

CHAPTER 7

PRIMARY AND SECONDARY EDUCATION MANAGEMENT ISSUES

Whereas policy defines the structural allocation of resources to each education level, management determines how these decisions are actually implemented to produce the expected results. It is crucial to review empirical evidence to support the decision-making process, given the plethora of options available in organizing the education process (determination of class size, use of multigrade classes, double-shifting, teacher recruitment and training policy, use of modern or traditional school facilities, and so on).

This chapter will analyze education management principally from an administrative perspective, before reviewing some complementary pedagogical aspects. The administrative management section will examine how educational resources are channeled from the central to decentralized levels and from the district councils level to schools; review teacher deployment practices and determine the degree of coherence in the availability of textbooks and capitation grants. The analyses deal with the primary and secondary levels, in turn (management issues pertaining to other sectors will be addressed in the Chapter 8). The pedagogical management section will then briefly focus on the process of transformation of these resources into learning outcomes at the school level.

The management context is one of rapid change: the management and control of primary and secondary education is being devolved to local governments and schools,¹⁴³ as part of a decentralization process and strategy initiated by the government in 1998 to “improve the quality of and the access to public services provided through or facilitated by local government authorities” (LGRP, 1999). MoEVT continues to focus on the policy making and monitoring of all sectors, and retains management responsibility for higher education and TVET through its parastatal agencies (TCU, NACTE and VETA).

A major issue here, that has greatly limited the scope of the analyses performed, is the poor quality of EMIS data, namely: (i) the unavailability of school level data for the primary level; (ii) the incomplete district level data; and (iii) the limited secondary level data available. Analyses have been based only on data that has been cleaned or that is guaranteed to be reliable.

Primary Level Administrative Management

This section briefly presents the institutional process of personnel recruitment, before turning to a description of teacher characteristics and analyzing the consistency of teacher deployment among schools. The allocation of textbooks and funds will then be reviewed in a similar fashion.

● Human Resource Management – Primary Teachers

Recruitment and Deployment - Institutional Aspects

Primary school teachers are civil servants and their recruitment is guided by the public service Act of Employment, Issue N°2, of September 2008. The responsibility for the recruitment and deployment of primary school teachers is shared among different state entities:

- (i) The President's Office for Public Service Management (PO-PSM) is mainly responsible for the formulation of public service policies, the control of the wage bill, staff audits and the issue of guidelines regarding the terms and conditions of service and payments;
- (ii) The role of the Ministry of Education and Vocational Training (MoEVT) is to train enough qualified teachers to meet the demand of primary schools and to monitor the adequacy of teachers' numbers and qualifications;
- (iii) The Prime Minister's Office for Regional Administration and Local Government (PMO-RALG) is responsible for the coordination of teachers' recruitment and their deployment across local government authorities (LGAs);
- (iv) Local government authorities are in charge of the recruitment and deployment of teachers for primary schools under their jurisdiction. However, primary school teachers for TTC are normally recruited and deployed by the Permanent Secretary of MoEVT, and the recruitment of teachers for nongovernmental primary schools is processed directly at school level through newspaper advertisements; and
- (v) The Ministry of Finance and Economic Affairs (MoFEA) is in charge of disbursing all payments including the salaries of district teachers.

There are three main categories of primary teachers: (i) permanent and pensionable; (ii) contract; and (iii) temporary. All new recruits are employed as permanent and pensionable civil servants and are entitled to official written contracts undersigned by the Teachers' Service Department (based in the Civil Service Department of the PO-PSM). For this category of teachers the maximum age is 45 years. Contract recruits are teachers aged over 45 years or those who are keen and able to continue to work after retirement. Temporary status is reserved mainly for foreigners. The great majority of primary teachers are employed under permanent and pensionable status, and district councils are their direct employers.

The allocation of primary school teachers should take into account teacher qualifications and gender, and staffing needs, as determined by the school's capacity and the pupil-teacher ratio (PTR).

The administration of the teacher supply process follows these steps: (i) MoEVT issues circulars and guidelines to LGAs regarding the deployment of teachers in public primary schools; (ii) based on the above allocation criteria, school management estimates the teacher requirement and submits a request to the council director;¹⁴⁴ (iii) the council consolidates all school requirements and submits them to the PMO-RALG; (iv) the PMO-RALG submits the national demands to MoEVT, for the training of new recruits; (v) simultaneously, the PMO-RALG and MoEVT seek the financial authorization to recruit from the PO-PSM; (vi) the PO-PSM grants financial authorization. However the number of teachers approved is often lower than the actual requests, because of financial resource constraints; so (vii) MoEVT and

the PMO-RALG distribute the allocation across and within districts according to PTRs, and inform the LGAs; and (viii) the LGAs proceed to recruit and place the teachers in schools.

However, factors such as marriage ties, family problems, health conditions and physical disabilities sometimes hinder the effective, efficient and equitable allocation of teachers among schools, regions, and LGAs.¹⁴⁵ Therefore transfers are managed at the local level, by district councils. When the issue is of public interest, transfers within a council can be decided by the council director; for transfers to other councils within the same region, a permit must be issued by the Regional Administrative Secretary; transfers to other regions only proceed once a permit is granted by the Permanent Secretary of the PMO-RALG. When transfers are determined by the authorities on the basis of teacher supply and demand, public service regulations stipulate that teachers receive disturbance and subsistence allowances.

Teacher Qualifications, Upgrade, and Attrition - Empirical Evidence

In 2009, the total number of teachers working in government primary schools was 151,476, accounting for 96.4 percent of the total teaching force (157,185). This represents a major 41 percent increase since 2000, when the number of teachers was 107,111. Gender parity has been reached in public primary schools with female teachers accounting for 49 percent of teaching staff in 2009, up from 45 percent in 2000. In nongovernmental schools, the share of female teachers is lower, at 42 percent.

Almost all teachers are now qualified. Most untrained teachers (many B/C grade holders) benefitted from an upgrading programme set up by the government to obtain the Grade A Certificate.¹⁴⁶ This has successfully halved the proportion of untrained teachers from 48 percent in 2000 to 90 percent in 2009 (See Table 7.1). Whereas the proportion of qualified teachers is increasing in government primary schools as a result, a decreasing trend has been witnessed in private schools over 2008-09 (these account for less than four percent of the global primary teaching force). The vast majority of qualified government school teachers have the required Grade A Certificate qualification (96 percent), and in nongovernmental schools, although this figure is lower (44 percent), most of the remaining teachers actually hold higher qualifications still.

Table 7.1: Primary School Teacher Characteristics, by School Type, 2000-09
Number and Percent

	Number of Teachers			Female Teachers (%)			Qualified Teachers (%)		
	Gvt.	Nongvt.	Total	Gvt.	Nongvt.	Total	Gvt.	Nongvt.	Total
2000	107,111	—	—	45.0	—	—	47.6	—	—
2004	117,773	—	—	47.0	—	—	57.8	—	—
2008	149,433	5,462	154,895	49.8	39.5	49.5	85.3	92.6	85.6
2009	151,476	5,709	157,185	49.3	42.2	49.1	90.1	90.6	90.2

Source: Regional Statistical Yearbooks, 2000 and 2004; BEST, 2008 and 2009.

Upgrading teachers' qualifications involves the provision of in-service teacher education and training to improve teachers' effectiveness in the classroom. There is growing recognition of the value added of in-service training focusing on what happens in the classroom and on teachers' skills, combined with short-term preservice training (World bank, 2011). In-service teacher training has been promoted under the PEDP II, and is a cornerstone of the teacher development management strategy, finalized in 2010.

There are two ways for teachers to upgrade:

- (i) Horizontal upgrading. Teachers follow in-service training to improve their professional skills, without a change in status or level. In-service training courses for the professional development of primary school teachers are usually designed by MoEVT, and coordinated through teachers' colleges or councils. There are several kinds of courses, including in participatory teaching methods; and
- (ii) Vertical upgrading. Teachers undergo in-service training to upgrade their professional qualification (Grade B/C to Grade A; Grade A certificate to diploma; diploma to degree), and change their status or level. Teachers are responsible for fulfilling entry requirements (diploma candidates must have passes in at least two ACSEE subjects, a principal and a subsidiary; degree candidates must be ACSEE graduates) and finding appropriate courses, on offer in teacher colleges, universities and university colleges.

The need to improve the capacity to provide in-service training to better match teacher demand has been underlined often. Current service provision for teachers, tutors and education managers is not adequate, regular or continuous, and forces teachers to upgrade independently.

Currently, Teacher Resources Centers are based at the ward level and managed by the council and MoEVT. Each center has two facilitators (teachers paid by the council) conducting in-service training for primary (and in some cases secondary) school teachers, according to identified training needs. They work closely with inspectors and TTCs, the latter providing tutors to conduct specific trainings. The centers are not fully active, mainly due to resource constraints and the consequent lack of teaching and learning materials, but their roles could be strengthened.

Teaching is a relatively stable profession in Tanzania, especially in the civil service, where the attrition rate reached a low of 1.5 percent in 2008 (See Table 7.2 below).¹⁴⁷ Attrition tends to affect unqualified teachers (6.5 percent against 0.7 percent for qualified teachers), those in nongovernmental schools (4.5 percent), and male teachers (1.9 percent, against 1.2 percent for female teachers) most. Retirement is the main cause of attrition (55 percent) followed by death (28 percent) and termination of contract (16 percent).¹⁴⁸ Although this pattern applies equally to all qualification levels and both genders, marked differences appear according to school ownership: termination is the leading cause of attrition among nongovernmental schools (57 percent).

Table 7.2: Attrition and its Main Causes, Primary School Teachers, by Gender and Teacher Qualification, 2008
Number and Percent

	Ownership		Qualification		Gender		Total
	Gvt.	Nongvt.	Qualified	Unqualified	Male	Female	
Attrition							
Number	2,123	245	920	1,448	1,460	908	2,368
Rate (%)	1.4	4.5	0.7	6.5	1.9	1.2	1.5
Causes (%)							
Death	30.7	9.8	24.5	31.1	27.6	30.1	28.5
Termination of Contract	11.3	56.7	15.5	16.3	16.0	16.0	16.0
Retirement	58.0	33.5	60.0	52.6	56.4	54.0	55.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: BEST, 2008 and 2009.

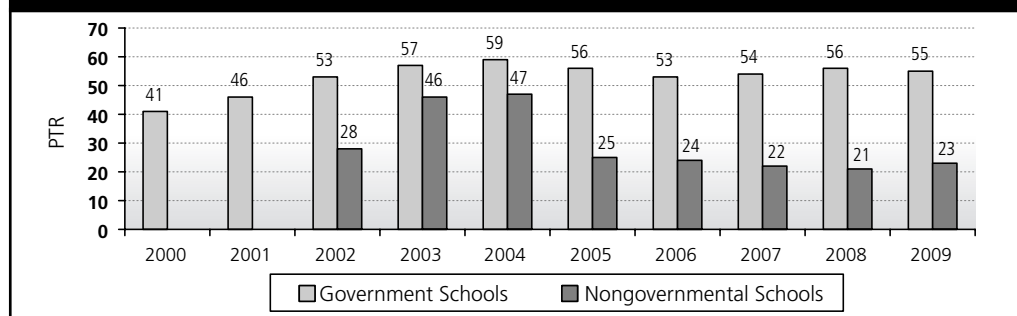
Note: The total number of teachers in 2008 was 154,895.

Prolonged sickness is associated with half the cases of attrition due to death (and 20 percent of all attrition cases), which may be partially related to HIV/AIDS. There are no figures on the prevalence of HIV/AIDS within the teaching force, however the disease is believed to affect teachers slightly less than it does the general population. MoEVT is taking the issue very seriously and has implemented a series of preventive and curative measures (See Annex Note 7.1). Evidence from other countries shows that HIV/AIDS, through increased teacher absenteeism and mortality on the one hand, and the growing number of children orphaned by AIDS who are therefore more at risk of dropout on the other, can seriously harm education systems. Contract termination is mainly associated with behavioral issues and resignation (42 percent and 34 percent of cases, respectively).¹⁴⁹

Primary Pupil-Teacher Ratio (PTR)

Compared with 2000, when it stood at 41 to 1, the PTR in government schools deteriorated to 59 to 1 in 2004, before improving slightly, reaching 55 to 1 in 2009, well above the 45 to 1 national target. This trend is the result of a conjunction of parallel factors: the increase in enrollment following the implementation of the fee-free primary education policy in 2001, and the lagging number of teachers. The PTR in nongovernmental primary schools was relatively low at 23 to 1 in 2009 (See Figure 7.1 below).

