, ADE candidates are required to spend six weeks out of two years in their practical teaching experience, and B.Ed. (Hons) candidates are required to spend 15 weeks in classrooms. These requirements amount to only 9.0 and 11.1 percent of course time in the two degree programmes, respectively, which does not greatly improve upon prior teacher training approaches (USAID, 2008).

It should also be noted that while the above two degree programmes may constitute some improvement upon previous teacher training curricula in Pakistan (though not in terms of practical teaching experience), courses are still offered via traditional residential modalities. Distance learning, correspondence courses or flipped classroom approaches have not been, to date, incorporated into the ADE or B.Ed. (Hons) degree programmes. Rather, they must be undertaken at participating colleges or universities. And while at least 66 teacher training institutions are currently offering these programmes and have training thousands of teacher candidates, it is still the case that the number of participating colleges and universities tends to be lower in rural areas of Pakistan, which limits access to teacher education based upon geographic location.

Nevertheless, the scope of the USAID teacher education programme is substantial, if variable across regions (see Table 6). As of 2010, several thousands of teachers had been trained in dozens of trainings put on by many participating colleges and universities.

**Table 6: Scope of USAID teacher education programme in Pakistan**

Province	Participating colleges and universities	Additional higher ed staff	Teacher trainings held	Teachers trained	Percent female
Punjab	10	--	78	1566	41.4
Sindh	5	200	45	1194	48.2
Khyber Pakhtunkhwa	23	--	50	1189	45.6
Federal capital	2	--	10	277	42.6
Balochistan	11	--	46	1014	48.5
FATA	4	--	--	--	--
Azad Jammu & Kashmir	7	--	18	489	41.7
Gilgit Baltistan	4	--	10	263	47.9

Source: USAID ([http://www.pakteachers.org/Teacher Education in Pakistan](http://www.pakteachers.org/Teacher_Education_in_Pakistan))

### Case study 3: Tanzania

Compulsory primary education in Tanzania begins at age seven and comprises seven years (Standard I–VII), followed by four years of lower secondary (Form 1–4). School tuition fees were formally abolished in 2002 for primary education, though not for the first time (Nordstrum, 2011).<sup>5</sup>

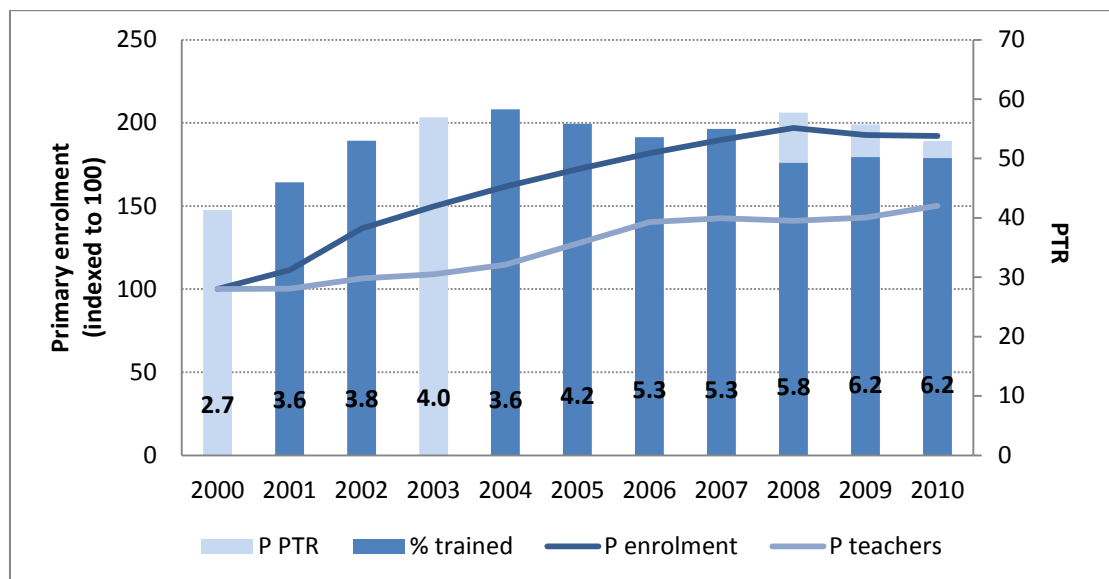
#### Enrolment growth, teacher supply and cost in Tanzania

