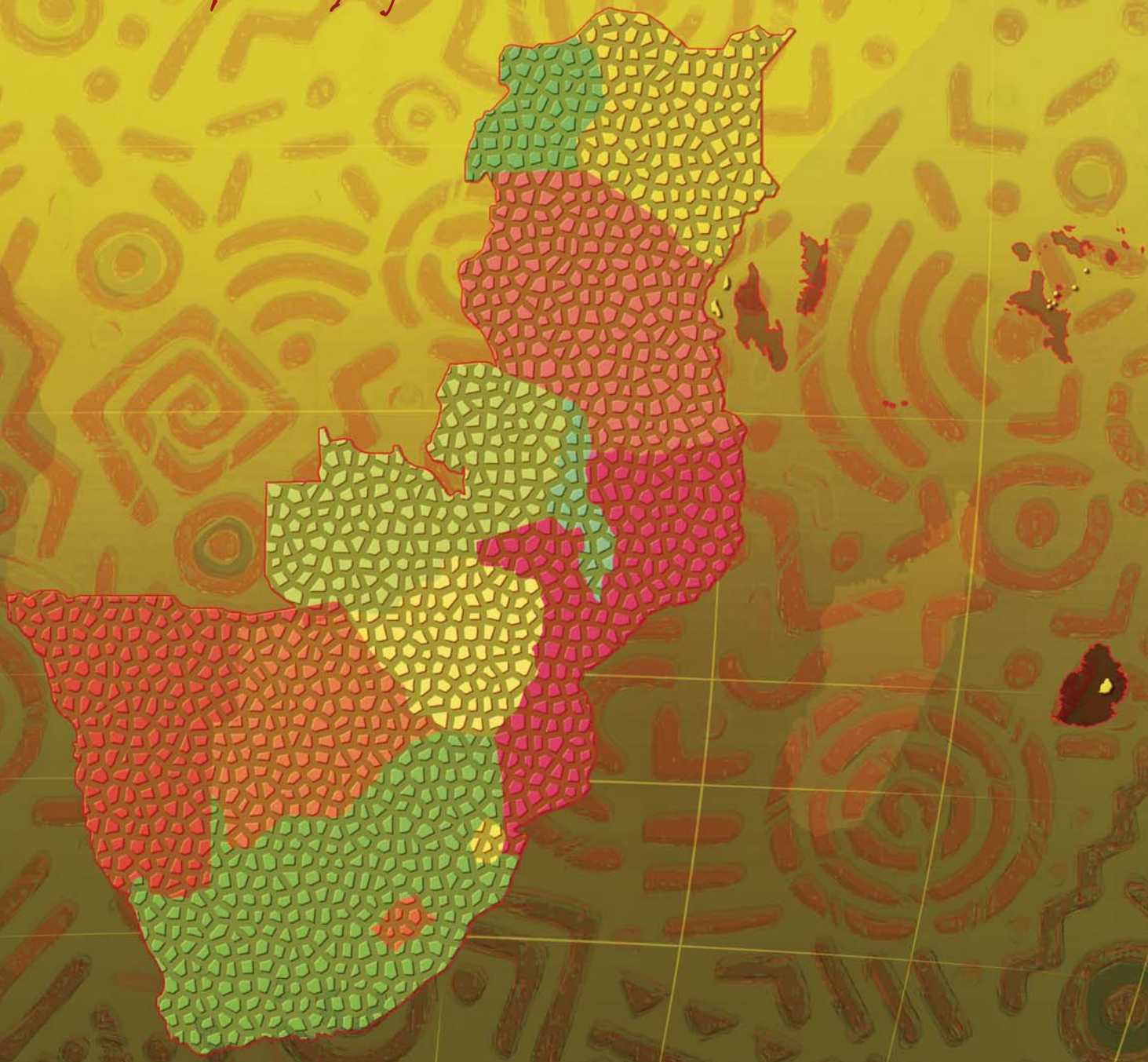
The SACMEQ III project in

TANZANIA

A study of the conditions of schooling and the quality of education



SACMEQ

Southern and Eastern Africa Consortium for Monitoring Educational Quality

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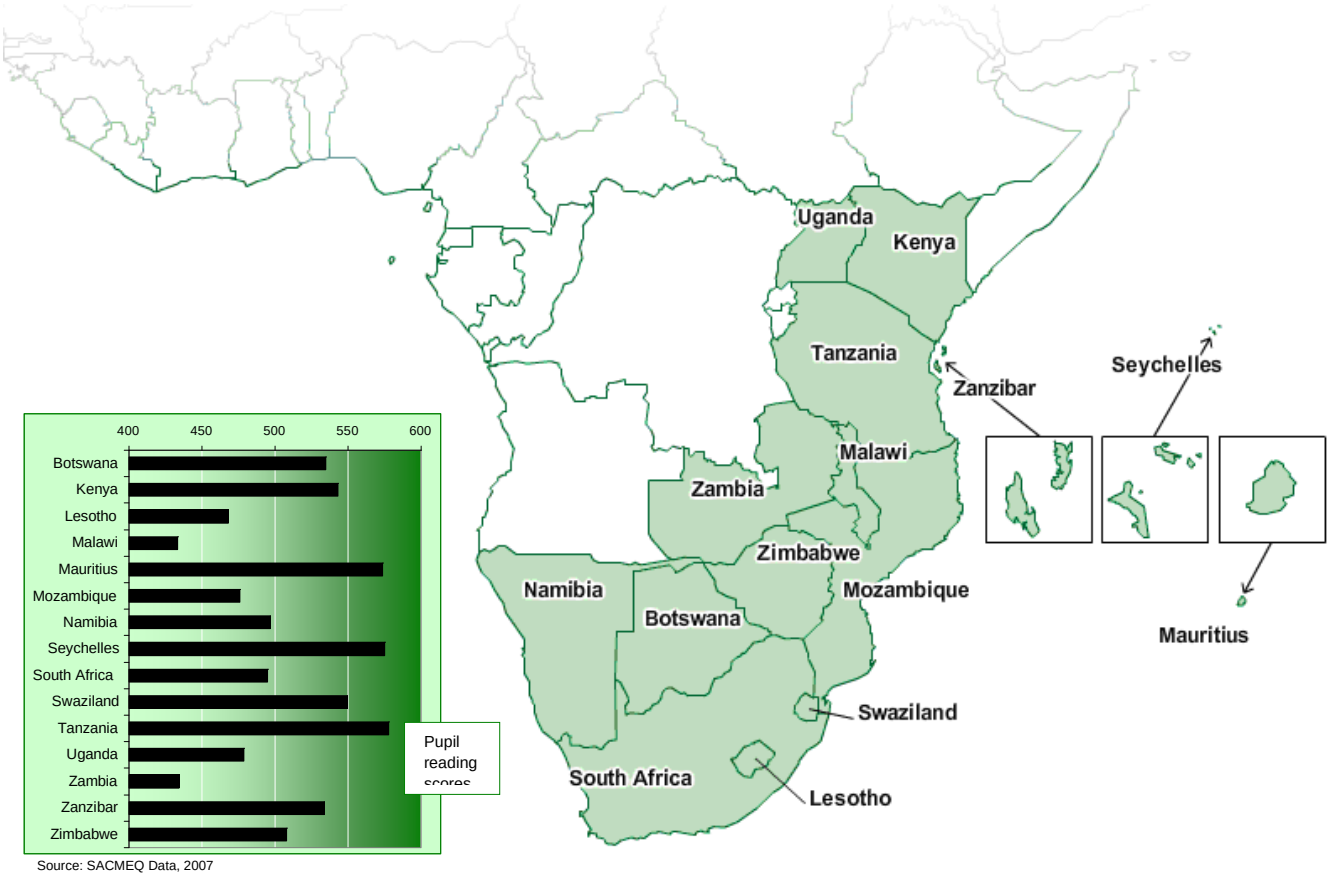