Figure 7.1: Primary Level PTRs, by School Type, 2000-09
Pupil-Teacher Ratio



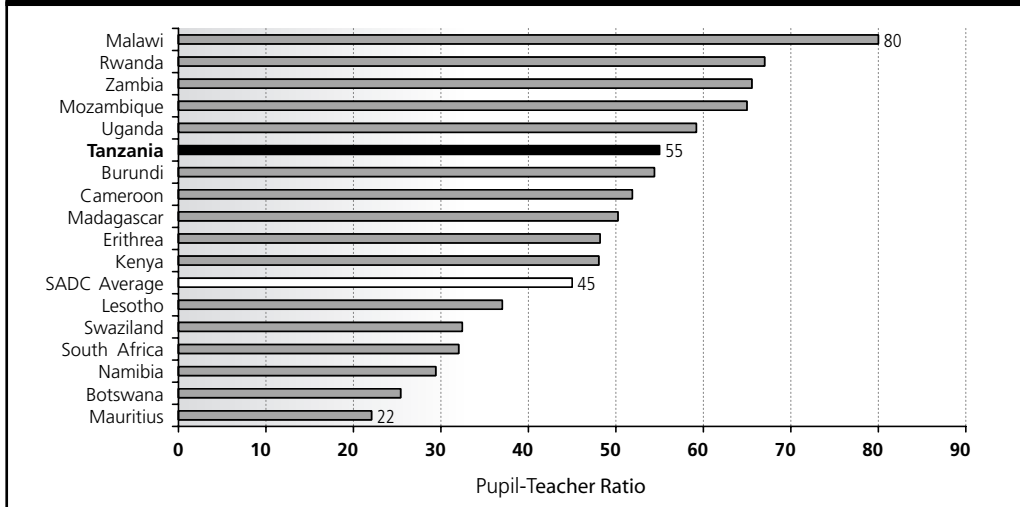
Source: Regional BEST, 2000-07, BEST, 2008 and 2009.

The teacher training system has experienced difficulties in responding adequately to the growing demand for teachers, despite ongoing efforts. Indeed, by 2009, the accumulated shortfall of primary teachers was of 30,405 (calculated on the basis of compliance with the national PTR target of 45 to 1). The switch of the residential teacher training curricula from one to two years reduced the number of places available, and led to the consequent drop in the number of Grade A teacher trainees over 2005-08, at a time of very high demand. The general pressure put on TTCs to train more diploma-level trainees following the opening and expansion of secondary schools, and the increased pressure on primary diploma holders' teachers to migrate to secondary schools are of particular concern.

MoEVT is working on a multipronged strategy to increase access to TTCs by: (i) increasing the capacity of current TTCs to accommodate more trainees; (ii) promoting distance education programmes; and (iii) encouraging the establishment of private TTCs. Although the rationale for extending the duration of preservice training is clear (See Annex Note 7.2), its cost-efficiency should be evaluated. Indeed, Chapter 4 findings showed mixed results in terms of the duration of training on learning outcomes (the relationship is positive for reading outcomes, but is not significant for math outcomes). In addition, researchers agree that the minimum required duration of training is one year, and there is little evidence of a positive correlation between longer training and improved learning outcomes. Given the additional costs, it would appear that in Tanzania the content of training should be addressed more than its duration (Bernard, 2007).¹⁵⁰

As highlighted by Figure 7.2 below, Tanzania's primary level PTR in government schools is amongst the highest in the South African Development Community (SADC), and is well above both the SADC average of 45 to 1 and the FTI benchmark of 40 to 1.

Figure 7.2: Average PTRs in Government Primary Schools, SADC Countries, 2009 or MRY
Pupil-Teacher Ratio



Source: Pôle de Dakar-UNESCO/BREDA, 2010; Figure 7.1 for Tanzania.

Classes in government primary schools are in theory increasingly overcrowded (See Annex Table 7.1). On average, there were 80 students per classroom in 2008, up from 72 in 2000 and far above the normal size of 40 students per class. In nongovernmental schools the situation is above standard, with an average of 30 students per classroom in 2009. Class size is however reduced to some extent by the use of double-shifting practices.¹⁵¹ Empirical observations also point to the existence of classes being held under trees.

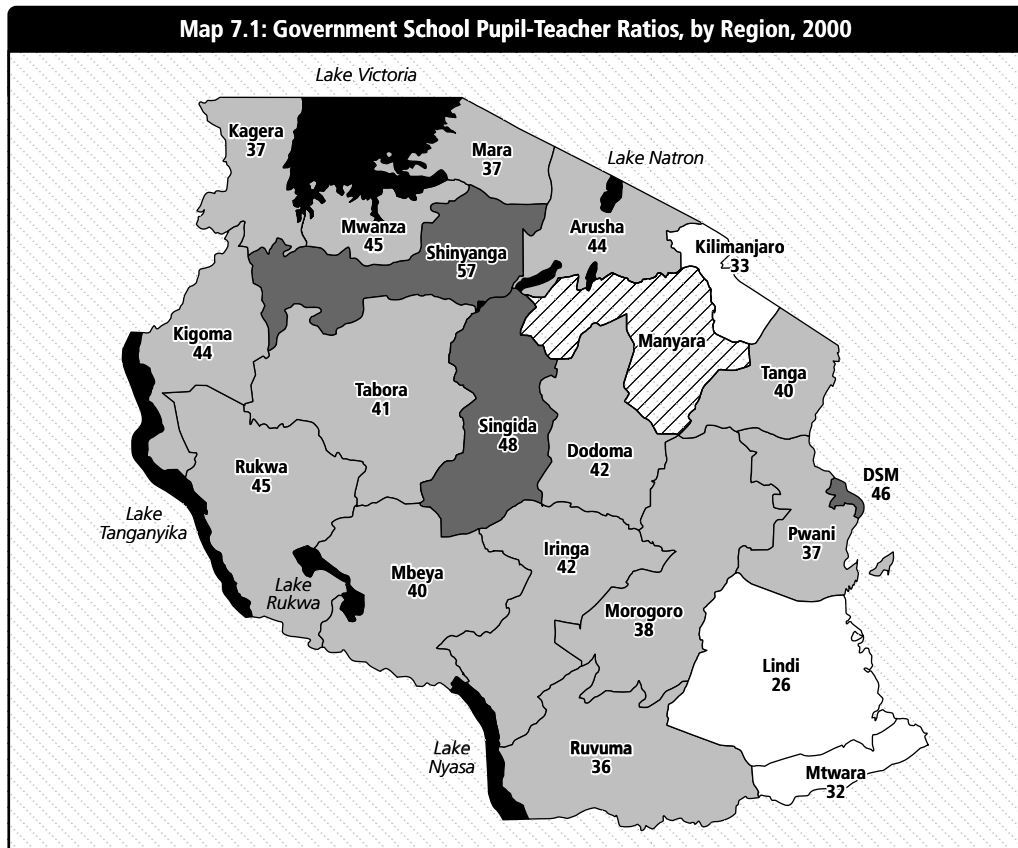
The trend in government primary schools reflects a constant mismatch between enrollment and the construction of new classrooms, which has resulted in bigger class sizes since the implementation of the fee-free primary education policy, underlining strong capacity constraints in meeting the system's infrastructure and teacher requirements.¹⁵² The trend also suggests difficult teaching conditions in government primary schools and the underutilization of resources in nongovernmental schools.

Building requirements are high: in 14 (out of 21) regions visited during the PEDP II monitoring exercise of 2009, the required number of classrooms was estimated at 136,691, well above the number available (77,990), indicating a massive shortage of 58,701 classrooms. To reduce the cost of increasing infrastructure supply to acceptable levels, MoEVT is promoting a community approach to school construction.¹⁵³ Over FY 2009/10 however, only 510 classrooms were built of the 5,732 initially planned, raising doubts about the feasibility of this approach. Various factors have limited the scope of community school construction, ranging from insufficient funding,¹⁵⁴ delays in municipal building permits, delays in fund disbursement, and low fund management capacity at the school level. Ensuring these issues are adequately addressed will prove decisive to substantially increase the rate of infrastructure expansion.

Regional and District Level Primary Teacher Deployment in Government Schools

Regional Level

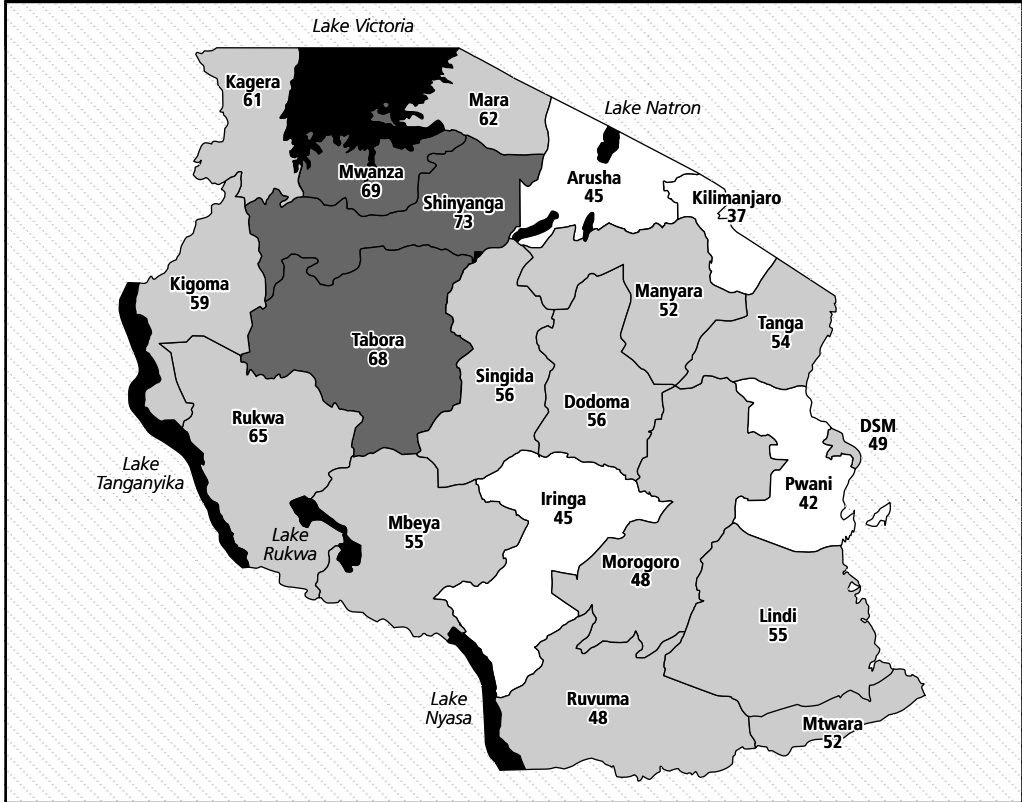
An examination of the regional situation offers a more refined picture of teacher deployment, highlighting relative endowments and disparities. On the basis of pupil-teacher ratios, Map 7.2 reveals that teacher allocation across regions is uneven: average PTRs range from 37 to 1 in Kilimanjaro region to 73 to 1 in Shinyanga region. High teacher shortages are also apparent in government schools located in Mwanza (69 to 1), Tabora (68 to 1) and Rukwa (65 to 1) regions.



Source: Source: Regional BEST, 2000.

Legend: No shade – PTR below 35:1; Light grey – PTR between 35:1 and 45:1; Dark grey – PTR between 46:1 and 65:1; Stripes – not applicable.

Map 7.2: Government School Pupil-Teacher Ratios, by Region, 2009



Source: EMIS, 2009.

Legend: No shade – PTR under 46:1; Light grey – PTR between 46:1 and 65:1; Dark grey – PTR above 65:1

Inequity in the distribution of teachers among regions has increased. The gap in PTRs has increased, from 31 pupils per teacher in 2000 (PTRs ranged from 26 to 1 in Lindi region to 57 to 1 in Shinyanga region) to 36 pupils in 2009 (PTRs ranged from 37 to 1 in Kilimanjaro region, to 73 to 1 in Shinyanga region). In 2000, only three regions (Shinyanga, Singida and Dar es Salaam) had PTRs above the current national target. By 2009, the situation had reversed: only four regions meet the national PTR target of 45 to 1 (Arusha, Kilimanjaro, Pwani, and Iringa). Some regions that were poorly endowed in 2000 still lag behind in 2009 (Shinyanga, Mwanza and Rukwa).