Figure 4 displays student enrolment, teacher supply, PTRs and the proportion of quality teachers in Tanzania from 2000–10. During this time, primary enrolment has nearly doubled since, from 4.9 to 8.4 million students, though growth in student numbers has levelled off since 2008. The supply of primary teachers has not quite kept pace with primary enrolments, however: teacher numbers have been augmented by approximately 50 percent, from 106,000 in 2000 to 166,000 in 2010. As a consequence, the primary PTR has risen almost 25 percent, from 41 to 51 pupils per teacher. The proportion of trained teachers (or teachers whose qualifications meet national norms of adequate training) has held consistently at 100 percent of all primary teachers, though this has dropped slightly to 94.5 percent in 2010. However, it should be noted that the definition of a ‘trained teacher’ in Tanzania still includes the holders of a teaching certificate rather than a tertiary diploma or a degree. In 2008, of 154,895 primary teachers, 566 (0.4 percent) had a university degree and 4,597 (3.0 percent) had a diploma, 127,397 (82.2 percent) were Grade A teachers, and 22,335 (14.4 percent) held a B/C Grade certificate or lower (UNESCO IBE, 2010).

<sup>5</sup> In 1974, the government first took steps to introduce free and universal primary education by 1977, leading to significant enrolment gains.



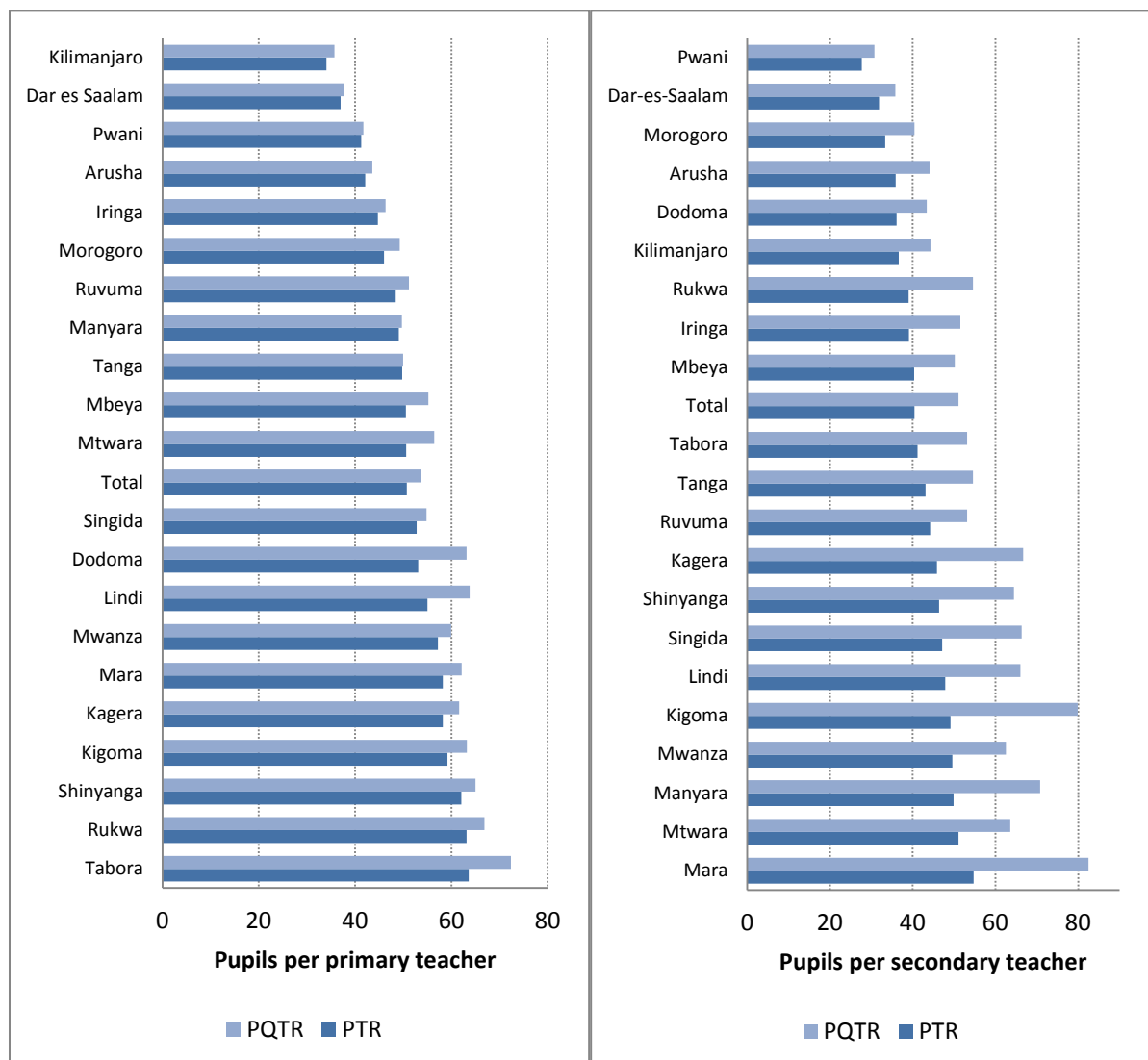
Figure 4: Growth in enrolment, teacher supply and pupil teacher ratios, Tanzania 2000-10