Source: SACMEQ Data, 2007

The Fifteen SACMEQ School Systems

Chapter 1
Setting of the Study

1.1 Introduction

Tanzania Mainland lies between 1^0 and 12^0 south of the equator and between 29^0 and 41^0 east of the Greenwich Meridian. It shares a border with Kenya and Uganda to the north and Mozambique, Malawi and Zambia to the south. To the east lies the Indian Ocean while Rwanda, Burundi, and the Democratic Republic of Congo are to the west. Tanzania has a landmass of 881,000 square kilometres and, according to the 2002 population census it had a population of 33.6 million people. The population growth rate is 2.9 percent per annum. On this basis the population was estimated at 38.2 million in 2007. The population consists of people from approximately 120 different tribes, each with its own language. However Kiswahili is spoken by all tribes and is the national language as well as the main language of official communication while English is the second official language. Kiswahili is the medium of instruction in primary schools while English is used as the medium of instruction in secondary schools and in post-secondary education. Christianity and Islam are the main religions and are practised by more than 90 percent of the population, but each has many different sects. Tanzania was a British protectorate for 42 years, from 1918 to 1960, before it became independent in 1961. It is a multiparty state and enjoys strong friendship and cooperation with its neighbours mainly through its membership to the East African Community (EAC) and the Southern Africa Development Community (SADC).

Agriculture is the mainstay of Tanzania's economy, and it contributed 25.8 percent of the Gross Domestic Product (GDP) in 2007. Other main economic activities contributing to GDP are construction (7.8 percent), manufacturing (7.8 percent), mining and quarrying (3.5 percent), trade, hotels, restaurants including tourism (16.6 percent), transport and communication (5.5 percent), financial, insurance, real estate, and business services (10 percent), public and other services (7.3 percent), and electricity and water (1.6). In 2007, the GPD growth rate was 7.1 percent and the per capita GDP was 548,388 Tanzanian shillings (shs) at current (2007) prices

where one US dollar was equivalent to shs 1162.8 (Economic Bulletin, 2007, No. 4). However the income disparity is large and there are many families, especially in rural areas, that depend on subsistence farming. About 50 percent of the population lives below the poverty datum line. The national transport system is being developed through the construction of trunk roads which, when complete, will connect almost all regional towns.

The contribution of the other sectors to the economy has been summarized in *Table 1.1*.

Table 1.1: Tanzania's economy: A summary

Contributing Sector	As Percentage of Total GDP
Agriculture, Hunting and Forestry	25.8
Fishing	1.3
Industry and Construction	21.2
Services	43.3
Gross Value added before Adjustments	91.6
Less FISIM	1.0
Gross value added at current basic prices	90.7
Add taxes on products	9.3
Total	**100.0**

Source: United Republic of Tanzania. The Economy Survey 2007, Ministry of Finance and Economic Affairs, Dar-es-salaam-Tanzania (June, 2008)

1.2 The perceived importance of SACMEQ

This study is part of the work of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ). The collection of data for the study took place in 2007 and this publication reports on the results of the study. SACMEQ III focused on Standard 6 primary school pupils and it assessed achievement in mathematics, reading literacy and health knowledge.

Before SACMEQ II and SACMEC III, the only indicator of the achievement of pupils was from the Standard 7 Primary School Leaving Certificate. One problem was that, these data were not regularly analysed to examine, either, the differences in achievement between the educational administrative zones or subgroups of pupils in the country across different points in time. The SACMEQ studies are expected to generate very useful policy suggestions and a policy agenda for action by the Ministry of Education and Vocational Training (MOEVT). These policy suggestions will not only on the Standard 6 achievement in reading literacy, mathematics and health knowledge, particularly with regards to HIV /AIDS, but also on the actions required to

improve the learning conditions in schools. It will also enable the Ministry to monitor the change, if any, among many key education indicators in the various zones by comparing SACMEQ II (base research) and SACMEQ III results.

1.3 School education in Tanzania

At the time of independence, around 488,476 children (27 percent of the age group) were enrolled in primary school. Enrolment in secondary schools was 11,832, which was only 2.4 percent of the children enrolled in primary schools. During the mid 1970s, the Ministry made the first significant strides in opening up access to and participation in primary education for all children of school age by providing adequate teachers and necessary school buildings in all parts of the country. By 1982, Tanzania had very nearly achieved universal primary education (UPE), with around 98 percent of children in school. These impressive achievements, were, unfortunately, not sustained. Nevertheless, the efforts were renewed following the adoption of the Education and Training Policy of 1995 that was implemented through the Primary Education Development Program (PEDP I) from 2002 to 2006. The target of the PEDP I was, among others, to ensure that all school age children were admitted to school by year 2006. PEDP I succeeded on many aspects including the expansion of school enrolment. During 2007 Gross Enrolment Rates (GERs) and Net Enrolment Rates (NERs) reached 112 percent and 97.3 percent respectively compared to GERs and NERs of 84.0 percent and 65.0 percent respectively in 2001. Other achievements of PEDP I include increasing the number of primary schools from 11,873 in 2001 to 14,700 in 2006; raising the transition rate from primary to secondary school from 22.4 percent in 2001 to 49.3 percent in 2005; and providing training to a total of 50,800 under-qualified teachers in order for them to attain the minimum qualifications for Grade A teachers.

Based on the lessons learnt from PEDP I, PEDP II had seven areas of focus, namely: (1) Enrolment expansion with a focus on ensuring access and equity, (2) quality improvement, (3) capacity building, (4) cross-cutting issues, (5) strengthening institutional arrangements, (6) educational research, and (7) monitoring and evaluation. Although PEDP II is a government programme it has been prepared in a participatory manner, involving the Government, Development Partners (DPs) and non-state actors. As stated in this document, implementation of PEDP II will also require the participation of all stakeholders.

Although most parents see the value of education and send their children to school, there are still some areas where parents have not yet fully appreciated the value of education. Nevertheless, good progress continues to be registered, and the goal of PEDP is to ensure that all children of school going age are enrolled in school by the year 2006.

1.3.1 Financing of education

The provision of education has continued to be the Government's priority. The average percentage of the government budget devoted to education in the period 2007/2008 was 18.1 (BEST, 2005-2009) percent of the national discretionary expenditure budget (i.e. total recurrent budget less debt service etc). The allocation to the various aspects of education, in percentage terms, has been presented in *Table 1.2* (using averages for the time period-2007/2008).

Table 1.2: Percentage of budget spent on the different levels of education

Level of Education	Percentage of Education Budget
Primary, Non-formal, Other Education Institutions and Support Services	56.2
Secondary	15.8
Tertiary	26.2
Teacher Training	1.8
Total	**100.0**

***Source*: Basic Statistics in Education (2005-2009)**

1.3.2 Main education reforms

A number of reforms were implemented in the 1990s following the release of the 1982 report of the education sector analysis (Makweta Report, 1982). These reforms were also prompted by other macro level government policy reforms that necessitated corresponding changes in the education sector. The review of the primary, secondary, and teacher education curricula was accomplished in 1993. This review involved the revision of syllabi and textbooks, the production of teacher guides and the orientation of teachers in the use of the new teaching materials and methodologies in order to make them more relevant to the realities of Tanzania's overall context.