Table 7.3: Ranking of Regions by Average PTRs, Government Primary Schools, 2000 and 2009
Pupil-Teacher Ratio

2000				2009			
Top 5 Regions	PTR	Last 5 Regions	PTR	Top 5 Regions	PTR	Last 5 Regions	PTR
Lindi	26:1	Rukwa	45:1	Kilimanjaro	37:1	Mara	62:1
Mtwara	32:1	Mwanza	45:1	Pwani	42:1	Rukwa	65:1
Kilimanjaro	33:1	Dar es Salaam	48:1	Arusha	45:1	Tabora	68:1
Ruvuma	36:1	Singida	48:1	Iringa	45:1	Mwanza	69:1
Kagera	37:1	Shinyanga	57:1	Morogoro	48:1	Shinyanga	73:1
Average 41:1				Average 55:1			

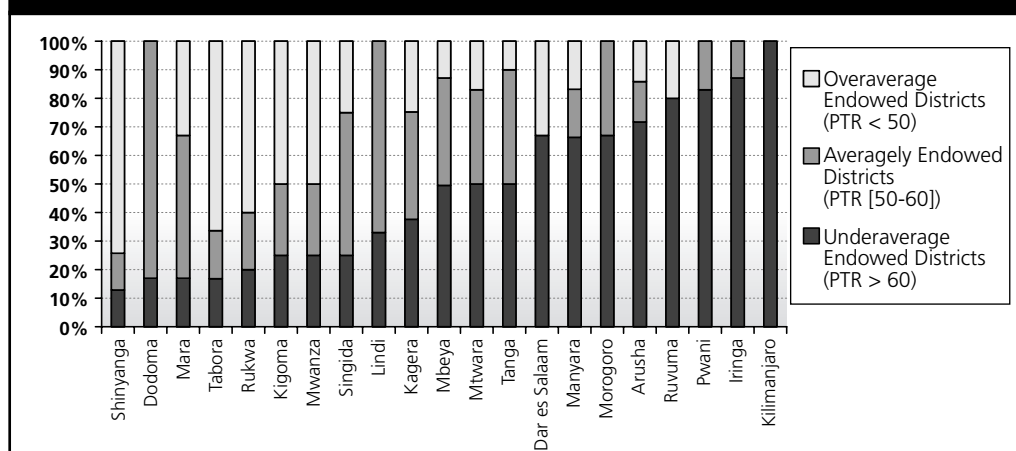
Source: EMIS, 2009; Regional BEST, 2000.

District Level

Disparities in teacher deployment are even more striking at the district level (See Figure 7.3). Although in some districts, the PTR oversteps the policy target (reaching a low 28 to 1 in Iringa district), ratios above 80 to 1 are not uncommon, such as in the districts of Ukerewe (129 to 1), Ilala (115 to 1), Chato (95 to 1), Manyoni (91 to 1) and Uyui (89 to 1), all very far from the policy target. In the Sikonge district, a school reported an extraordinary PTR of 313 to 1 (PEDP II, 2009). This situation implies a very heavy workload for teachers, negatively affecting their motivation and willingness to stay in remote areas.

The findings point to the fact that decentralization alone is unable to limit disparities in teacher allocation at both the regional and the district levels. The results underline the need for effective monitoring and management tools in order to equitably allocate teachers across schools. Finding the right incentives to ensure teachers are posted and retained where they are needed will also contribute considerably to the equity and efficiency of the system.

Figure 7.3: Over and Under Supply of Government School Teachers at the District Level, by Region, 2009
Percent



Source: EMIS, 2009.

Urban/Rural, Gender and Qualification Disparities

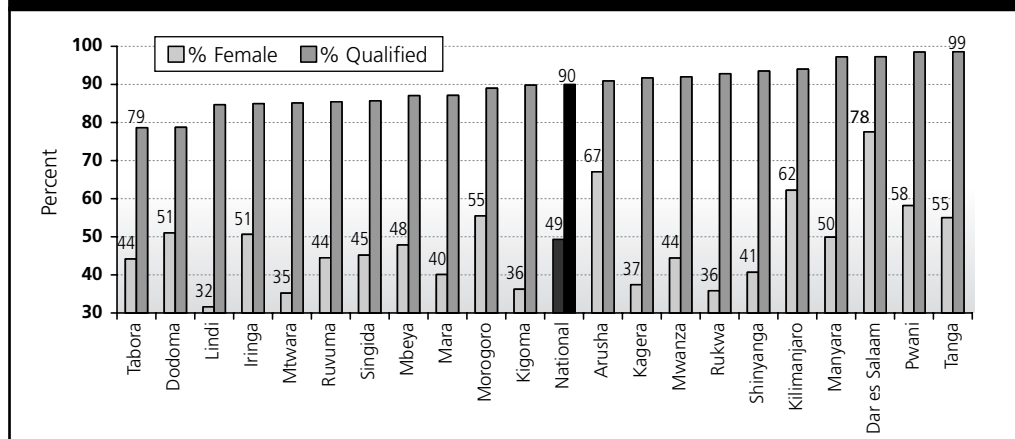
*The shortage of teachers in remote areas is acute.*¹⁵⁵ PTRs tend to be higher in rural schools than in urban schools. In the public expenditure tracking survey (PETS) school sample, the average district level PTRs were 42 to 1 in Dar es Salaam, 43 to 1 in other urban districts and 60:1 in rural districts (Claussen and Assad, 2010). This situation has various explanations: teachers' preference to work in urban areas with better services and training opportunities; married female teachers' household commitments; the growing demand for diploma level primary school teachers following the expansion of secondary schooling; and the hard conditions of both work and housing in remote zones that make rural postings less attractive.¹⁵⁶ The solution to the teacher shortage issue through deployment to undersupplied areas is delayed as a result.

To date there is no specific incentive package to attract and retain teachers in remote zones. Without effective incentives, it will be challenging for the country to ensure an education of quality in these areas. Options include monetary incentives (say a hardship allowance), fast-track career progression, training opportunities and facilitated access to pedagogical material and information. The allocation of teachers to remote rural schools is an issue that must be addressed given its major impact on school performance.

Gender disparities in the regional distribution of teachers are significant. Female teachers account for half the teaching force on average, but there are wide contrasts in their distribution across regions: from a low 32 percent in Lindi region to a high 77.5 percent in Dar es Salaam region (See Figure 7.4 below). Female teachers are 'overrepresented' in Kilimanjaro, Arusha, Pwani, Morogoro, and Iringa regions, and scarce in Mtwara, Rukwa, Kigoma and Ruvuma regions. Female teachers tend to be concentrated in urban areas: "rural and remote schools have high P/T Ratios and simultaneously a low share of female teachers compared to others (...) [the] location of schools in rural councils determines the ability to employ teachers, and in particular female teachers" (Claussen and Assad, 2010).

Evidence from other countries tends to associate the lack of female teachers with girls' dropout. A more equitable distribution of female teachers throughout the territory is certainly to be promoted, and strategies should be developed to encourage their deployment.

Figure 7.4: Shares of Qualified and Female Teachers in Government Primary Schools, by Region, 2009
Percent



Source: EMIS, 2009.

The regional distribution of qualified teachers has become more coherent over the 2000-09 period, as a result of the process of teacher upgrading. Some regions, such as Tanga, have benefitted immensely from the training of teachers; Tanga is now the best endowed region in terms of its teaching staff's qualifications (See Table 7.4). Regions where over 95 percent of teachers are qualified (Pwani, Kilimanjaro and Dar es Salaam) have witnessed little change. On the other hand, regions such as Tabora and Dodoma still have relatively fewer qualified staff (under 80 percent).

The 2010 PETS also shows that teachers in urban schools generally have higher levels of qualification than their rural counterparts. A majority of urban teachers hold a Grade A or higher award (97 percent on average), whereas in rural areas, 15 percent of teachers are still unqualified, holding B/C Grades (Claussen and Assad, 2010). Teachers' qualification would benefit from the teacher upgrading programme first targeting regions with the lowest levels of qualified teachers (such as Tabora, Dodoma, Lindi, Iringa, and so on) to help narrow the qualifications gap and ensure greater equity between regions.

Table 7.4: Ranking of Regions According to the Share of Primary Government School Qualified Teachers, 2000 and 2009
Percent

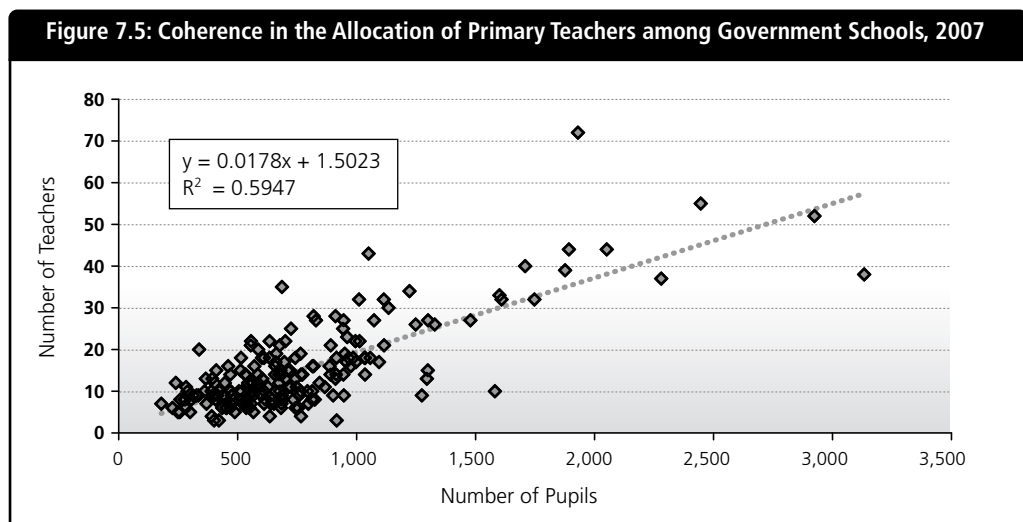
2000				2009			
Last 5 Regions	%	Top 5 Regions	%	Last 5 Regions	%	Top 5 Regions	%
Kigoma	36	Iringa	51	Tabora	79	Kilimanjaro	97
Lindi		Mwanza		Dodoma		Manyara	
Tabora	-	Arusha	-	Lindi	-	Dar es Salaam	-
Dodoma		Pwani		Iringa		Pwani	
Singida	42	Dar es Salaam	60	Mtwara	85	Tanga	99

Source: EMIS, 2000 and 2009.

Strong variations across districts and within regions can be observed in the posting of female teachers and qualified teachers at the district level. The posting of female teachers shows particularly great endowment variability, with shares as low as 20 percent in Nanyumbu district and as high as 89 percent in Moshi urban district. Disparities are also wide within regions, the disparity index varying between 1.6 in Dar es Salaam region (from 53.3 percent in Ilala district to 83 percent in Kinondoni district) to 3.45 in Lindi region (from 21.3 percent in Liwale district to 73.3 percent in Lindi urban district). The share of qualified teachers varies from 47 percent in Bahi district to 100 percent in the districts of Lindi urban, Mafia, Iramba, Sikonge, Handeni Korogwe rural and Pangani. Intra-regional disparities are less pervasive, the greatest disparities being in Dodoma region (with a disparity index of 2.1). Nevertheless, the disparities in the pupil to qualified teacher ratio (PqTR) remain important, PqTRs ranging from above 100 to 1 (Ilala, Bahi, Ulanga, Nanyumbu, Ukerewe, Manyoni, Urambo and Uyui) to under 35 to 1.

● School Level Teacher Posting

It is just as important that teachers be posted coherently among schools as it is to have the right number of them, for efficiency and equity reasons. The above analysis on pupil-teacher ratios has already offered some indications of how equitably teachers are allocated among regions/districts. The analysis of the coherence in school-level postings is based on the principle that the number of teachers in a school should be proportional to the number of pupils: the more pupils in a school, the more teachers there should be and conversely, schools with the same number of pupils should have the same number of teachers.



Source: SACMEQ, 2007.

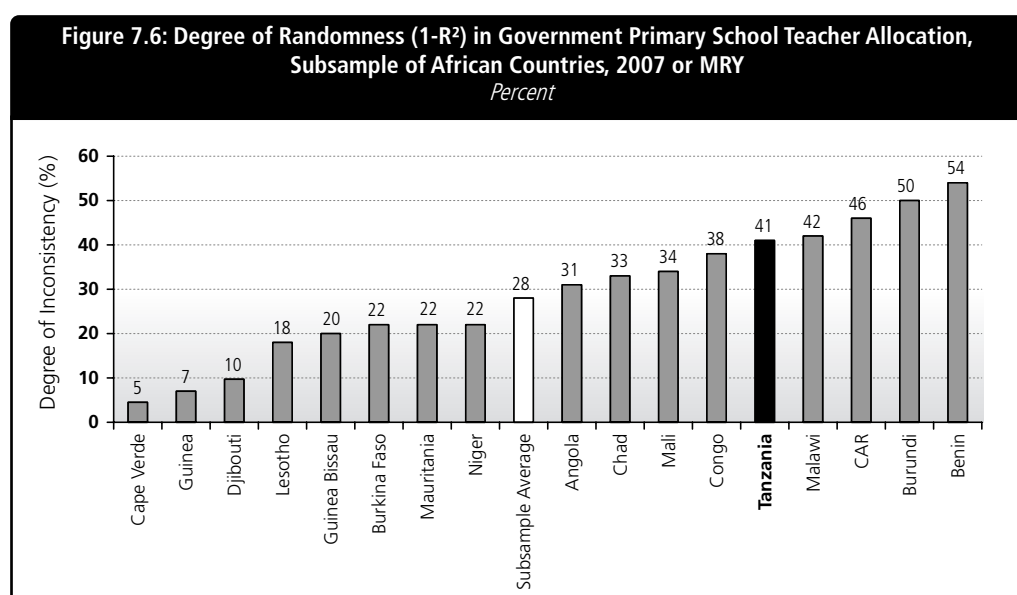
Figure 7.5 graphically plots the relationship between the number of pupils in a school, and the number of teachers.¹⁵⁷ It shows a positive relationship between the variables, although

wide variations exist among schools: schools with 10 teachers can have anything from 289 to 1,581 pupils; and schools with 469 pupils can have anything from six to 14 teachers.