Source: Author's calculations based on MoEVT data and Public Expenditure Review 2006/07–2010/11  
Note: No data available for the percent of teachers trained in 2000 and 2003

Figure 4 also shows that spending on education, as measured by the percent of GDP, has generally increased since 2000, from 2.7 to 6.2 percent of GDP. This is mostly a product of growth in overall government expenditure, as the proportion of the total governmental spend allocated to education has remained more or less constant during that same period (16.7 percent of the total government spend in 2000 and 17.6 percent in 2010, though this figure has oscillated between 15 and 22 percent). The proportion of the educational budget actually allocated to teacher training is quite small (i.e. 1.4 percent of the total education budget in 2010). Its share of the total education budget generally decreased from 2.4 percent in 2000 to 1.1 percent in 2006. The proportion then peaked again in 2009 at 2.7 percent of the total education budget before falling back to 1.4 percent in 2010. However, the growth of both the education and overall governmental budget has seen the nominal funds allocated to teacher education increase from 5.3 billion shillings in 2000/01 to 28.9 billion in 2010/11, more than a five-fold increase within the decade.

Figure 5: Pupil–teacher ratios and pupil–qualified teacher ratios in Tanzania in 2010, by region



Source: MoEVT 2010, Tables 2.16 and 4.19

Note: Definition of ‘qualified teacher’ differs from primary to secondary

Figure 5, above, disaggregates the pupil–teacher ratio (PTR) and pupil–qualified teacher ratio (PQTR) by region in Tanzania in 2010. Regions are ordered from the smallest PTR to the largest. The figure shows that there are more significant differences between regions vis-à-vis the PTR and the PQTR. In the primary phase, some regions (e.g., Dar es Salaam) average about 35 pupils per teacher, while others average nearly 60. In secondary, a similar pattern is seen. In addition, there is significant variation in the gross numbers of teachers and those meeting certification requirements in the secondary phase in Tanzania: a greater proportion of primary teachers meet qualification standards. This is in part because qualifications standards are lower for primary teachers. In addition, important regional differences emerge in terms of where qualified teachers are employed: more urban locations such as Dar es Salaam have a greater proportion of qualified teachers (and hence less of a difference between PTR and PQTR) than more rural locations, such as the Lindi region.

## Teacher training in Tanzania

### *Background*

During the universal primary education movement of the 1970s, teacher qualifications were eased in order to facilitate quicker access into teaching and to expand the supply of teachers. Certificate teachers (A, B or C Grade) are Standard VII leavers who have received two to four years of training.<sup>6</sup> Teachers holding certificates are allowed to teach in pre-primary and primary schools; diploma teachers are deployed in secondary schools and teachers colleges. The average age of certificate teachers is currently over 50 and many are expected to soon retire. Part of the Ministry of Education and Vocational Training's (MoEVT) current strategic plan is to replace these certificate holders with younger teachers with higher tertiary qualifications, or to upgrade their credentials to degree or diploma.

### *Current approaches to teacher education in Tanzania: expanding the private sector*

The Teacher Education Department (TED) offers both pre-service and in-service teacher training programmes, both of which are theoretically offered in three modes: residential, distance mode or semi-distance mode. However, only a very few programmes offer non-residential learning opportunities for teachers. All other courses (even in-service), diplomas are residential programmes (either one or two years).