The Education and Training Policy (ETP) of 1995 provides the vision and mission that guides the development of the entire education and training sector. The major objectives of this policy are: to expand access to education, to achieve equity in its provision, and to enhance the quality of the education offered. Furthermore, it seeks to ensure optimum utilization of facilities, and therefore achieve operational efficiency at all levels of the system. The other broad policy aims include enhancing partnerships in the delivery of education, broadening the financial base of the sector, achieving greater cost effectiveness in education, and streamlining education management structures through the devolution of authority to schools, local communities and Local Authorities (LAs). The ETP, in turn, promoted the development of the Policy for Science, Technology, and Higher Education in 1997.

The 1995 ETP was followed by in 1996 by the development of the Basic Education Master Plan (BEMP) whose objective was to translate into action areas of the ETP that were related to the basic education sub sector. In 1997 the sector-wide approach, namely, the Education Sector Development Programme (ESDP) was adopted to establish new relationships with key players in education using pooled human, financial, and material resources for the tasks of managing education, and thus enhancing partnerships, facilitating co-ordination, and instilling a sense of ownership amongst all stakeholders in education. This culminated in the development of the PEDP, which was a five-year plan that articulated the vision of UPE within a decentralised mode and the framework of the Local Government Reform Programme, the Poverty Reduction Strategy Paper, and the Tanzania Development Vision 2025. It covered the provision of primary education, including education for out-of-school children and youth as well as capacity development of personnel and structures at the local level. The targets of priority investment under PEDP I were the expansion of access through a focus on classroom construction, teacher recruitment and teacher deployment, quality improvement in-part through in-service and pre-service teacher training, and increasing teaching and learning materials provision. PEPD I also aimed to improve system-wide management through a range of capacity building efforts. PEDP II (2007-2012) addresses quality issues for improving the provision of primary education. The ETP of 1995 is now final stage of review awaiting Parliament endorsement.

1.3.3 Structure of education in Tanzania

Tanzania's formal education system follows a 2–7–4–2–3+ structure. The first 2 years comprise pre-primary education followed by 7 years of primary education, 4 years of ordinary level secondary education, and 2 years of advanced level secondary education. University education ordinarily covers a minimum of 3 years.

(a) Pre-primary education

The provision and management of pre-primary education rests with the Government, individuals or private institutions. About 581,022 of children aged 5 to 6 years were enrolled in 9,569 pre-primary schools during 2002. Pre-primary education is not compulsory. Pre-primary teachers are required to undergo formal training before they can teach in pre-schools. There are far more pre-primary institutions in urban areas than there are in rural areas. Enrolment in these schools is expected to increase steadily as more pre-primary classes open within government primary school premises.

(b) Primary education

Primary school covers Standards 1 to 7 and the legal age of entry to primary school is 7 years. At the point of independence in 1961, there were 3,342 primary schools and 65 secondary schools in Tanzania. Since the declaration of Education for All in the early 1970's, there has been a steady increase in primary school enrolments. These efforts were renewed by the adoption of the 1990 Jomtien Declaration on Education for All. As a result, by 2007 there were 15,446 primary schools with 8,316,925 pupils enrolled.

Usually Standard 1 and 2 have classroom teachers while the others have subject specific teachers. Thus, from Standard 3 onwards, pupils are allocated a classroom and the teachers move from classroom to classroom for the different lessons.

There are 194 school days per year. Each day a pupil should receive between three and four hours of school learning per day (that is, 8 lesson periods of 40 minutes each for Standards 3 to 7 and 30 minutes each for Standards 1 and 2). It is a Ministry requirement that teachers give homework, exercises as well as tests, and that they correct them regularly. However, the conditions in some

pupils' homes are not conducive to doing homework and so it remains unclear how much homework is actually done. At the end of Standard 7 pupils sit for the Primary School Leaving Examination (PSLE). The examination acts as a selection examination for entry into secondary school. In addition they are awarded a certificate for having reached Standard 7.

Each school should be fully inspected by an inspector at least once every 2 years. The inspectorate has been reformed to perform inspectoral as well as advisory functions. There are accurate records of the actual number of visits by inspectors to schools in each district.

(c) Secondary education

As already explained, secondary education is split into ordinary and advanced levels which are four and two years of education respectively. There were 1,024 secondary schools enrolling 976,694 students in year 2002. During 2007 the total numbers of secondary schools were 3,485 with an enrolment of 1,026,510. Only 56.7 percent of pupils from primary level make a transition to ordinary level secondary education and 30 percent of the Ordinary level pupils proceed to Advanced level secondary education. The department has ambitious targets of increasing transition rates from primary level to secondary. Other targets include:

(i) Widening access to secondary education for the age group 14–17, to 30 percent by the year 2015;

(ii) Expanding secondary education and thus raising the percentage of those who pass Form 4 and 6 national examinations with Divisions I, II, and III.

(iii) Offering equitable secondary education to all regions and districts.

The Government through the Secondary Education Development Programmes phase I & II for the periods 2005-2009 and 2009-2013 respectively (SEDP I and SEDP 11) has increased access to secondary education. Tanzania is among the successful countries in this regard.

(d) Teacher education

There were 55 teachers colleges with a total enrolment of 22,517 teacher trainees in year 2007. The colleges provide teacher education at diploma and Grade A levels. Diploma trainees are prepared to teach in secondary schools while Grade A trainees are earmarked to teach in primary

and pre-primary schools. The colleges also provide in-service training to teachers who wish to upgrade themselves from lower grades (Grade C or B) through residential training and distance learning.

(e) University education

University education is provided by 11 public universities and 25 private universities with a total enrolment of 118,951 of whom 42,230 were female in the academic year 2009/2010.

1.4 Administrative structure

In 2007, the country was divided into 21 regions and each region was sub-divided into a number of districts varying from region to region. At the time of the study there were 132 districts. Regional Education Officers coordinates all regional education; each district/municipal office is responsible for the school buildings in its area as well as for the supply of equipment and materials to the schools. The Ministry has a national inspectorate whose task is to conduct a full inspection of each school in the country once every two years. Each district office also has a team of school inspectors whose task it is to visit each school in the district offering advice and help to all teachers with their teaching. There are zone school inspectors who visit schools, mainly secondary schools, and teacher colleges. Some of the zones, districts and wards have established Educational Resource Centres (ERCs). The Ward Based Education Management (WABEM) and the Child Friendly Schools (CFS) initiatives aim to refresh and consolidate the existing ERCs, and to establish some where none exist.

1.5 The regions of Tanzania

The 21 regions that make up Tanzania Mainland are: Arusha, Dar es Salaam, Dodoma, Iringa, Kagera, Kigoma, Kilimanjaro, Lindi, Manyara,. Mara, Mbeya, Morogoro, Mtwara, Mwanza, Pwani, Rukwa, Ruvuma, Shinyanga, Singida, Tabora, and Tanga.These regions vary considerably in their topography, population density, main economic activities, infrastructure and other essential characteristics. Some background information on each one of them is provided below.