To further analyze the coherence issue and facilitate international comparisons, the indicator commonly used to measure the quality of the relationship between the number of pupils and the number of teachers is the degree of randomness ($1-R^2$), corresponding to the inverse of the determination coefficient. The determination coefficient, R^2 , measures the coherence in teacher allocation (its value ranges from zero to 100; the closer to 100, the more coherent the posting); its inverse, $1-R^2$, measures the share of primary school teacher postings that are correlated with factors other than the number of students in school. The higher this figure, the greater the problems of coherence in teacher allocation.

This indicator was computed for a sample of primary schools, using SACMEQ data: the degree of randomness in teacher allocation ($1-R^2$) stood at 41 percent nationwide, entailing that 41 percent of teacher posting decisions are not based on a schools' levels of enrollment.

Tanzania is among the countries with poorer teacher allocation consistency (See Figure 7.6). Countries with effective policies of teacher deployment tend to have lower inconsistency in teacher allocation: Guinea (seven percent) and Lesotho (18 percent).



Source: SACMEQ, 2007 for Tanzania; Pôle de Dakar-UNESCO/BREDA, 2010 for other countries.

Conclusion

The analyses highlight substantial disparities in teacher deployment across regions, districts and rural/urban areas. In a context of limited resources and even of teacher shortages, an effective allocation strategy is key to achieving education sector objectives. The results

obtained underline the limits of current management practices and raise the issue of the need for new monitoring and deployment tools. Setting up incentive mechanisms to attract and retain teachers in remote areas will be crucial to improve the situation.

● Primary Level Textbook Management

Institutional Aspects

The procurement of textbooks and teaching and learning materials was transferred from districts to schools in 2003, and the supply chain modified as a result: the Tanzania Institute of Education (TIE) is now responsible for curriculum development; due to financial constraints, the publishing is subcontracted to the private sector;¹⁵⁸ associations of writers, publishers and printers obtain the current curricula from the TIE to produce the material; the ministry (through the Educational Material Approval Committee - EMAC) approves the content (ensuring that it reflects the curriculum and that substandard textbooks are not supplied to schools or TTCs) and cost of the books; booksellers sound out demand for different editions with school committees (districts assist school committees in selecting and transporting the books when necessary), inform the printers, and distribute the textbooks to schools; and finally, school committees are responsible for textbook renewal.

This system has some drawbacks however: although school committees determine the number of textbooks required for the school, the number of books ordered will depend on the available funds (from capitation grants). Also, the variety of textbooks on offer tend to make their selection difficult, especially as editions differ in content.¹⁵⁹

Textbook Availability - Empirical Evidence¹⁶⁰

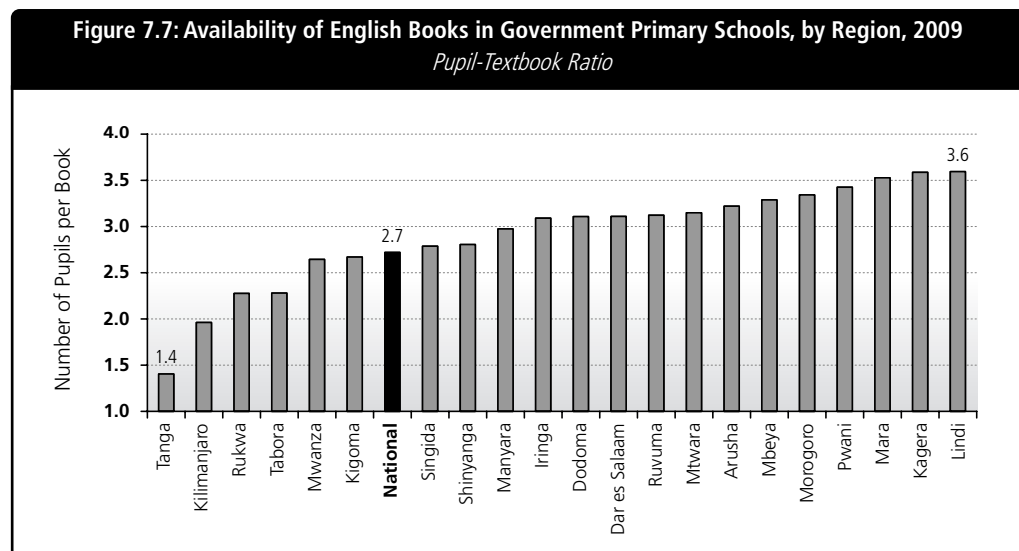
In standard regional teaching conditions, two students share a textbook, but ideally each student would have one. Observations of the availability of Kiswahili, mathematics and English textbooks in government primary schools (2009) show that textbooks are generally in short supply: more than two students share a textbook on average. No marked trend appears across grades, although Standard V is at the lower end of the scale, with more than three pupils per book on average (See Table 7.5). Nongovernmental schools have one book per student, which was the national goal for 2010.

Table 7.5: Textbook Availability in Government Primary Schools, by Grade, 2009
Pupil-Textbook Ratio

	Std I	Std II	Std III	Std VI	Std V	Std VI	Std VII	Average
Pupils per English Book	2.8	2.9	2.7	2.5	3.1	2.4	2.5	2.7
Pupils per Math Book	2.3	2.6	2.6	2.4	3.2	2.3	2.4	2.5
Pupils per Kiswahili Book	2.8	2.7	2.8	2.7	3.2	2.5	2.7	2.8

Source: EMIS, 2009.

Regional disparities reveal the kind of extremes that averages can conceal, showing ratios of more than 3.6 pupils per textbook, in Kagera and Lindi regions against 1.3 in Tanga region (See Figure 7.7 and Annex Table 7.4).



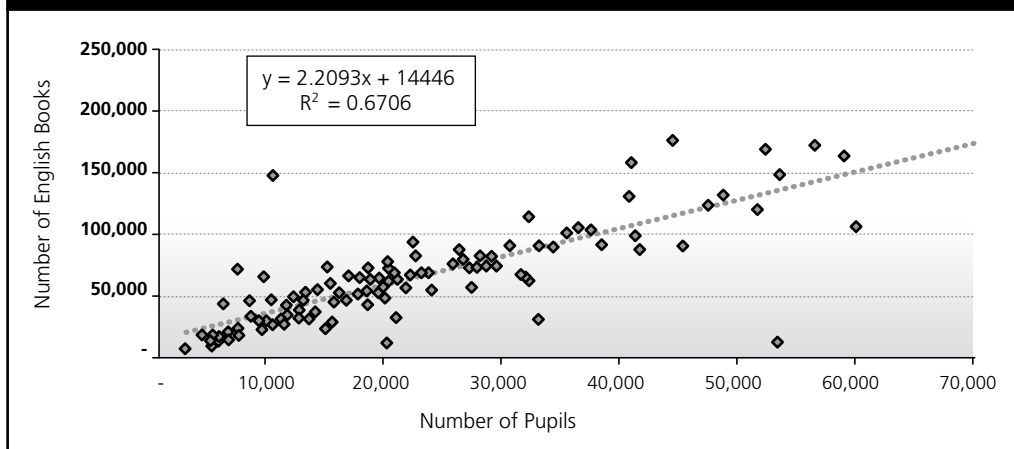
Source: EMIS, 2009.

The state of textbook supply has a series of causes: (i) funds allocated to schools (capitation grants) are often received late and are insufficient to support all operational costs, affecting textbook budgets; (ii) textbook prices are still too high; and (iii) delays may occur in the delivery of books to schools due to transportation difficulties, publishing delays and the lack of booksellers close to schools. In addition, few schools have libraries or class libraries, preventing the adequate storage of books and accelerating their deterioration. Curriculum changes are a further complicating factor; the changes in curriculum in 2006 for Standards I to III have further contributed to textbook shortages in the lower grades (PEDP, 2009).

While ensuring that enough funds are made available to schools to operate adequately, and that they all have a class library or a library, schools should also find ways to generate their own funds to complement what they receive from the government. Ways to reduce the price of textbooks should be considered with publishers, printers and booksellers (without sacrificing quality).

The coherence of textbook availability across districts is weak, with R^2 values ranging from 57 percent for math books to 67 percent for English books (See Figure 7.8 below).¹⁶¹

Figure 7.8: Coherence in the District-Level Availability of English Books, for Public Primary Schools, 2009



Source: EMIS, 2009.

● Capitation Grant Management - Primary Level¹⁶²

District councils prepare their budgets based on allocation ceilings indicated for different types of grants (some funds are earmarked, other are discretionary); once approved, funds are released by MoEFA and transferred to the councils through the regional treasuries. There are three types of education grants allocated to district councils:

- (i) The Education Block Grant, for teacher salaries and expenses (based on existing staff and planned new recruits), various school recurrent expenses, including examination fees (based on planned enrollment), and expenditures for special schools, when applicable;
- (ii) The Capital Development Grant, intended to fund planned education infrastructure construction and maintenance projects, is based on investment and rehabilitation needs and is therefore allocated to districts, and by districts to schools, based on needs, and often on a rotational basis; and
- (iii) The Capitation Grant, for school-level nonsalary expenditure items, including textbooks (40 percent), minor rehabilitation (20 percent), procurement of teaching and learning materials (20 percent) examination fees (10 percent) and school administration (10 percent). Capitation grants are based on expected enrollment, and accounted for 87 percent of nonsalary recurrent spending in FY 2008/09 (See Chapter 3, Table 3.16).

Under the principles of decentralization by devolution, schools are given increased authority to manage school funds. Development grants are transferred to schools via local

governments. Once all required expenditures have been covered at the district level by the education block grant, any excess funds are added to the capitation grant fund, to be allocated among schools.¹⁶³

The average amount of the capitation grant received by schools is T Sh 4,189 per student,¹⁶⁴ considerably below the MoEVT target of T Sh 10,000 per pupil, and concealing wide disparities across districts and schools (grants range from T Sh 1,850 to T Sh 20,117 per student). When including contributions in kind the range increases to T Sh 3,736 to T Sh 4,661 for schools located in Dar es Salaam district and to T Sh 4,251 to T Sh 4,893 for schools in rural districts. However, the disparities then appear all the greater (Claussen and Assad, 2010).

Variations between the cash amounts declared as received by schools and those declared as sent by district councils (T Sh 4,570 per student on average) are noted in 41 percent of cases, in 19 of the 27 councils surveyed. On average, the variation is 8.4 percent. School capitation grant allocations do not always match initial budgets because: (i) effective school enrollment varies from the district-level enrollment projections, on which allocations are planned; and (ii) part of the transfers to schools are in kind (councils sometimes purchase textbooks and other education inputs and materials on behalf of schools), and are deduced from the amounts transferred to schools. This occurs when: (i) schools in particularly remote areas face difficulties in obtaining the required inputs; (ii) school fund management capacities are perceived as weak by the council; or (iii) economies of scale can be achieved by procuring inputs for many schools at once (Claussen and Assad, 2010).

Discrepancies between the development grant amounts (per pupil) allocated by districts and received by schools are even greater. What schools declare having received (T Sh 1,120 per student on average) is 24.6 percent less than what councils declare having transferred (T Sh 1,486 per student on average). Deviations between the two sources might arise because: (i) all planned investment activities were not executed; or (ii) some councils directly procure equipment and/or pay contractors for the construction of infrastructure on behalf of schools, discounting the appropriate amounts from the cash transfers. Accounting for contributions in kind, 24 percent of schools in the sample benefited from development grants, and on average, the amount per pupil (including all schools – even those who did not benefit from a development grant in the given year) amounted to T Sh 1,231, although transfers as high as T Sh 38,441 occurred.