The only semi-distance programme is the two-year Grade A Teachers' Certificate, which consists of a one-year residence at a teachers' college and the second spent teaching in a primary school. Two programmes are offered via distance learning. The Grade B/C to Grade A Teaching Certificate programme allows all B/C Grade teachers to upgrade to A status. The programme is conducted as a three-year distance learning course, with face-to-face sessions conducted during school vacations every six months. The government bears all costs of face-to-face learning sessions in this programme, including learning materials, food and accommodation. Teachers must pay for transportation to and from training centres (teachers colleges). The second distance programme is the Continuous Professional Development (CPD) of teachers that has taken the place of residential in-service training. Teachers are assisted by facilitators (trainers) who in turn receive support from mentors at teachers colleges. Teacher support in the form of CPD is provided at several levels: Teacher Resource Centres, Ward and school level. The course is primarily a distance learning course, with face-to-face sessions conducted during primary school vacations in teachers colleges or other centres. Teachers are also required to read and learn 16 modules through self-study.

Figure 4, above, highlighted that teacher numbers have not kept pace with the large gains seen in primary enrolments since 2000 and particularly since tuition fees were formally abolished. Data on enrolment in Tanzanian teacher training colleges shows that the growth in teacher numbers can largely be attributed to the private sector, rather than government efforts. Table 7 shows evolutions of enrolment in government and non-government teacher training colleges from 2006–10. Enrolment fluctuates significantly in government colleges from year to year (high of 28,000 in 2006 and a low of 16,700 in 2008) and has decreased overall. Non-governmental teacher training colleges, however, have quadrupled enrolments in four years, from 2,740 in 2006 to 10,834 in 2010. However, the vast majority of this enrolment growth has been in Grade A teaching certificates (i.e. teaching

---

<sup>6</sup> A Grade: completed Form Four with at least Division III and having passed at least four subjects.

candidates with secondary education plus four years of training), rather than in diploma pre-service education.

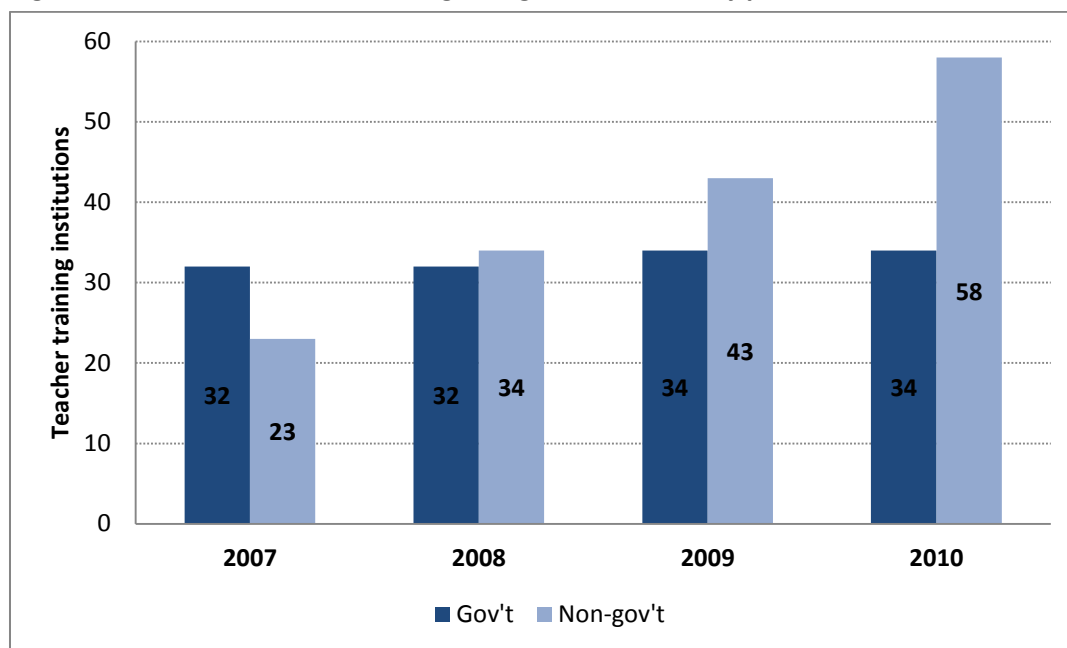
**Table 7: Enrolment in government and non-government teacher training colleges in Tanzania, 2006–10**