Arusha: This is region hosts the headquarters of the East Africa Community. It has ten districts and it is thinly populated. It is primarily rural and has most of the country's national parks. Economic activities include animal husbandry and tanzanite mining. Tourism is very popular due the famous national parks including Serengeti, Ngorongoro and Manyara. Despite its rural nature the region has very good infrastructure.

Dar es Salaam: This region includes Dar es Salaam, which is the largest city in the country and contains three municipalities. It is the most densely populated region in the country, and is almost entirely urban. Dar es Salaam has excellent infrastructure, and is accessible by air, road, rail and water. It has a cosmopolitan population which is a mixture of national ethnic groups, mainly workers, and different races. It has a good concentration of light industry, and is the biggest commercial centre in the country, with a lot of tourism. The demand for education is very high here due to the constant influx of people in search of the many opportunities offered by this relatively well developed region.

Dodoma: This region includes Dodoma, the capital city of Tanzania. It comprises four districts. Although Dodoma is largely rural and semi arid, it is densely populated. Animal husbandry is practised on an intensive scale, as well as some subsistence farming. The region's infrastructure is good.

Iringa: This region is mountainous. It has five districts and it is rural. Both commercial and subsistence farming are practised on an intensive scale. The big tea estates often tempt pockets of children to work in them instead of attending school. The infrastructure is good.

Kagera: This is a peripheral, rural region located in the north-western part of the country. It comprises five districts that share a border with Uganda, Rwanda and Burundi. Kagera region is densely populated, and its inhabitants practise subsistence and commercial farming. There is coffee and sugarcane industry as well as some tin mining. There are refugee camps and the intensive activities of the refugees characterized by farming and tree cutting (for firewood) have resulted in severe land degradation in the areas surrounding the camps. The infrastructure is good.

Kigoma: This is a peripheral, rural region with three districts that are located in the western part of the country, sharing a border with the Democratic Republic of Congo and Burundi. It is thinly populated. Its inhabitants engage in subsistence and commercial farming. As is the case with Kagera, in Kigoma there are refugee camps that have caused severe land degradation in areas surrounding the camps. The infrastructure is fair.

Kilimanjaro: This region is largely rural, and is made up of five districts. It is largely mountainous, with Mount Kilimanjaro, the tallest mountain in Africa, situated within the region. It is very densely populated and is agriculturally very productive. The most common economic activities are subsistence and commercial farming, with coffee, bananas, and maize being the main products. There is also some tourism and limestone mining**.** This region has good infrastructure.

Lindi: This region is located in the south of the country, and has six districts. It is largely rural but is densely populated**.** The main economic activities in this region are cashew nuts production, sisal growing, fishing, and salt making. The infrastructure is fair.

Manyara: This region is located Southwest of Arusha region and it has six districts. It is largely rural but is densely populated with intensive agriculture, animal husbandry, and tanzanite mining. The infrastructure is good, and the region is easily accessible by road.

Mara: Bordering Lake Victoria, this region is largely rural with. It is densely populated, with intensive agriculture, animal husbandry and fishing. There is some gold mining. The infrastructure is good, and the region is easily accessible by air and by road.

Mbeya: This region is largely rural, and is made up of eight districts. It is partly mountainous but is densely populated. It is agriculturally very productive, with coffee, rice, pyrethrum, maize and bananas as the main crops grown. There is also some gold and iron ore mining**.** The infrastructure is very good, and the region is accessible by road, railway and air.

Morogoro: This region is mountainous and largely rural, with five districts. It is thinly populated but agriculturally rich. The main crop grown is sugarcane. There is also some mica mining. The infrastructure is fair except in the mountains where access is problematic.

Mtwara: This region is largely rural and is densely populated. It is made up of five districts. Inhabitants of this region engage in the production of cashew nuts, sisal growing, fishing, and salt making. The infrastructure is fair.

Mwanza: Bordering Lake Victoria, this region is largely rural with seven districts and is very densely populated. Here, we find intensive agriculture with a lot of animal husbandry in addition to fishing and gold mining. The infrastructure is very good, and the region is accessible by air, rail, and by road.

Pwani: This region is largely rural and has four districts. It is thinly populated, with some mica mining and subsistence farming. The infrastructure is good.

Rukwa: Rukwa Region is rural, and has four districts. There is intensive farming, but mainly of a subsistence nature. Some iron ore mining also takes place here. The infrastructure is fair.

Ruvuma: This region is largely rural and is partly mountainous. It has five districts, and practices intensive agriculture. There is also some iron ore mining. The infrastructure is good.

Shinyanga: This region is largely rural lowland with five districts. It is densely populated and is agriculturally very productive. Inhabitants of Shinyanga engage in subsistence and commercial faming, with rice, cotton and animal husbandry as the main economic activities. There is also diamond and gold mining**.** The infrastructure is good.

Singida: The region is largely rural, and has eight districts. It is partly mountainous, agriculturally productive, and densely populated. There is gold and iron ore mining too, and its infrastructure is good.

Tabora: This region is largely rural, thinly populated and has five districts. Tobacco, cotton, subsistence farming and animal husbandry constitute the main occupations of the inhabitants. The infrastructure is good.

Tanga: This region is largely rural and has six districts. It is highly populated and intensive agriculture is practised, with a mixture of subsistence and commercial farming. There are sisal and tea plantations, cotton and coffee growing, fishing and some tourism. The infrastructure is good.

A map of Tanzania with the regions marked has been presented in *Figure 1.1*.

1.6 Policy concerns

Since there were several reforms in the last decade that influenced the management and administration of education, particularly primary education, the Ministry of Education and Vocational Training needs to be informed on the conditions of schooling and of the achievement levels in the 21 regions. The major concerns for which 'hard' facts are needed are:

1. How different are the inputs to schools in the various regions in terms of the kinds of homes the pupils come from?

2. How different are the conditions of schooling in the regions in terms of textbooks and other supplies, the adequacy of accommodation in the classrooms, the resources in the classrooms and the resources in the schools? Where are the conditions deemed to be inadequate and what action should the Ministry take?

3. How do the conditions of schooling in Tanzania compare with the Ministry's own benchmarks standards? In which regions are there large gaps? Did the Ministry's benchmarks seem to be reasonable or are changes required?

4. How equitably have the educational inputs (both material and human) to primary school been allocated? For which types of input was there inequity? Is any action required by the Ministry?

5. What is the level of achievement of Standard 6 pupils in reading, mathematics and health knowledge? Can the achievement levels be said to be adequate or were there major problems? If so, where? What is the level of achievement of the teachers of the Standard 6 pupils in reading and mathematics? Is there any overlap in achievement between pupils and teachers?