Ensuring that funds are transferred punctually is critical for schools to purchase textbooks and other learning materials in a timely fashion. Although in most cases (60 percent), grants are transferred before the start of the school year, many schools receive the first deposit of grant funds several months after the school year has begun. Significant delays in crediting schools' bank accounts are common, and amounts credited do not always match district council instructions. The lack of predictability in the flow of funds makes planning difficult, and ultimately harms the proper functioning of schools.

One of the overall goals of decentralization should be to ensure schools receive the allocated funds they need to operate on time and in full. Ensuring that disparities across districts are not exacerbated is also a major issue that requires close monitoring. The current allocation formula for capitation grant allocations among schools is simply based on expected enrollment, and does not allow for the equitable distribution of funds per pupil. A more equitable distribution of resources would require a formula that takes into account the base-line needs of schools/ district councils. In addition, for transfers to be made on time, the option of sending “block grants” for nonwage spending *directly* to schools was raised in the 2010 Public Expenditure Tracking Survey. To ensure that the funds are spent as planned, a reliable and sustainable accounting system should be established, under the supervision of school management committees, whose capacities in planning, budgeting, monitoring and evaluation urgently require strengthening.

Secondary Level Administrative Management

● Human Resource Management – Secondary Teachers

Recruitment and Deployment - Institutional Aspects

Secondary teacher recruitment, allocation, transfer and retirement processes mirror those in practice for primary teachers. Staffing in secondary schools is however also determined by the number of subjects taught, the specializations offered and the workload of teachers.

In addition to the primary teacher categories outlined earlier (permanent and pensionable, contract and temporary), secondary teachers may work under a fourth status, that of volunteer. This status has been established as a temporary measure to compensate for lacking local teaching skills, especially in mathematics, sciences and English, while the government’s teacher education policies are implemented and the skills gaps are closed. Volunteers are deployed on the basis of a cooperation contract between MoEVT and a foreign country’s aid agency.

Until July 2009, the recruitment and deployment of secondary teachers was conducted from the central level, involving a plethora of ministries, and government institutions at the regional, and district levels. Since then, following the principle of decentralization by devolution, MoEVT trains and detaches teachers directly to district councils, who recruit them and deploy them among schools according to shortages. For government schools, teacher recruitment generally follows one of two procedures: (i) candidates are selected upon their graduation from colleges and universities; or (ii) candidates apply directly to MoEVT.

Recruitment of nonteaching and administrative staff is carried out according to public service regulations and guidelines. The number of such staff depends on the type of school and its

size; boarding schools require more nonteaching staff than day schools. The school head is in charge of all administrative functions and activities within the school, including the responsibility for the independent recruitment of such staff, often carried out through press advertisements.

Teachers' Qualifications, Upgrade, and Attrition - Empirical Evidence¹⁶⁵

In 2009, the total number of secondary teachers was 33,954, well above the 2000 level of 13,470. Seventy eight percent worked in government schools, the majority of whom are permanent (See Table 7.6). Female teachers account for 32 percent of the teaching force on average. They are more often found in urban areas (representing 42 percent of all teachers, against 26 percent of teaching staff in rural areas): as in many countries, female teachers can not be denied the opportunity to live with their husbands, no matter where they may be. One of the reasons attached to lower female representation in the teaching force is that the pool of female teacher candidates graduating from A-Level is much smaller than that of male candidates, as fewer girls access A-Level in the first place.

	Number of Teachers			% in Gvt Schools	Female Teachers (%)			Qualified Teachers (%)		
	Gvt.	Nongvt.	Total		Gvt.	Nongvt.	Total	Gvt.	Nongvt.	Total
2000	7,915	5,555	13,470	58.8%	33.7	18.6	27.5	95.9	81.8	90.1
2004	11,320	7,434	18,754	60.4%	34.7	19.2	28.6	95.0	95.4	95.1
2009	26,432	7,522	33,954	77.8%	34.8	23.8	32.3	76.0	76.9	76.2

Source: BEST, 2000-09.

*Three-quarters of teachers are qualified, a sharp decrease since 2004 (before the inception of the SEDP II) when almost all teachers (95 percent) were qualified.*¹⁶⁶ This evolution tends to suggest that the ministry has difficulty in keeping pace with teacher training needs in the context of the rapid development of the secondary school system over 2005-09. Indeed, TTCs face a major challenge in attracting the required number of trainees with the right admissions qualifications: the best performing students at A-Level usually opt to pursue their education in HLIs.

To increase TTC access, the ministry of education has encouraged the opening of private TTCs since 2005, as well as the increase in the intake capacities of existing TTCs. Over the period, the number of privately run TTCs has increased from 11 to 43, or from 17 percent of the total, to 56 percent. The total number of TTCs has increased from 45 to 77, the number of government run colleges remaining constant. These measures, coupled with the set-up of in-service training programmes to allow unqualified teachers to acquire relevant qualifications, has allowed to increase the pool of potential diploma graduates from 5,548 in 2005, to 9,288 in 2009 (including 2,182 teachers following in-service diploma programmes – See Table 7.7 below). Over the same period, various university colleges of education and education departments within universities opened up to offer greater degree-level teacher training.

Table 7.7: Diploma-Level Teacher Trainees in TTCs, by Type of Training, 2000-09*Number*

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Preservice	2,719	3,828	5,170	4,930	5,548	6,821	7,954	6,320	7,059	9,288
In-service	n.a.	n.a.	n.a.	n.a.	n.a.	575	508	640	789	2,182

Source: BEST, 2000-09.

Note: Two cohorts are considered for preservice training as its duration is of two years.

Nevertheless, the limited pool of Form 6 leavers from which to select potential secondary level teachers is a concern and a constraint, as TTCs will find it difficult to attract the required number of diploma teacher trainees.

In this context, upgrading teachers' qualifications and skills through distance learning and residential training will prove important to ensure the appropriate level of secondary teachers' qualifications. The strategies developed by the ministry of education must be sustained to ensure all teachers offer minimal acceptable levels of qualification.

Table 7.8: Share of Secondary Teacher Subject Specializations, by Gender and School Type, 2000-09*Percent*

	Government Schools			Nongovernmental Schools			Total
	Male	Female	Total	Male	Female	Total	
2000							
% Art	48	54	50	47	52	48	49
% Science	47	44	46	33	35	34	41
2004							
% Art	49	60	53	59	53	58	55
% Science	44	38	42	40	29	38	40
2009							
% Art	43	60	49	49	44	46	48
% Science	29	24	27	24	30	31	28

Source: BEST, 2000-09.

As in many countries in the region, the lack of language, mathematics and science teachers has been and remains a major issue. The shortfall has become even more striking recently, with only 28 percent of teachers specialized in science in 2009, against 40 percent in 2004 (See Table 7.8). The reliance on volunteer teachers is only a short-term measure undertaken by the ministry to cover the shortage. More long-term measures consist in attracting more secondary school students to science and mathematics subjects, encouraging enrollment in science subjects at university by providing students with full loans, upgrading teachers in these subjects through in-service training, and developing remedial courses and special admissions trainings.¹⁶⁸

In 2009, 1,529 teachers left their schools, equivalent to an attrition rate of 4.5 percent. Contract termination is the main cause of attrition (67 percent of cases) followed by retirement (23 percent) and death (9.4 percent). The main causes of contract termination are dismissal (45 percent), change of employment (33 percent), and to a smaller extent, illness (four percent). Attrition tends to affect degree-qualified teachers almost twice as much as diploma-qualified teachers, which could be linked to the ability of the former to find better job opportunities outside the teaching world (BEST, 2010). This should be carefully monitored, to ensure degree-qualified teachers remain in the system as the A-Level access capacity is increased.

● Secondary Pupil-Teacher Ratio (PTR)

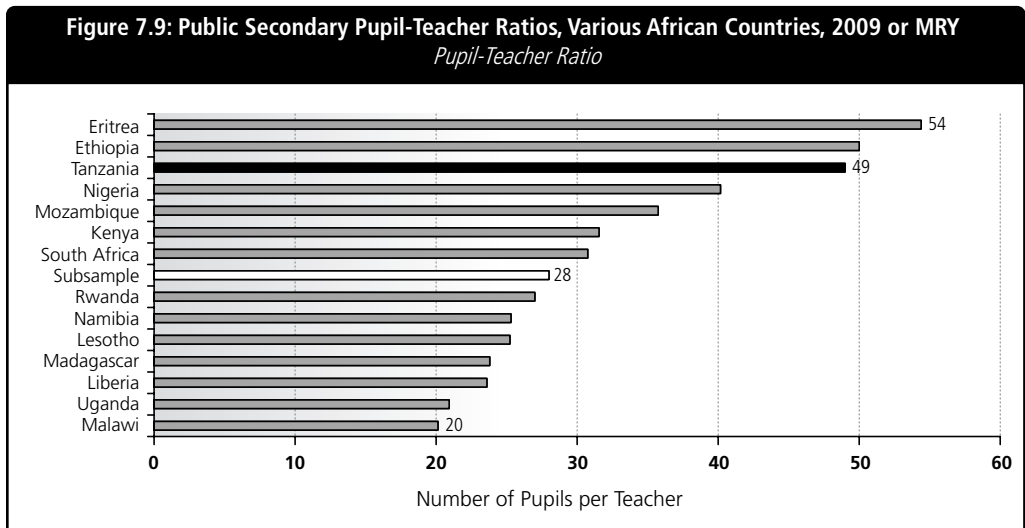
The global secondary pupil-teacher ratio is high at 43 to 1, and has risen sharply since 2004 when it stood at 19 to 1. Whereas PTRs have remained fairly stable over the years in nongovernmental schools (at about 23 to 1), major increases have occurred in government schools, with PTRs of 49 to 1 in 2009 (See Table 7.9). The pupil to qualified teacher ratio (PqTR) has also deteriorated, to reach a high of 64 to 1 in government schools, largely because the sector has been flooded with unqualified teachers to match the growth in enrollments. This situation reveals a serious shortage of qualified teachers in government schools (See Annex Table 7.5).

Table 7.9: Secondary Level PTRs and PqTRs, by School Type, 2000-09
PTRs and PqTRs

	PTR			PqTR		
	Gvt.	Nongvt.	Total	Gvt.	Nongvt.	Total
2000	19:1	20:1	19:1	20:1	25:1	22:1
2004	23:1	23:1	23:1	25:1	29:1	27:1
2009	49:1	23:1	43:1	64:1	30:1	57:1

Source: BEST, various years.

Figure 7.9 below shows that Tanzania has one of the highest PTRs of a subsample of African countries for which data were available, and is well above the subsample average of 28 to 1.



Source: BEST, 2009 for Tanzania; World bank, 2009 for other countries.

However, the situation is far from uniform from one level to another. Indeed, evidence shows that high PTRs and PqTRs are mainly found in O-Level schools, at 52 to 1 and 74 to 1 respectively (See Table 7.10). Schools providing both secondary levels tend to operate more like exclusive A-Level schools. This situation has emerged from the difficulty of the ministry to provide an adequate number of qualified teachers following the rapid growth of O-Level government school access under the SEDP I intensive construction programme. Both central and district-owned schools have been affected, although O-Level district schools tend to have larger class sizes (with PTRs averaging 54 to 1, against 51 to 1 for central owned schools) and fewer qualified teachers (with PqTRs averaging 75 to 1, against 72 to 1 for centrally owned schools).¹⁶⁹

Table 7.10: Secondary Level PTRs and PqTRs, by Subsector and School Type, 2009
PTRs and PqTRs

	PTR			PqTR		
	Gvt.	Nongvt.	Total	Gvt.	Nongvt.	Total
O-Level Only	52:1	26:1	48:1	74:1	37:1	68:1
Both Levels	19:1	23:1	21:1	20:1	27:1	22:1
A-Level Only	20:1	23:1	21:1	21:1	24:1	22:1
Total	46:1	25:1	41:1	61:1	32:1	54:1

Source: EMIS, 2009.