		2006		2007		2008		2009		2010	
		% Female	Total	% Female	Total	% Female	Total	% Female	Total	% Female	Total
Gov't	<b>Total</b>	<b>47.5</b>	<b>27736</b>	<b>45.8</b>	<b>19640</b>	<b>44.9</b>	<b>16700</b>	<b>42.8</b>	<b>21723</b>	<b>43.5</b>	<b>25814</b>
	Certificate Spec. ed	62.5	547	46.7	246	52.1	265	80.8	26	26.2	458
	Diploma pre-service	35.3	7411	29.3	5959	38.8	6739	0.5	2689	39.8	13679
	Diploma in-service	41.9	508	25.3	640	29.6	770	31.0	2148	35.1	2655
	Grade A	53.9	11609	57.4	9557	50.5	8884	0.0	0	52.5	9022
	In-service Grade B/C - A	48.8	7661	46.0	3238	61.9	42	0.0	0	0.0	0
Non-gov't	<b>Total</b>	<b>57.8</b>	<b>2740</b>	<b>59.6</b>	<b>3763</b>	<b>56.9</b>	<b>5188</b>	<b>57.4</b>	<b>13648</b>	<b>49.5</b>	<b>10834</b>
	Certificate Spec. Ed	0.0	0	0.0	0	0.0	0	0.0	0	100.0	8
	Diploma pre-service	39.6	543	40.4	361	48.1	320	64.2	916	53.3	998
	Diploma in-service	0.0	0	0.0	0	10.5	19	41.2	34	63.3	409
	Grade A	62.3	2197	61.4	3362	57.7	4849	57.0	12698	48.4	9419
	In-service Grade B/C - A	0.0	0	85.0	40	0.0	0	0.0	0	0.0	0

Source: MoEVT, 2010 (Basic Education Statistics in Tanzania, Table 5.3)

Figure 6, below, tabulates the growth of government and non-government teacher training colleges over roughly the same time period (i.e. 2007–10). These data show similar patterns to those seen in Table 6: that the majority of expansion in teacher education is taking place within the private sector and Grade A teaching certificate training courses. Figure 6 does not depict, however, the general lack of resources in teacher training colleges (both government and non-government). For example, the proportion of teachers' colleges with science labs was 25 percent nationally in 2010 (MoEVT, 2010). This proportion is slightly higher in government colleges (27 percent) than in non-government colleges (i.e. 22 percent).

Figure 6: Number of teacher training colleges in Tanzania by provider, 2007–10



Source: MoEVT, 2010 (Basic Education Statistics in Tanzania, Table 5.5)

#### *Spending and unit costs of teacher training in Tanzania*

Aggregate education finance patterns have already been discussed above, and thus we concentrate here on the unit costs of teacher education relative to other levels of schooling and the composition of the teacher education budget in Tanzania. Table 8 presents unit costs for various levels of education in 2009, as well as their real increase since 2001. Per the data in Table 7, the unit cost of teacher education has more than doubled since 2001, and (as of 2009) is more than 10 times that of secondary education (international average is approximately seven times higher than secondary unit cost).<sup>7</sup> However, one should also note that that secondary unit cost has halved since 2000, an evolution that sharpens the distinction between the two phases. This does not imply that either secondary education is underfunded (though it has received relatively less fiscal resources since 2000) or that teacher education is exorbitantly expensive (though costs have increased) (MoEVT, 2012).

<sup>7</sup> The international average teacher education unit cost is approximately seven times higher than that of secondary education (MoEVT, 2012).

**Table 8: Enrolment, spending and unit costs by education level in Tanzania (2009)**

	Pre-primary	Primary	Secondary	Teacher education	Adult & non-formal	Vocational training
Enrolments ('000)	828.2	8304.8	1164.8	19.2	1154.0	23.9
Spending (T Sh billion)	52.7	518.6	158.0	29.6	15.8	35.0
Unit costs						
T Sh ('000)	63.6	62.4	135.7	1541.2	13.7	1464.6
US \$	50.4	49.5	107.5	1221.6	10.9	1161.0
% GDP per capita	9.4	9.3	20.1	228.5	2.0	236.7
Unit cost (ref primary)	1.0	1.0	2.2	24.6	0.2	23.4
2001-09 real increase (%)	N/A	N/A	-45.3	113.3	90.3	N/A