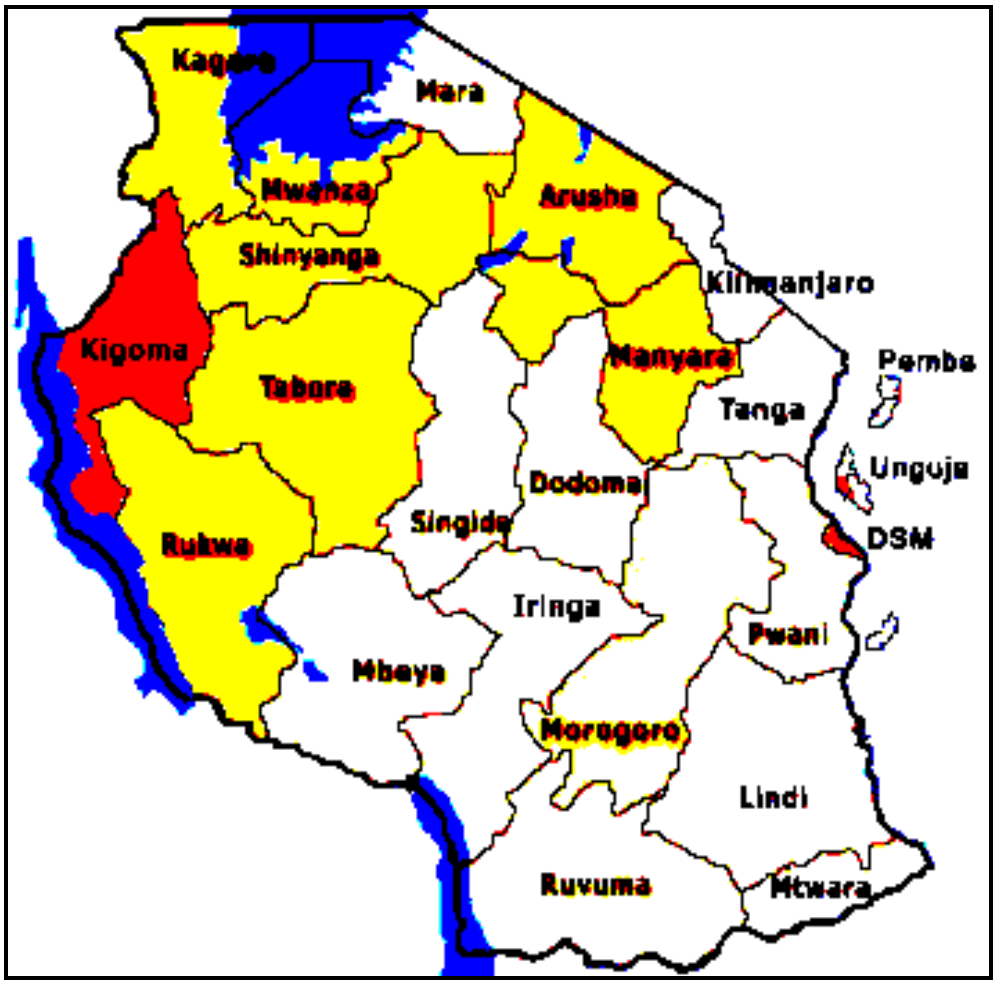

Figure 1.1: The administrative regions of Tanzania

1.7 The structure of the report

The rest of this report is devoted to providing information from the SACMEQ III study to address the above questions. In Chapter 2 the conduct of the study has been summarized by establishing the policy research questions, the development of the instruments, the test development and the subsequent scaling procedures, the population tested, the sampling procedures used and the calculation of sampling errors, the data collection, the data entry, cleaning, and finally the weighting and analysis.

Data on pupils' characteristics and their learning environments have been reported in Chapter 3. Information on teachers' characteristics and their viewpoints on teaching, classroom resources, professional support, and job satisfaction have been given in Chapter 4. The analysis of school heads' characteristics and their viewpoints on educational infrastructure, the organization and operation of schools, and problems with pupils and staff has been reported in Chapter 5. In Chapter 6, the results of the analyses of the equitable allocation of educational inputs to regions and also to school within regions have been reported. The achievement results of both pupils and teachers in reading, mathematics and health knowledge have been reported in Chapter 7. In Chapter 8 the major results have been summarized and suggestions for action by the Ministry have been made.

Chapter 3
Characteristics of Pupils and their Learning Environments

3.1 Introduction

The aim of this chapter is to present information on some of the characteristics of pupils, their homes and schools. These data have been presented for three reasons. The first is that they present a 'context' for the analyses to be presented later in this report. The second is that, over time, the levels and distributions of the data may change and therefore the data are being used to compare the types of pupils in Standard 6 in 2000 and 2007. The third reason is that home background is an important variable in all analyses of educational data. From the home context variables, a socio-economic scale has been constructed and it is important for the reader to know exactly which variables that have been included in this scale. It is common sense that schools that have an intake of pupils from 'better' home backgrounds should achieve better academic results than schools that have an intake of pupils from less well-off home backgrounds. Indeed, the research literature abounds with such examples. Schools that have achieved high scores with an intake of low socio-economic status (SES) children are remarkable. Many of the school and teacher variables that appear in subsequent chapters in this report will be examined for their effect on pupil achievement. It will be important to examine not only their relationship with achievement but also their effect once the SES of pupils has been taken account of.

Policy Suggestion 3.1: *The Ministry should continue to conduct follow up surveys of standard 6 target population employed during the second survey (SACMEQ III) in order to track changes of important education indicators over time.*

3.2 A note on the interpretation of the data analyses

Before presenting the results, it should be stressed that, firstly, the variables presented in this chapter represent a small subset of the larger number of variables for which data were collected.

The Ministry may wish to make a separate publication containing descriptive statistics, for all variables in the study, available to interested readers.

Secondly, it is very important to interpret each statistic in association with its sampling error. It will be recalled from Chapter 2 that the sample was drawn in order to yield standard errors of sampling for pupils in Standard 6 in Tanzania, such that a sample estimate of a population percentage would have a standard error of ±2.5 percent. For this level of sampling accuracy we can be sure 19 times out of 20 that the population value of a percentage lies within ±5 percent of the estimate derived from the sample. The sampling errors for means are also given in the tables and the same principle applies for limits of two standard errors of sampling.

Where a percentage or a mean is presented for a sub-group of pupils (such as for zones) then the sampling error will be greater than for the sample as a whole. This occurs, in part, because the sample sizes for sub-groups are smaller than the total sample sizes. Had smaller sampling errors for sub-groups been required, this would have increased the size of the total sample and also of the budget required to undertake much larger field data collections and data analyses.

As a starting point, in order to guide the data analyses, the very broad educational policy question posed in the title to this chapter was divided into several specific questions. These two questions were used to develop a more structured response to the educational policy issues surrounding the main question.

3.3 Personal and home background characteristics

General Policy Concern 3.1

What were the personal characteristics and home background characteristics of Standard 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?

Information on the age and sex of Standard 6 pupils, as well as the number of books and possessions in their homes, the meals they took and their parents' levels of education have been presented in *Table 3.1* and *Table 3.1a* for 2000 and 2007 respectively

Table 3.1: Means, percentages, and sampling errors for pupil personal and home-related characteristics (2000)

	Age (months)		Sex (female)		Books at home (number)		Possessions at home (index)		Meals (index)		Parent education	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	184.3	2.15	57.8	2.39	26.7	9.59	3.1	0.41	10.4	0.26	2.9	0.18
Eastern	171.4	2.52	52.7	4.64	14.7	3.80	3.5	0.54	10.8	0.26	3.7	0.21
Kagera	189.7	1.88	44.9	3.82	33.4	5.43	2.5	0.24	10.2	0.22	3.1	0.14
Kilimanjaro	171.9	2.05	57.6	3.35	24.0	5.32	2.9	0.23	11.6	0.10	3.3	0.12
Mwanza	185.1	2.29	48.6	3.89	31.1	6.90	3.0	0.38	10.1	0.27	2.8	0.20
Northeast	182.3	2.15	55.1	4.25	35.4	10.73	3.0	0.52	10.6	0.38	3.2	0.17
Northern	179.3	2.83	51.1	1.96	35.6	5.51	4.1	0.64	11.1	0.25	3.2	0.22
S. Highlands	178.7	2.49	51.1	1.82	36.2	10.75	4.1	0.56	10.5	0.22	3.1	0.22
Southern	187.9	2.72	49.5	2.50	23.8	14.99	2.9	0.49	10.4	0.14	2.8	0.11
Southwest	184.2	2.80	49.2	4.43	38.2	12.99	2.5	0.37	10.2	0.22	3.0	0.15
Western	180.1	2.83	53.1	2.46	41.0	7.89	3.3	0.73	10.0	0.40	3.0	0.24
Tanzania	**180.4**	**0.83**	**52.2**	**0.95**	**31.6**	**2.83**	**3.4**	**0.18**	**10.6**	**0.09**	**3.1**	**0.06**