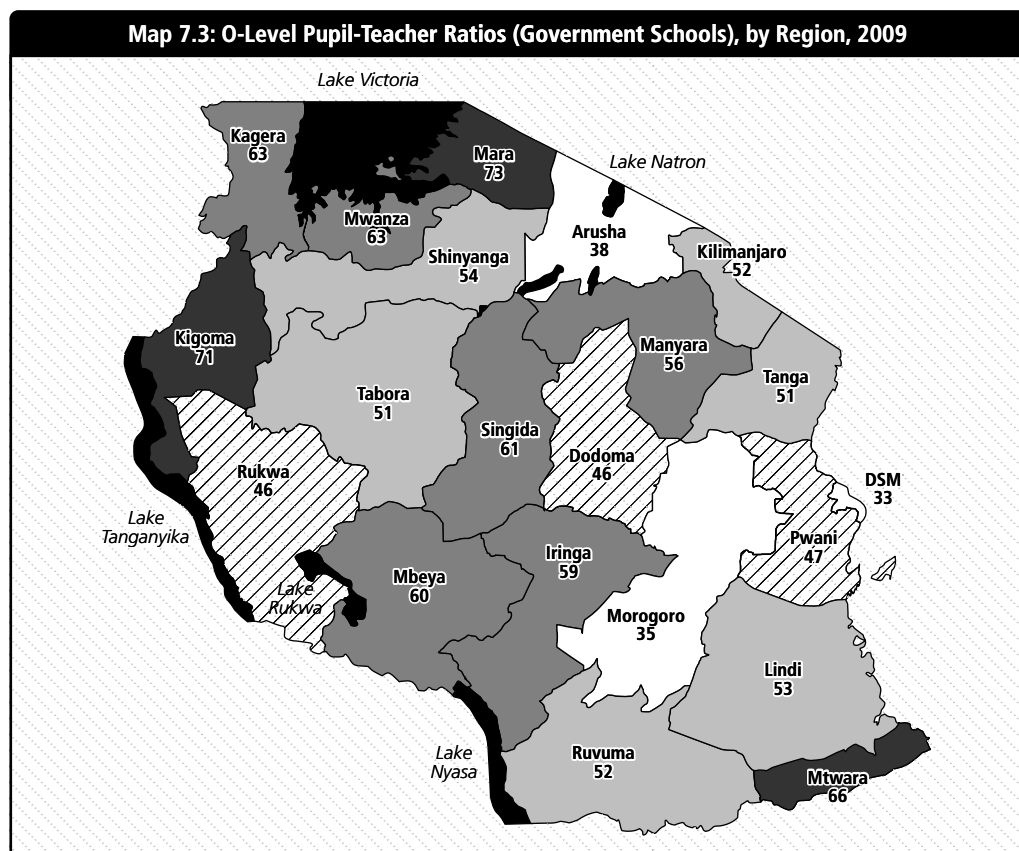
Note: Computations are based on a subsample of schools for which information was available that tends to underestimate overall high PTRs.

To deal with the general shortage of teachers and of qualified teachers in secondary schools, MoEVT has developed a multipronged strategy that includes: (i) the improvement of TTC infrastructure to allow for the expansion of diploma-trainee enrollment; (ii) the training of many diploma and degree-qualified teachers to meet the growing demands of enrollment

in both government and nongovernmental secondary schools; (iii) the introduction of teacher training programs in public universities where such programs were not on offer; (iv) the provision of incentives to private universities to train degree-qualified teachers to complement the government's efforts; (v) the establishment of constituent colleges of education (in Dar es Salaam and Mkwawa) to train more degree-qualified teachers; and (vi) the recruitment as teachers of Form 6 leavers and degree holders without specific teacher education, offering them in-service teacher training to bring them up to standard.

Regional Level Secondary Teacher Deployment in Government schools

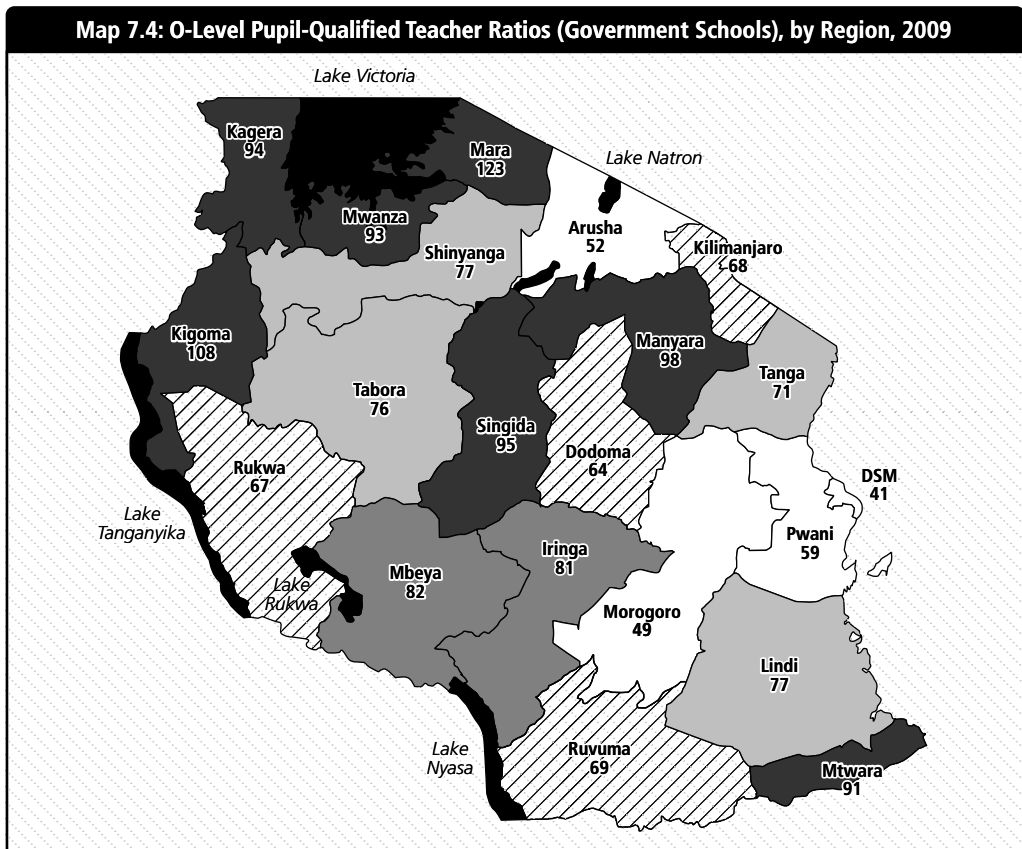
Teacher deployment in government O-Level secondary schools is subject to significant regional disparities.¹⁷⁰ Pupil-teacher ratios range from 33 to 1 in Dar es Salaam region to 73 to 1 in Mara region (See Map 7.3).



Source: EMIS, 2009.

Legend: No Shade – PTR < 40:1; Stripes – PTR [40:1 - 49:1]; Light grey – PTR [50:1 - 54:1]; Medium grey – PTR [55:1 - 64:1]; Dark grey – PTR ≥ 65:1.

More greatly marked disparities are found in the regional distribution of qualified teachers: from a low PqTR of 41 in Dar es Salaam region to 123 to 1 in Mara region (See Map 7.4).



Source: EMIS, 2009.

Legend: No Shade – PTR < 60:1; Stripes – PTR [60:1 - 69:1]; Light grey – PTR [70:1 - 79:1]; Medium grey – PTR [80:1 - 89:1]; Dark grey – PTR ≥ 90:1.

Analyses performed at the district level show even more striking disparities, with PTRs ranging from 17.5 to 1 (Morogoro urban district) to 103 to 1 (Mtwara rural district) and PqTRs ranging from a shamelessly inefficient 19 to 1 (Morogoro urban district) to a frighteningly 168 to 1 (Simanjiro district).

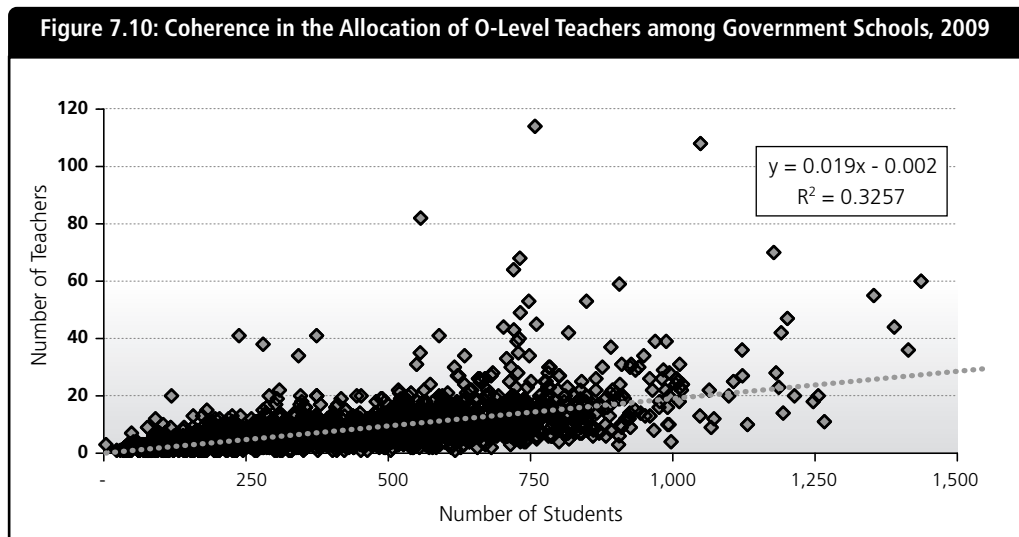
The deployment of government O-level secondary school teachers across rural and urban areas also appears uneven, with teachers concentrated in urban zones (PTRs of 42 to 1 on average), leaving rural areas less well supplied (PTRs of 53 to 1 on average). The deployment of qualified public O-Level secondary school teachers is also skewed toward urban areas: on average, there is a qualified teacher for every 53 pupils in urban areas, compared with one for every 83 pupils in rural areas (See Annex Table 7.9).

Improving the supply of teachers is necessary for all students to benefit from equitable learning opportunities. Teachers are in short supply in many rural districts, and more often underqualified. Attracting and retaining teachers in remote government schools is a particular challenge, as many private secondary schools and other institutions may offer more attractive working conditions.

Quickly setting the right incentives to attract qualified teachers to rural areas will prove crucial, especially in the current context of expansion of rural secondary schools. The measures planned by MoEVT under the SEDP II to meet qualified secondary teacher demand include a relocation allowance of T Sh 500,000, paid to teachers once upon their first rural appointment. The government is also working to improve the teaching work environment by building additional teacher accommodation (in priority for remote areas) and improving school facilities and equipment.

● School-Level Teacher Posting

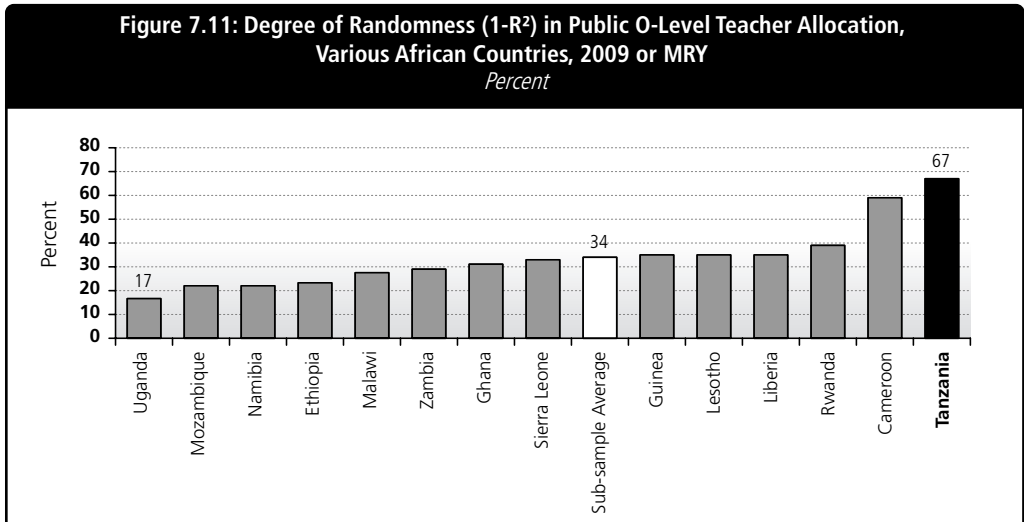
In 2009, the degree of randomness ($1-R^2$) in teacher posting was estimated at 61.3 percent for all government secondary schools, and 67.4 percent for government schools offering O-Level only, meaning that only 32.6 percent of teacher deployment is explained by the number of students enrolled in O-Level school (See Figure 7.10). Although the allocation of teachers may be influenced by factors such as marriage, family problems, health issues and physical disability, the results show substantial variations in the number of teachers per school: for example, an O-Level school with 180 students may have anything between one and 15 teachers; conversely, schools with ten teachers might have anything between 100 and 1,130 pupils.



Source: EMIS, 2009.