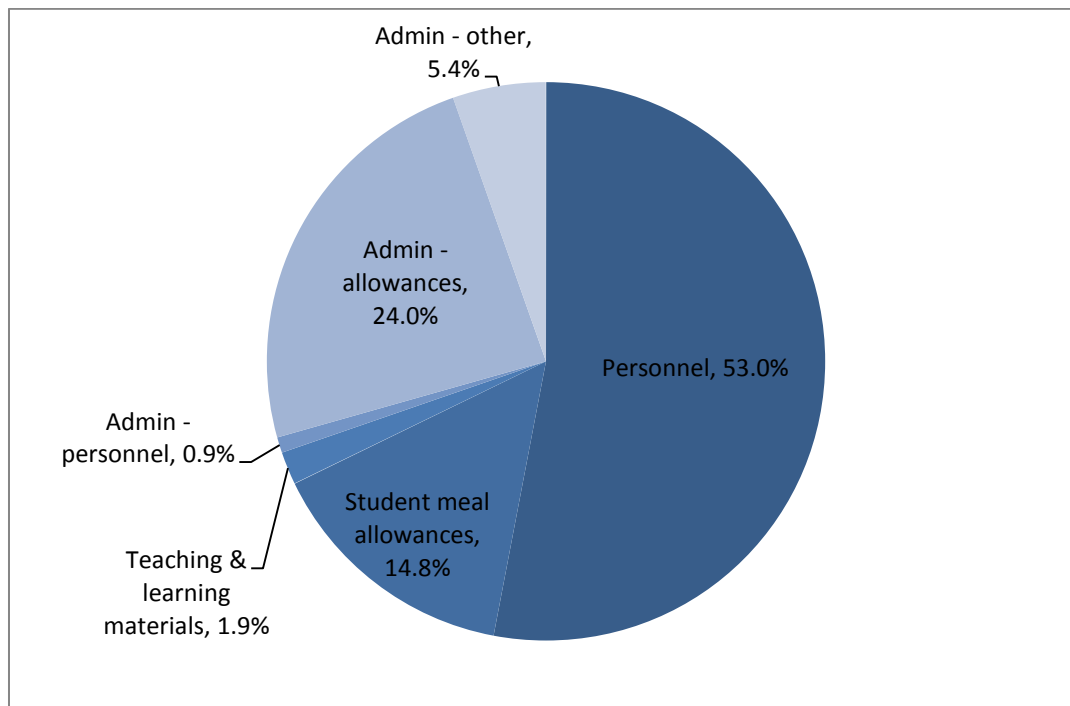
Source: MoFEA and national EMIS data

The unit costs of teacher education in Tanzania are particularly high because it is characterized by a high proportion of administrative costs and personnel allowances (see Figure 7, below). Greater than 30 percent of spending teacher education is allocated to administrative costs.<sup>8</sup> Moreover, the majority of administrative costs (24.0 percent of total teacher education budget) are comprised of employee allowances for participating teachers. A further 14.8 percent of the teacher education budget is apportioned for student meal allowances. In total, approximately 45 percent of the total budget for teacher education goes to pay for administrative costs or student employee allowances, whereas only 55 percent of the budget is comprised of costs that directly affect teaching and learning (i.e. teacher trainers' salaries and instructional materials).

The proportion of the teacher education budget devoted to administrative and employee allowances is so large because Tanzania relies almost exclusively (with the exception of Continuing Professional Development) on residential teacher training models rather than, for example, distance learning or self-study. This in turn drives up unit costs as the teacher education budget must of necessity reimburse teachers for the loss of their salaries and living expenses when training is conducted during the academic year and when trainees are residing at a teacher training institution. While some costs are borne by the trainees themselves (i.e. travel expenses to and from the teacher training institution), non-residential training models may offer opportunities for cost efficiencies.

<sup>8</sup> This includes administration, finance and accountancy, policy and planning, internal audit, procurement, information and communication, the Chief Education Officer, the Inspectorate and the UNESCO commission.

Figure 7: Composition of teacher education budget in Tanzania (2009)



Source: Author's rendering of MoFEA data

### Discussion: Four key policy messages for teacher supply and training

The above case studies paint different portraits of how three countries have attempted to deal with substantial growth in primary enrolment over a very short period of time, in part by training more new teachers and upgrading existing educators' credentials. Yet, the supply of teachers is not as high as desired in these three countries, and many teachers' credentials require further training. As such, there is still more work to be done to expand and enhance teacher education and training in these (and potentially other) countries. To this end, at least four key policy messages emerge from this analysis and are articulated below.