Table 3.1a: Means, percentages, and sampling errors for pupil personal and home-related characteristics (2007)

	Age (months)		Sex (female)		Books at home (number)		Possessions at home (index)		Meals* (index)		Parent education	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	174.9	1.03	48.9	3.04	1.2	0.14	6.6	0.22			2.8	0.11
Eastern	170.9	1.13	50.9	2.78	3.0	0.54	9.4	0.28			3.4	0.16
Kagera	179.7	1.14	53.4	3.11	2.6	0.49	6.4	0.19			2.9	0.15
Kilimanjaro	167.7	1.10	55.3	3.54	2.6	0.73	7.7	0.25			3.1	0.06
Mwanza	176.2	1.06	47.2	2.80	1.4	0.24	7.7	0.22			3.0	0.12
Northeast	178.0	0.86	51.7	2.41	1.7	0.29	6.7	0.18			3.0	0.12
Northern	172.7	0.77	47.4	2.15	2.0	0.23	7.2	0.15			3.0	0.08
Southern Highlands	176.0	0.82	49.1	2.02	1.6	0.16	7.7	0.16			3.1	0.12
Southern	174.0	0.98	50.5	2.57	2.1	0.24	6.8	0.18			2.9	0.09
Southwest	180.7	1.08	52.4	2.76	2.0	0.70	7.1	0.21			3.0	0.15
Western	173.1	0.79	54.2	2.17	1.0	0.12	6.8	0.17			2.8	0.13
Tanzania	**175.0**	**0.29**	**50.6**	**0.77**	**1.8**	**0.10**	**7.3**	**0.06**			**3.0**	**0.04**

* The questions about three meals were not answered by any pupil during SACMEQ III.

Pupil age

What was the age distribution of pupils?

The official age of entry to primary school is 7 years (that is when a pupil has turned 7 by January 1st of the year the pupil is admitted into Standard 1) and the primary age cycle is 7 to 13 years. At the national level the mean age of Standard 6 pupils during the first week of November, 2007 was 175.0 months (14 years and 9 months) during SACMEQ III. The mean age is 5.4 months less compared to the mean age of Standard 6 pupils in SACMEQ II which was 180.4 months. There were variations among the zones in the mean age of Standard 6 pupils ranging from a high of 180.7 months in Southwest zone to a low of 167.7 months in Kilimanjaro zone. The mean age in 2000 ranged from 189.7 months in Kagera to a low of 171.4 months in Eastern zone. The age gap among the zones during 2007 was 13 months which is 5.3 months less than the age gap recorded in 2000. A striking feature is that there has been notable reduction in mean age in all zones especially in the Southern zone where mean age decreased by 13.9 months and in Kagera where the reduction was 10 months.

The results were expected because in 2002 the government renewed the implementation of its policy under PEDP I which enforced compulsory enrolment for school age children. These endeavors improved the age distribution in primary schools in favor of younger children. The renewed admission policy introduced a parallel program: Complementary Basic Education (COBET) for older children who were not enrolled in school. These children were mainstreamed into formal primary education at Standard 5 which could account for the modest reduction in the age gap of pupils. It should be noted that if all pupils had been admitted to school in the correct year their ages would range from 84 months (7 years) to 96 months (8 years). Thus by the data collection date (beginning of November) they should have ages ranging from approximately 154 months to 166 months. From the results we can see that the mean age is well outside this range, which implies that there is a notable proportion of overage pupils.

The Government's effort to ensure children of school age are admitted to primary school is commendable but this needs to be intensified and monitored so that ultimately all children of school going age are timely admitted to school.

***Policy Suggestion 3.2**: The ministry (School Inspectorate Department) in collaboration with PMORALG (Head teachers, Village Executive Officers and Ward Education officers) should*

ensure that the law on compulsory enrolment is implemented in order that children of school going age are timely admitted to school.

Pupil gender

What was the gender distribution of pupils?

It can be seen in the third column of *Table 3.1a* that in 2007 the gender distribution of pupils for the nation was 50.6 percent girls and 49.4 percents boys. The difference in the gender distribution was 1.2 percent points in 2007. The difference in gender distribution between boys and girls in 2000 was 4.4 percentage points (girls were 52.2 percent and boys 47.8 percent). Slight improvement was therefore registered between SCAMEQ II and SACMEQ III in gender distribution.

The gap in gender distribution across the zones varied less in 2007 compared to variations during 2000. The proportion of girls ranged from a high of 55.3 percent in Kilimanjaro zone to a low of 47.2 percent in Mwanza zone in 2007 compared to a high of 57.8 percent in Central zone to a low of 44.9 percent in Kagera zone during 2000. This comparison indicates an improvement in the gender distribution for all zones towards gender equality.

Gender distribution among the zones reflected no particular trend. For instance in Kilimanjaro and Western zones, the percentages of girls remained higher than in any other zones in both 2000 and 2007. In some zones especially Kilimanjaro, (55.3 percent females), Western (54.2 percent females) and Kagera (53.4 percent females) the percentage of girls was much bigger than boys relative to other zones while the reverse is true of Mwanza and Northern (47.2 percent and 47.4 percent females respectively).

The figures for Central zone (48.9 percent girls in 2007) and Northeast (51.7 percent girls) reflect impressive progress towards gender parity in 2007 compared to results for 2000 where the gender disparities in these zones were much wider (57.8 percent and 55.1 percent girls respectively).

Relative to other zones, Southern zone (49.0 percent girls), Eastern zone (50.9 percent girls) and Southern Highlands (49.1 percent girls), had gender distributions that were much closer to parity. Impressively, Southern zone maintained the smallest gender gap between 2000 and 2007. The percentages of females in Southern zone were 50.5 percent in 2007 and 49.5 percent in 2000. The figures for Kagera are noteworthy as there has been a dramatic shift in the gender distribution

between SACMEQ II and SACMEQ III. In 2000, girls accounted for 44.9 percent but by 2007 this figure had grown to 53.4 percent.

It clear from the results that, nationally, an improvement in gender distribution towards gender parity has been made overtime. For some zones the gender distribution switched from favouring one gender to the other. Clearly, further investigation is warranted especially in zones with relatively wide gender disparity.

Policy Suggestion 3.3: *The Ministry (Gender section) in collaboration with PMORALG should investigate why there were wide gender disparities in some zones particularly in Kagera, Western and Kilimanjaro zones.*

Parental education

What was the level of the parents' education?

The home can be considered to be made up of various components. One component concerns the wealth of the home in monetary terms. In Southern and Eastern Africa, most children do not know how much their parents earn. Thus proxy or indirect methods of assessing the wealth of a home must be used. One aspect is the goods they possess at home (home possessions). A second component is the intellectual milieu as characterised by the education of the parents and the books they have at home. Both of these can be of benefit to the child's learning.