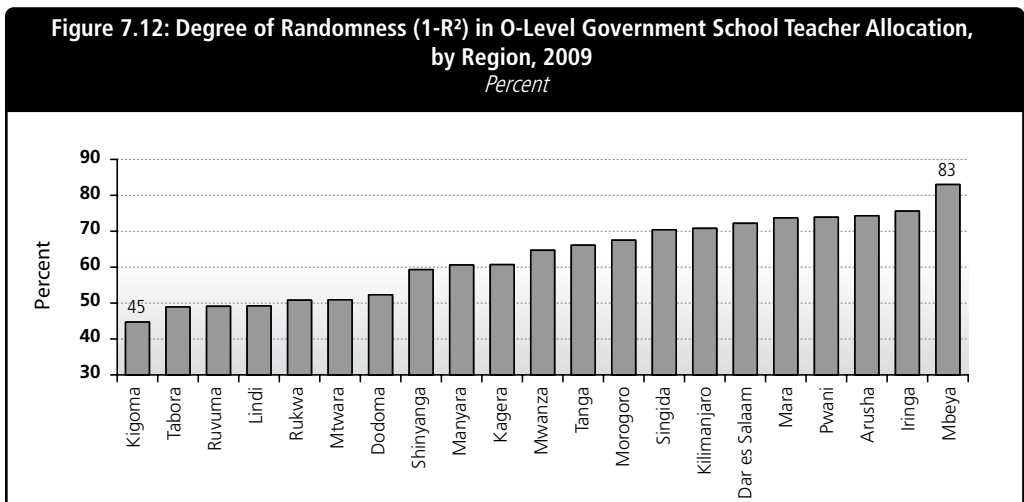
Note: Each point represents a school.

The prevailing secondary teacher deployment situation in Tanzania is particularly critical, with the worst degree of randomness of a sample of African countries for which data were available (See Figure 7.11).



Source: SACMEQ, 2007 for Tanzania; Pôle de Dakar-UNESCO/BREDA, 2010 for other countries.

The degree of randomness in regional teacher allocations was computed for the 21 regions (See Figure 7.12). Substantial disparities in the consistency of teacher deployment in O-Level schools exist among regions, with the highest levels of inconsistency in Mbeya (83 percent), Iringa and Arusha regions, and the lowest in Ruvuma, Tabora and Kigoma (45 percent) regions.



Source: EMIS, 2009.

Secondary Level Textbook Management

Textbook availability at O-Level is particularly poor in government schools where, on average, there is one book for four to nine students (for math and history books, respectively).¹⁷² This situation contrasts sharply with private schools, where there is one book for every two to three students on average (See Table 7.11).

Table 7.11: Textbook Availability at O-Level, by Type of School and Subject, 2009
Pupil-Textbook Ratio and Percent

	Government Schools			Nongovernmental Schools		
	Pupil-Textbook Ratio	Schools with max. Ratio of 3:1 (%)	Degree of Randomness (1-R ² - %)	Pupil-Textbook Ratio	Schools with max. Ratio of 3:1 (%)	Degree of Randomness (1-R ² - %)
English	5.0:1	16	81	2.1:1	55	84
Mathematics	4.3:1	21	79	2.4:1	54	78
Swahili	5.8:1	11	86	2.4:1	49	88
Physics	5.8:1	13	81	3.3:1	40	82
Chemistry	6.5:1	11	85	3.1:1	43	82
Biology	5.2:1	17	82	2.8:1	45	82
History	9.0:1	6	88	3.2:1	41	82
Geography	8.0:1	8	87	3.2:1	44	82

Source: EMIS, 2009; authors' computations.

The degree of randomness in the availability of textbooks is globally high (ranging from 78 percent to 88 percent, depending on the subject) in both government and nongovernmental O-Level cycles, underlining the lack of coherence between the number of books per school and enrollment. The degree of randomness in textbook availability at the regional level (see Annex Table 7.8) shows significant variations among O-level government secondary cycles, the worst consistency in coverage occurring in Pwani, Mara, Ruvuma, Kilimanjaro and Arusha regions.

Textbook management in government secondary schools suffers from many constraints, such as delays in the availability of funds (the disbursement of the capitation grants by district councils) and their insufficient amount. With the rapid increase in enrollment, the capitation grant target of T Sh 25,000 per student has been far from met, affecting schools' ability to purchase adequate supplies.

Although the analysis of the degree of randomness is somewhat distorted by the fact that books are purchased directly by schools based on the availability of capitation grant funds, it shows that this mechanism suffers from many flaws as it does not allow for the adequate endowment of books at the school level. It also calls for the strengthening of mechanisms to monitor textbook endowments by school directors and inspectors, given the relatively high impact of textbooks on the quality of learning.

● Capitation Grant Management - Secondary Level¹⁷³

MoEVT offers two types of grants to secondary schools to cover non-salary spending, the capitation grant and the development grant. The capitation grant is both a learning grant based on the total estimated number of students to be enrolled and a school fee subsidy, whose level is set according to a smaller number of students exempted from paying fees, aiming to “encourage enrolment of students with low ability to pay for school fees and teaching materials.” The development grant is used to upgrade facilities based on specific needs assessments (Claussen and Assad, 2010):

- (i) *Capitation grants are lower than expected, and vary considerably among schools.* Often, the amount allocated to schools is lower than that due (on the basis of the number of students). Disparities are mainly related to changes in enrollment data between the time the amount to be allocated is estimated, and the moment schools receive the grants. Schools in Dar es Salaam district received considerably less than expected (16 percent less, against four percent less on average). Government schools also received allocations below the amounts planned (33 percent less, compared with just one percent less for community schools), reflecting the efforts to first satisfy the needs of rural and community schools, that are more acute *a priori*. In FY 2007/08, the average effective capitation grant per student ranged from T Sh 13,299 in Dar es Salaam district schools, to T Sh 18,828 in other urban schools, still below the target value of T Sh 20,000 per student.¹⁷⁴ The distribution by type of school shows that community schools are allocated T Sh 17,821 per student on average, whereas government schools receive T Sh 11,740 per student.
- (ii) Development grants range from T Sh 13,695 per student in schools in Dar es Salaam district to T Sh 93,246 in rural schools on average, highlighting the priority given to rural schools. Furthermore, most beneficiaries were community schools, which received development grants equivalent to T Sh 68,962 per enrolled student on average, against T Sh 1,830 for central government schools.¹⁷⁵

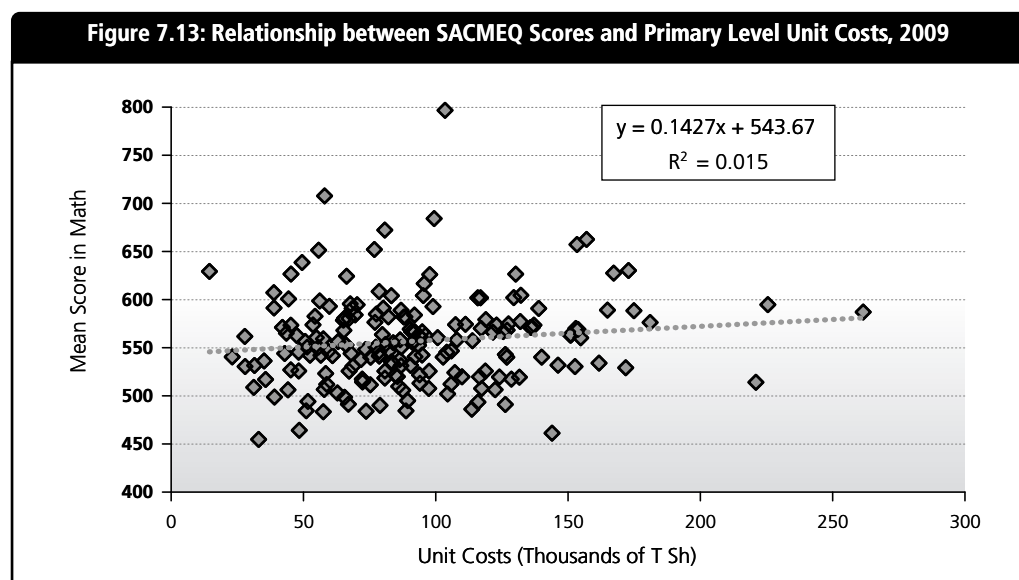
As at the primary level, delays in the disbursement of funds occur for both capitation and development grants. Delays in the release of funds are considerable: development grants take 225 days on average, and capitation grants 165 days. The delays are longer in rural areas (245 and 185 days, respectively) and for government schools (302 and 172 days, respectively). In some extreme cases, schools did not receive their funds before the first quarter of the following fiscal year. These delays might explain in part schools’ low level of budget execution capacity. With the recent devolution of the management of secondary education from the central to local level, government resources for secondary education will flow directly to local governments for disbursement to schools, which ultimately could reduce delays. Yet, strengthening both planning and monitoring mechanisms will prove important to ensure the adequate and smooth channeling of funds to schools.

Pedagogical Management

This section examines the relationship between funding and learning outcomes, analyzing the efficiency of the process of transformation of resource inputs into learning achievements at the school level. It is based on the SACMEQ scores and CSEE pass rates analyzed in Chapter 4 on the one hand, and unit costs based on teacher and textbook expenditures (in the latter case) on the other, both computed at the school level.

Empirical Evidence

Figure 7.13 explores the relationship between unit costs and SACMEQ scores, showing how the majority of schools perform. It indicates that the relationship is weak in two respects: (i) for a given score, unit costs vary considerably: to obtain a score of 540, schools might spend anything between T Sh 23,000 and T Sh 127,000 per student. This implies that students enrolled in comparatively underfunded schools can achieve good results; and (ii) for a given unit cost, results vary markedly among schools. Ultimately, schools that cost the most do not perform the best in terms of scores. Conversely, the least endowed schools do not always achieve the worst results. These patterns are not unique to Tanzania, and can be found in most African countries.

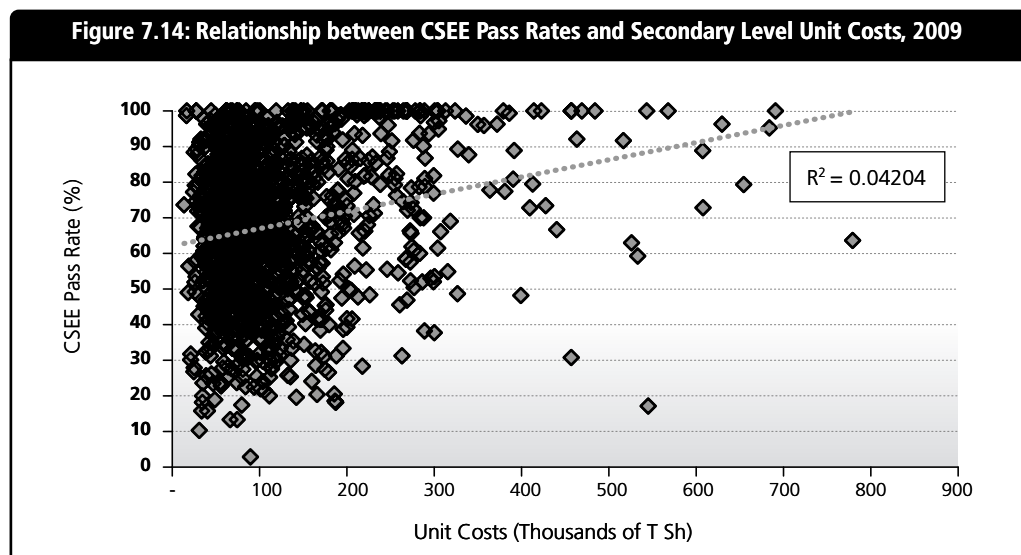


Source: Salaries from Table 3.18; SACMEQ, 2007.

Note: Unit costs rely on teachers' salaries only.

A similar exercise was conducted for O-Level, using CSEE pass rates, similarly revealing: (i) very diverse levels of school spending for a given level of learning; and (ii) a weak relationship between exam results and unit costs. For a given unit cost of T Sh 50,000, schools' CSEE pass rates vary between 43 percent and 90 percent (See Figure 7.14 below). Again, better

endowed schools do not systematically perform better; and schools showing poor results are not always underfunded. As for the primary level, there appear to be efficiency and quality issues with the process of transforming resources into results.



Source: Enrollment and teachers from EMIS, 2009; Salaries from Table 3.18; CSEE results from NECTA.
Note: Unit costs for the CSEE analysis include teacher salaries and textbook prices.

The high degree of randomness in the relationship between schools' inputs and their pedagogical outcomes highlights the existence of significant weaknesses in the pedagogical supervision of the system and the absence of a results-based management approach. Currently, these results are not used to regulate the schools with the deviations. Such a policy would entail radical changes in the way the system is managed and would imply among others, the implementation of an appropriate tool for monitoring and supervising quality at the school level. These are areas where improvements should be sought to improve the quality of the system, and optimize the allocation of resources.

Beyond the issue of resource allocation, the way resources are used appears to be a major factor influencing the level of learning outcomes. Improving supervision and accountability mechanisms at the local level are known to be effective interventions.¹⁷⁶ Training school management committees/boards and teachers in certain school management issues would contribute to making schools more accountable to the community for both their students' performance and their use of resources. Indeed, in certain areas, the capacities of school committees to plan, budget and monitor funds are still weak. Training directed at head teachers and school accountants in school management and development are also necessary. This is all the more crucial in the current context of devolution of the management of secondary education to lower levels, giving schools and communities greater responsibilities.