#### Policy message one: Embrace alternative learning modalities

The vast majority of the teacher training programmes outlined above in all three countries were traditional residential courses offered at teacher training institutions. Often these last at least one year and can stretch to as many as four. While the cost of training and accommodation is, on the whole, subsidized by the national ministries of education and therefore does not constitute a barrier to training for potential teacher candidates,<sup>9</sup> the scope of this model of teacher training is inherently limited. Teacher training institutions cannot be constructed and resourced *ad infinitum*; and even when they are built their enrolment capacity is pre-defined.

In Tanzania, we saw that the unit costs of teacher education are to a great extent driven up by administrative and personal allowances (e.g. salary reimbursement, food, accommodation) for trainees undergoing residential coursework. These expenditures reduce the direct monetary barriers faced by trainees, which is necessary in a context wherein a large proportion of teachers require certification upgrades. However, a larger amount of non-residential coursework through distance

<sup>9</sup> However, opportunity costs may constitute barriers to teacher training for those who may devote out-of-school hours to a second job.

learning, self-study or school-level coaching could help to circumnavigate the cost of salaries and living expenses being borne by either the government or the trainees.

Alternative learning modalities and the appropriate use of technology can increase the training capacity of teacher education institutions while reducing costs (e.g., lowering the government subsidy of residential and allocation costs for teacher trainees, decreasing recurrent personnel costs of trainers). In Ethiopia and Tanzania, distance learning has been employed to some effect, though the share of total teacher candidates enrolled in distance learning is relatively low. This could be expanded, allowing teacher candidates more opportunities to work in schools while undertaking pre- or in-service training, and allowing teacher training institutions to ground instruction and coaching in the teachers' teaching contexts. Flipped classroom models, wherein trainee teachers follow self-study modules and then convene to discuss, synthesize and put into practice their learning, may be appropriate in some settings.

### **Policy message two: Develop strategic partnerships to expand the reach of teacher training and lower costs**

In Ethiopia, a significant barrier to the expansion of teachers or the scaling up teacher training programmes in rural and remote areas is the lack of access to training facilities, the extreme distance between schools and institutions, as well as poor transportation infrastructure. In addition to this, alternative basic education facilitators tend to have lower credentials than their mainstream counterparts. The government has attempted to address these interrelated problems through an abridged and fast-tracked teacher credentialing programme, but its reach is limited for the aforementioned reasons (i.e. lack of access, poor transportation infrastructure). As such, the government is recognizing NGO training as equivalent to the three-month government-provided certification programme for facilitators. Government recognition of NGO-provided teacher training costs virtually nothing (in terms of governmental education expenditure),<sup>10</sup> and doing so immediately (or at least very quickly) increases the available supply of certified ABE facilitators in areas where NGOs are currently working.

Any such partnership, in order that teacher certification is standard and efforts are complementary, of course presupposes a significant degree of coordination, transparency and cooperation between a ministry of education and civil society (or other) organizations. And while such coordination may or may not be present in this particular case (i.e. Ethiopia), it stands to reason that countries could benefit from the reach, infrastructure and capacity of non-governmental organizations when attempting to expand teacher training and certification.

### **Policy message three: Practical training experiences could be expanded at the expense of theoretical coursework**

In many countries, theoretical coursework on teaching methods or philosophy amounts to a greater proportion of teacher candidates' training than does practical teaching experience. This is case in Pakistan, where despite the recent reformation of the teacher education curricula and diploma programmes, site-based teaching practice courses only amount to approximately ten percent of total credit hours. In many cases, this amounts to only about six weeks spent in schools throughout the

---

<sup>10</sup> Some costs may be incurred through an increased role for the inspectorate (i.e. more ABE facilitators to inspect) and if quality control mechanisms (e.g. audits of NGO training programmes) are put in place and coordinated by the government.



pre-service training period. Practicum experiences for student teacher should therefore be expanded, and this could be done at relatively little cost to ministries of education if theoretical coursework was reduced to make way for it. If capacity was built at the regional and school level, increased credit hours devoted to practical teaching experience could also reduce personnel costs in teacher training institutions (i.e. fewer courses taught and a part of the coordinating oversight of the practicum experience could be decentralized to the school level by pairing student teachers with experienced teachers).