Pupils were asked separate questions about the educational level of their mothers and fathers. The questions about the educational level of each parent in the SACMEQ III questionnaire were coded as follows:

1: Did not go to school and had no adult education

2: Did not go to school and had some adult education

3: Completed some primary education

4: Completed all of primary education

5: Completed some education / training after primary education

6: Completed some secondary education

7: Completed all of secondary education
8: Completed some education / training after secondary education
9: Completed some university education
10: Completed a university degree

In order to make the information comparable between SACMEQ II and SACMEQ III, the SACMEQ III variables have been recoded in order match the number of options used during SACMEQ II. Results for each pupil's mother and father were summed up to provide 'an index of parent education'. Then, these values were divided by 2 to have the average education level of fathers and mothers.

In the last column of *Table 3.1a* it can be seen that in Tanzania the average index for parents' education was 3.0, implying that on average, the parents had completed all of primary education. This is consistent with the results of SACMEQ II where the index was slightly higher (3.1). There were very small variations among the zones in the level of parents' education ranging from a mean of 3.4 in Eastern zone to a low of 2.8 in both Western and Central zones.

Further analysis of the level of parents' education is provided in *Table 3.*2and *Table 3.2a*. We can see that the most common level of a mother's education was all primary, this accounted for 62 percent of Standard 6 pupils in 2007 and represents an increase of 11 percentage points from 2000. Furthermore we can see that this increase is associated with a decrease in the percentage of pupils whose mothers had no schooling, down from 18 percent in 2000 to 12 percent in 2007. Reductions however are noted in the percentages of pupils whose mothers completed all secondary (12 percent to 4), some post-secondary (from 3 percent to 2) and completed university (from 4 percent to 1). This is probably, in part, due to the increased numbers of parents entering the system; most of whom have not had access to high levels of education themselves. It would seem that the pace at which parents (adults) are improving their education levels is slow. The Ministry (Adult Education Department, Institute of Adult Education) should be concerned about the pace, given that there have been several adult education programmes run nationwide for a long time now. It may be desirable for the Ministry to examine the programmes further in order to increase the pace at which parents are upgrading their education to higher levels.

Table 3.2: Cross-tabulation of percentages of father's and mother's education (2000)

Fathers' Education	Mothers' Education							
	No School	Some Primary	All Primary	Some Secondary	All Secondary	Some Post-Sec	Completed University	All Mothers
No School	62	15	18	3	1	0	0	100
Some Primary	20	20	55	1	2	1	0	100
All Primary	9	9	75	2	3	1	1	100
Some Secondary	5	2	55	9	14	8	7	100
All Secondary	3	4	46	1	36	3	8	100
Some Post-Sec	5	6	40	3	10	23	13	100
Completed University	1	4	21	3	22	9	40	100
All Fathers	18	11	51	0	12	3	4	100

Table 3.2a: Cross-tabulation of percentages of father's and mother's education (2007)

Fathers' Education	Mothers' Education							
	No School	Some Primary	All Primary	Some Secondary	All Secondary	Some Post-Sec	Completed University	All Mothers
No School	61	18	20	1	0	0	0	100
Some Primary	22	36	38	2	1	1	0	100
All Primary	8	11	77	2	1	0	0	100
Some Secondary	7	8	54	24	5	2	0	100
All Secondary	2	3	57	11	23	2	2	100
Some Post-Sec	2	5	37	22	11	22	1	100
Completed University	3	0	39	9	21	4	24	100
All Fathers	12	13	62	6	4	2	1	100

Policy Suggestion 3.4: *The Ministry (Adult Education Department and Institute of Adult Education) should examine the adult/continuing education programmes in order to increase the pace at which parents are upgrading their levels of education.*

Home possessions

What was the SES of pupils' homes in terms of possessions?

Pupils were asked to indicate the number of possessions that were in their homes from a list of 13 possessions. These were: a daily newspaper, a weekly or a monthly magazine, a radio, a TV set, a video cassette recorder (VCR), a cassette player, a telephone, a car, a motorcycle, a bicycle, piped water, electricity (mains, generator, solar), and a table to write on. Pupils were given a score of 0 for an item that they did not have, and a score of 1 for an item they had. The number of possessions owned in the home was summed for each pupil. The lowest score possible was zero

for a pupil who did not have any of the items and the highest was 13 if a pupil had all the items. The results have been presented in column 5 of *Table 3.1* and *Table 3.1a*.

In column 5 of *Table 3.1a* it can be seen that in Tanzania the average Standard 6 pupil came from a home with an average of 7.3 out of 13 possessions. This is an increase of 3.9 items, compared to 2000 where the average possessions were 3.4 items. There were notable variations among the zones in terms of mean possessions. Eastern zone had the highest mean of 9.4 items while Kagera had the lowest mean of 6.4 items. The possession gap between the zones was 3 items in 2007 compared to a gap of 1.6 items during 2000; which suggests that there was larger disparity in the socio-economic status of families among zones.

It is noteworthy that Kagera zone had consistently the lowest mean of possessions in the home over time (2.5 items in 2000 and 6.4 in 2007). By contrast, Southwest zone had the lowest mean in 2000 (2.5 items) but improved dramatically to a mean of 7.1 items in 2007. The figures for Eastern zone may be partly explained by the ever increasing economic/entrepreneurial activities in the zone especially in Dar es Salaam, the largest commercial city in the country. Families from this zone are therefore more advantaged over others, hence their higher possession power. Overall it can be seen that on average, pupils came from families of moderate social-economic status which is an improvement compared to 2000. Nevertheless the gap in SES of families widened among zones 2007.

Pupil place of living

Where did pupils live during the school week?

Ideally, the environment in which the child lives should facilitate the child's learning. The child needs material as well as other forms of support and encouragement from those he or she lives with. It is normal that parents, guardians, or institutions are regarded as the principal duty bearers in this regard. Pupils were asked to indicate where they stayed during the school week. The possible responses were: 'with parent'; 'with relatives', 'in a hostel' and 'by myself'.

Table 3.3: Place where pupils stay during the school week (2000)

	Place where pupils stay during the school week							
	Parent/Guardian		Relatives/Family		Hostel/Board		Self/Children	
	%	SE	%	SE	%	SE	%	SE
Central	85.0	3.57	1.7	1.02	10.7	3.22	2.5	1.03
Eastern	88.3	2.94	4.1	2.34	4.9	2.68	2.7	1.40
Kagera	87.9	1.73	4.1	1.44	5.6	1.39	2.4	1.29
Kilimanjaro	87.7	3.48	5.7	1.89	3.2	1.32	3.3	1.16
Mwanza	91.5	3.23	3.5	1.14	2.5	1.30	2.5	1.54
Northeast	91.3	2.25	2.1	0.94	3.8	1.51	2.9	2.18
Northern	90.4	2.23	4.0	1.09	3.7	1.09	2.0	1.02
Southern Highlands	89.9	2.09	2.4	0.89	4.2	1.57	3.5	1.52
Southern	93.0	1.55	3.0	1.19	3.4	1.39	0.7	0.67
Southwest	85.1	5.35	1.7	0.73	10.7	3.99	2.5	1.50
Western	84.3	3.98	2.2	0.91	9.2	3.05	4.3	1.22
Tanzania	**88.8**	**0.91**	**3.1**	**0.40**	**5.4**	**0.65**	**2.8**	**0.44**