KEY FINDINGS

More teachers are still needed to meet the pupil-teacher ratio targets. Tanzania is characterized by a shortage of teachers at the primary level, as illustrated by its PTR of 55 to 1 in government primary schools in 2009, much above the national target (45 to 1), the EFA-FTI benchmark (40 to 1) and the SADC average. However, the situation has improved continuously since 2004, when PTRs peaked at 59 to 1. As of 2009, the accumulated shortfall of primary school teachers was 30,405 (on the basis of compliance with the national PTR target). Teachers also lack at the secondary level: the pupil-teacher ratio stood at 43 to 1, up from a low 19 to 1 in 2004. Whereas PTRs have remained fairly stable over the years in nongovernmental schools, major increases have occurred in government schools, reaching 49 to 1 on average (against 23 to 1 in nongovernmental schools).

In addition to teacher shortages, analyses show poor consistency in teacher allocation across schools, both at the primary and secondary levels. The degree of randomness for primary school teacher allocation was 41 percent in 2007. The situation is worse in secondary schools, with 61 percent incoherence in the allocation. This highlights the urgent need to improve teacher allocation for government primary and secondary schools to ensure deployment is more consistent and equitable. In a context of limited resources and even of teacher shortages, an effective allocation system is crucial to achieve education objectives. The results underline the limits of current management practices and raise the issue of the need for new monitoring tools.

As a result, significant geographical disparities exist in teacher deployment, with particular allocation issues in remote rural areas. Analyses underline the substantial disparities in teacher deployment across regions, districts and rural/urban areas, for both primary and secondary school teachers. The situation is more critical still as far as qualified teachers are concerned. The posting of teachers to remote rural schools is a major issue that will need to be adequately addressed, through the implementation of an incentive package, that could include cash benefits, a hardship or relocation allowance, fast-track career progression, and/or preferential access to training and learning materials and improved school environment facilities (including teachers' quarters).

Efforts are needed to sustainably train teachers in adequate numbers, especially at the secondary level. Whereas the proportion of qualified teachers has witnessed an upward trend for the primary level (reaching 90 percent in 2009), it has plummeted for the secondary level to 76 percent, down from 95 percent in 2004. The teacher training system has shown difficulties to respond adequately to the growing demand for teachers following the surge in secondary enrollment, boosted by the implementation of both the PEDP and the SEDP. As in many countries in the region, the lack of language, mathematics and science teachers has been and remains a major issue. The balance of skills among teachers has deteriorated since 2004, with only 28 percent of teachers specialized in sciences in 2009, against 40 percent in 2004. The ministry has developed a policy package to curb that trend, whose effectiveness will need to be adequately monitored.

Textbook management in government schools suffers from many flaws, especially at the secondary level. Textbooks are generally in short supply in government schools, one textbook being shared by three students on average in primary and between four to nine students at O-Level, according to the subject. Although many possible explanations exist, the transfer of school capitation grants on time and their amount are definitely related to the lethargic supply.

The allocation of capitation grants is fraught with inefficiencies, mainly due to amounts allocated not always being in line with planned budgets (they are often lower), and to delays in the reception of funds by schools. The lack of predictability in the flow of funds makes any planning difficult, ultimately harming schools' good functioning. This situation is exacerbated in schools where planning and budgeting skills are weak. The allocation formula for capitation grants is currently straightforwardly based on expected enrollment. A more equitable distribution of resources would require a formula that takes into account the different needs of different schools. Timely transfers of funds might be facilitated by the option of block grants for nonwage spending sent directly to schools (Claussen and Assad, 2010). Finally, to ensure that the funds are spent as planned, a reliable and sustainable accounting system is to be implemented: school management committees and boards could provide valuable oversight of such functions. Strengthening their capacity in planning, budgeting, monitoring and evaluation is becoming critical.

There is a particularly weak relationship at the school level between learning outcomes and school resources, at primary and secondary levels. This raises questions about the efficiency and quality of the underlying process of transformation of resources into learning achievement. Beyond the issue of resource allocation, the way resources are used seems to have a major influence on the level of learning outcomes. Improving supervision and accountability mechanisms at the local level are known to be effective interventions. Core strategies include: (i) improving information generation and dissemination on school rights and responsibilities, inputs, outputs and outcomes; (ii) increasing the autonomy of schools by favoring school-based management approaches; and (iii) setting up the correct teacher incentives by linking pay or tenure directly to performance (Bruns et al., 2011).

The need for an adequate and effective information and monitoring system at the decentralized level is urgent. It appears that decentralization alone is not able to limit disparities between regions or districts, and certainly not between schools. These results suggest the need for effective planning and monitoring tools in order to allocate education inputs more efficiently. The implementation of a decentralized information and monitoring system able to provide timely, accurate and reliable data on the education sector to relevant decision levels, is an urgent requirement. In a decentralized system, it is particularly important that all subnational levels provide timely and quality data for MoEVT to perform its primary role of monitoring and supervision of the education sector. In addition to an EMIS system, financial and human resource management systems would improve fiscal management and accountability systems. A first response to this challenge was given in 2009, with the development of a pilot decentralized Basic-Education Management Information System (BE-MIS), which was tested in 28 district councils in 14 regions, and is to be scaled up to cover all councils nationwide by 2014 (See Annex Note 7.3).

Notes

- 143 For secondary education, the devolution and decentralization process started only in FY 2009/10, whereas for primary it has been implemented since 1998.
- 144 Permits for the replacement of teachers (due to attrition) are sought directly from the PO-PSM by councils. Newly hired teachers, as any civil servants, must fulfill their work contract with the council for at least three years before being entitled to intra-council or inter-regional transfers, and for at least two years before being entitled to further studies or training.
- 145 Administrative aspects of the posting of new recruits are also a point of concern. Over 2008-09, 9,150 Grade A primary teachers were recruited, but could not be posted to their respective districts before September 2009, because of changes in reporting requirements (Education Sector Performance Report, 2009).
- 146 In 1995, the Grade A Certificate was established as the minimum professional qualification for primary school teachers; involving two years of professional training after successful completion of O-Level. However, given the proportion of Grade B/C teachers still found among the older teaching staff, a special upgrade programme was established, helping to reduce their number from 56,115 in 2000 to 15,472 in 2009 (a further 4,000 were undergoing the qualification upgrade in 2009). Consequently, the Grade B/C qualification has been phased out. This process was also favored by the phasing out of the old unqualified teachers as they retired.
- 147 This figure may be underestimated; rates close to five percent are more common in similar country situations.
- 148 Retirement may be voluntary at the age of 55 years, or compulsory, at the age of 60 years.
- 149 Termination is generally managed at the school and district levels. The process is started by school head teachers who report the matter to the district council, who in turn reports to the Teachers Service Department, via the district education officer. The Teachers Service Department investigates, and derives cases to regional and central authorities for corrective measures to be taken.
- 150 A study in Guinea shows that teachers who benefited from short but focused professional training were more effective in Grade 2 than their peers who had benefited from three years of preservice training (the difference in Grade 5 was not statistically significant (PASEC, 2006).
- 151 The pupil-stream ratio was estimated at 42 to 1 in 2009 in government schools against 38 to 1 in nongovernmental schools. This entails that 28.5 percent of government teachers are involved in double-shifting practices.
- 152 In some cases, below quality building standards have been reported despite the existence of guidelines, due to the inadequate monitoring and supervision by district engineers.
- 153 The construction of new schools must be initiated by communities when overcrowding or the distance to school justify the need. Communities raise their own financial resources, and provide local materials (sand, stones, bricks, land) and labor. LGA contributes with development grants, assistance in the transport of building materials and technical support and supervision to ensure standards are adhered to. The inspectorate finally seeks an engineer's approval of the work, and registers the school.
- 154 Although LGA development grants are mainly allocated for construction (75 percent in 2006/07), they are insufficient to meet the needs.
- 155 According to the PETS 2010, "the most remote schools measured by its distance to council headquarters have less resources inputs in terms of teachers and lower quality of facilities" (Claussen and Assad, 2010). Another World Bank study also mentions the existence of a positive correlation between poverty and average PTRs at the district level (World Bank, 2008).
- 156 New recruits hesitate to assume duty in rural districts and pose a challenge to retain. The lack of adequate lodgings is reportedly one of the causes. In 2009, the shortage of teacher housing was estimated at 77 percent (PEDP, 2009). There are some success stories however, such as the hardship allowance independently set up by Mafia district to attract and retain teachers in difficult zones.
- 157 SACMEQ data is used given the unavailability of national primary school level data. However due to limitations in SACMEQ coverage, the analysis could not be performed at the regional level.
- 158 This strategy, in addition to being more cost-effective, has reduced delays in the supply of books to schools (World Bank, 2008a).

- 159 To deal with this problem, the Commissioner for Education has issued circulars on the “Selection of Textbooks for Primary Schools” that call for the selection of two textbooks for use in primary (Standard I to V) teaching, favoring more uniformity in teaching content and the issues addressed. Guidelines on the distribution of textbooks have also been issued (Education Sector Performance Report, 2010).
- 160 Books are bought by schools with capitation grant funds, rather than allocated as such. Their availability nevertheless gives an idea of the school-level results of the decentralization of textbook management.
- 161 District level analyses can in fact hide wide school-level disparities, as was shown in the analysis of teacher allocation consistency: teacher consistency coefficients (R^2) are 72 percent at the district level, but estimated at 59 percent at the school level. Unfortunately, the lack of school-level information prevents more refined analysis.
- 162 A detailed analysis of fund transfers to schools is provided in the last public expenditure tracking survey, on which this section draws heavily (Claussen and Assad, 2010).
- 163 In FY 2007/08, the composition of the education block grant was: 80.6 percent for personnel emoluments, 11.4 percent for other charges, 7.6 percent for capitation grants and 0.4 percent for special schools (Claussen and Assad, 2010).
- 164 These figures only include cash transfers.
- 165 The analysis in this section indistinctly covers O-Level and A-Level, given that the data did not allow to distinguish between teachers working at either level, when both levels are offered within a same school. In addition, the analysis focuses on government schools (central government and district schools), because of the particular interest in the management of education by the government.
- 166 Teachers with at least a diploma are qualified to teach O-Level. At A-Level, a degree is required. Diplomas are offered by TTCs, and degrees by universities and university colleges. In some cases, Form 6 leavers and graduates without teacher training may be employed to teach on the basis of a teaching license, being offered a short orientation course before they start. See Annex Table 7.6 for the distribution of secondary school teachers’ qualifications, by gender, type of school and subject area.
- 167 Dar es Salaam University College of Education (DUCE), Mwakawa University College of Education (MUCE) and Mwenge University College of Education (MWUCE) were all established in 2005.
- 168 Science camps have also been piloted for girls (catering for 1,000 pupils a time) and are to be expanded.
- 169 See Annex Table 7.9.
- 170 The analysis focuses on government O-Level schools because this level is the current strategic level for the expansion of education. In addition, because of limited sample size, it was not possible to conduct similar a analysis for A-Level schools. Results for all government secondary schools are presented in Annex Table 7.10.
- 171 The PTRs for all government secondary schools are 31 to 1 in urban and 54 to 1 in rural areas. Respective PqTRs are 36 to 1 and 77 to 1 (See Annex Table 7.11).
- 172 This includes all O-Level streams, of both schools offering only O-Level and those offering O-Level and A-Level.
- 173 This section draws on the public expenditure tracking survey of 2010 (Claussen and Assad, 2010) which provides a detailed analysis of cash transfers to schools.
- 174 The computation is based on total enrollment for both the learning grant and the school fee subsidy, which tends to underestimate the value per eligible beneficiary. When computed on eligible students only, the learning grant is T Sh 11,300 per student (all students) and the school fee subsidy is T Sh 13,500 per exempted student. Exempted students have been estimated at 10.7 percent of all secondary school students in 2008.
- 175 Not all schools are awarded development grants; in some cases, contractors are paid directly by MoEVT.
- 176 As shown by Maureen and Petterson (2008), offering parents access to school budgets and performance is an important tool in holding local officials and providers accountable for results. School cards are interesting tools in that respect. Other types of school level accountability mechanisms include school performance contracts (Rwanda, Madagascar). The Contrat Programme de Réussite Scolaire (CPRS) developed in Madagascar brings together all the school’s stakeholders to sign a contract for school performance; it is established through a participatory process including a diagnosis of the schools’ situation, discussions over actions to be taken, and the definition of responsibilities. The contract is evaluated and updated or renewed once a year. The school performance contract is thus also an interesting tool for mobilizing different education actors, and a planning mechanism.