#### **Policy message four: Technology can reduce costs in teacher education, even in remote areas**

The absence of hardware, software and access to the Internet need not of necessity preclude the use of technology in teacher education. Battery or solar-powered equipment can be used to bring instructional videos and interactive learning modules to teacher trainees, even in remote areas. For example, Seward Inc. was subcontracted by USAID as part of the Malawi Teacher Training Activity to design and create interactive teacher training DVDs for use in pre-service teacher training. The DVDs allow for curricula to be presented in a standard way to trainees, and for teacher candidates to watch sample lessons being taught through video recorded by the Malawi Institute for Education. DVDs and portable, battery-powered DVD players/projectors were provided to all teacher training centres. These modules are screened by the faculty for large group viewing, critiquing and discussing lessons. Similar technology-based solutions to teacher training problems have been implemented in Oman and Somalia. Combined with video recording devices, these types of technologies could also be employed by instructional coaches at the school or regional level to record teachers' practice and discuss it with them afterwards in a coaching session.

#### **Conclusion**

This background paper investigated how three countries which have recently expanded primary enrolments have attempted to cope with rising pupil numbers and demand for services by, in part, increasing their supply of teachers and upgrading the skills of existing educators. This paper presented longitudinal data from the Ethiopian, Pakistani and Tanzanian ministries of education that highlighted the countries' recent patterns of growth in both student and teacher numbers, PTRs, the proportion of teachers meeting national minimum standards of qualification and governmental spending on education. Each country was presented in some detail: the background of teacher education as well as current attempts to reform policies and programmes, and to train educators was discussed.

The country case studies provide contextualized understanding of system strengths in and current challenges face by each national education system. In Ethiopia, the government has been able since 2000 to match its supply of primary teachers to the demand for services and so reduce the PTR. There is some flexibility in terms of the scheduling of teacher education courses (e.g., summer and evening programmes are provided), but most programmes are still residential and only one teacher training institution offers distance learning. In Pakistan, teacher training curricula has been reformed to a more advanced level and newly trained teachers are required to have a tertiary degree. However, the majority of the curriculum is comprised of methods and theoretical courses; only 10 percent of credit hours is devoted to practical teaching experience. In Tanzania, the private sector has been used as a means to train teachers in the wake of fee abolition in primary schools in 2002.

However, most of the newly trained educators meet only the minimum criteria for teacher qualification (i.e. secondary school plus a teaching certificate).

Four key policy messages emerge from this analysis that are both germane to the above case studies and to other countries attempting to expand teacher education and supply. Nations could: embrace alternative modalities of teacher training; foster strategic partnerships with civil society or other organizations to expand teacher training; expand practical teaching experience by reducing theoretical course content in pre- and in-service training; and utilize technology even in remote areas.

## **References**

- AEPAM. 2011. Pakistan Education Statistics 2010-11. Islamabad, Pakistan.
- MOE. 2008. General Education Quality Improvement Package. Addis Ababa, Ethiopia.
- MOE. 2010. Education Statistics Annual Abstract 2009-10. Addis Ababa, Ethiopia.
- MOE. 2011. Education Statistics Annual Abstract 2010-11. Addis Ababa, Ethiopia.
- MoET. 1998. National Education Policy of 1998–2010. Karachi, Pakistan.
- MoEVT. 2006. Basic Education Statistics in Tanzania. Dar es Salaam, Tanzania.
- MoEVT. 2010. Basic Education Statistics in Tanzania. Dar es Salaam, Tanzania.
- MoEVT. 2012. Tanzania Education Sector Analysis. Dar es Salaam: UNESCO/BREDA.
- Nordstrum, L.E. 2011. Beyond the doors of learning: User fees, school finance and education demand in the new South Africa. PhD dissertation, University of Cambridge.
- USAID. 2008. Pakistan Teacher Education and Professional Development Programme: Performance gap analysis and training needs assessment of teacher training institutions. Washington, D.C.: USAID.
- UNESCO-IBE. 2010. World Data on Education, VII Ed., Ethiopia. Paris, UNESCO.
- UNESCO-IBE. 2010. World Data on Education, VII Ed., United Republic of Tanzania. Paris, UNESCO.