Table 3.3a: Place where pupils stay during the school week (2007)

	Home With Family		Home With Other People		Hostel/ Boarding		Orphanage		Others	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	92.4	2.29	3.3	0.89	1.0	0.65	1.0	0.66	2.3	1.55
Eastern	96.3	1.27	2.7	0.94	0.5	0.55			0.5	0.38
Kagera	94.7	1.25	4.2	1.25	0.4	0.27	0.2	0.24	0.5	0.48
Kilimanjaro	97.0	0.88	1.9	0.68	0.7	0.49	0.3	0.29	0.1	0.08
Mwanza	91.0	2.32	5.1	1.91	2.3	1.07	0.2	0.26	1.4	0.59
Northeast	96.7	0.75	2.6	0.67					0.8	0.42
Northern	94.5	0.97	3.3	1.00	0.5	0.45	0.5	0.28	1.3	0.61
Southern Highlands	93.4	1.57	4.4	1.22	1.4	0.67	0.2	0.17	0.6	0.34
Southern	94.0	1.12	4.8	0.98	0.4	0.41			0.8	0.49
Southwest	92.0	1.82	4.4	1.58	1.3	0.67	0.4	0.37	1.9	1.09
Western	89.1	2.51	3.8	1.31	2.5	1.17	0.3	0.32	4.3	2.03
Tanzania	**93.5**	**0.53**	**3.7**	**0.37**	**1.1**	**0.22**	**0.3**	**0.09**	**1.4**	**0.31**

In *Table 3.3a* it can be seen that the majority of Standard 6 pupils (93.5 percent) stayed at home with their family (parents/guardians), which is much higher than those who stated that they stayed at home with other people (3.7 percent). A tiny minority stayed in hostels (1.1 percent),

orphanages (0.3 percent) and in other places (1.4 percent). Among the zones there were notable variations in the percent of pupils who stayed at home with their family (parent/guardian) from a high of 97 percent in Kilimanjaro to a low of 89.1 percent in Western zone. Western zone had consistently the lowest percentage of Standard 6 pupils who stayed with their parents/guardian over time relative to other zones.

Slightly more pupils tended to stay at home with their family in 2007 than in 2000, 93.5 percent compared to 88.8 percent. The percentages of pupils who stayed in hostel/boarding or with self/children decreased slightly overtime.

Pupil source of lighting

What was the level of lighting in pupils' homes?

Lighting in the home is among the factors that enhance the pupil's opportunity for extended learning after school. The type of lighting in pupils' homes can reflect the SES of the pupils' homes, particularly where a range of lighting sources, like the most expensive electrical lighting to the cheapest and crudest one like kerosene burner, is available. Tanzania is mainly rural, with about 80 percent of its population living in the rural setting. Unlike the urban areas, in rural areas there is less accessibility to social amenities like electricity and piped water. It is expected that pupils in rural homes would have much less access to electricity than those in the urban areas. It was important to establish the types of lighting in the home environment of the pupils as an important attribute to the personal characteristics of the pupil.

In 2007 about three quarters (79.2 percent) of Standard 6 pupils came from homes that used candle/oil lamps for lighting. Much lower percentages of them came from homes that used electric lighting (10.7 percent) compared to 20.6 percent in 2000. Smaller percentages of pupils were in homes which used gas (2.1 percent) or had no light all (8.0 percent). Disparities were noted among the zones in the use of the 4 categories of lighting in 2007 and in some zones the disparities were considerable. Southern zone had a particularly high percentage of Standard 6 pupils (86.8 percent) who used candle/oil lamps whereas Eastern zone had the lowest percentage of 55.4 percent pupils who used candle/oil for lighting. As expected Eastern zone had more pupils (37.4 percent) who came from homes that used electric lighting than any other zones.

Table 3.4: Percentages and sampling errors for the lighting in pupils' homes (2000)

	No light		Candle/Oil Lamp		Gas lamp		Electric lighting	
	%	SE	%	SE	%	SE	%	SE
Central	7.7	3.30	80.5	5.59	1.3	0.72	10.6	4.93
Eastern	3.7	1.83	39.8	8.61	0.6	0.56	55.9	9.28
Kagera	17.0	4.81	76.3	5.29	0.9	0.61	5.8	3.02
Kilimanjaro	0.9	0.66	78.1	3.62	0.4	0.35	20.6	3.61
Mwanza	7.2	3.72	82.3	6.72	0.5	0.48	10.1	5.82
Northeast	0.2	0.18	72.2	7.69	0.8	0.57	26.8	7.85
Northern	2.9	0.98	70.7	9.51	2.6	1.23	23.8	10.05
S. Highlands	14.8	5.14	59.4	7.25	2.4	0.91	23.3	7.44
Southern	3.6	2.38	94.2	3.43	0.8	0.58	1.4	0.97
Southwest	14.6	4.09	81.0	4.57	2.2	1.19	2.2	1.09
Western	22.7	5.34	57.4	7.84	1.6	0.74	18.3	10.40
Tanzania	**8.6**	**1.15**	**69.4**	**2.51**	**1.4**	**0.28**	**20.6**	**2.53**

Table 3.4a: Percentages and sampling errors for the lighting in pupils' homes (2007)

	No light		Candle/Oil Lamp		Gas lamp		Electric lighting	
	%	SE	%	SE	%	SE	%	SE
Central	18.4	6.16	73.9	6.72	2.7	1.01	4.9	3.07
Eastern	5.8	1.61	55.4	6.91	1.4	0.63	37.4	6.40
Kagera	4.7	1.69	85.4	3.83	1.5	1.17	8.4	3.77
Kilimanjaro	2.1	0.92	81.7	3.69	1.8	0.68	14.5	3.91
Mwanza	10.6	3.11	77.7	5.28	3.2	1.29	8.4	4.24
Northeast	7.6	3.49	82.0	5.47	0.8	0.56	9.6	4.37
Northern	6.7	1.84	83.4	2.85	1.8	1.34	8.1	2.46
S. Highlands	7.2	1.62	81.1	4.62	3.0	1.10	8.6	3.67
Southern	4.7	0.83	86.8	5.08	0.2	0.24	8.2	4.57
Southwest	5.9	1.28	83.4	5.56	2.7	0.86	8.1	4.83
Western	12.1	3.07	76.6	5.38	3.2	1.52	8.1	4.46
Tanzania	**8.0**	**0.83**	**79.2**	**1.60**	**2.1**	**0.35**	**10.7**	**1.32**

There has been significant improvement in the lighting of homes between 2000 and 2007 using candle/oil lamps but there has been a disturbing decline, of 9.9 percentage points, in the

percentage of homes that use electric lighting. Central zone had a disturbingly low percentage of 4.9 percent of pupils who came from homes that used electric lighting. The figures for electric lighting may be in part explained by the increase or a shift of some users to the less expensive lighting sources e.g. candle, lamp and gas. Another reason may be the steady increase in electricity charges over time, limiting its use especially for low SES families. Given the role played by electric source (multiple applications) in the homes it is desirable that more efforts are made by the Government to increase the numbers of families using electricity for lighting to levels beyond those reached in 2000.

It is obvious that the average Standard 6 pupils came from families that used oil lamp for lighting. There has been a shift, over time, where more families used less electricity for lighting which is unfortunate as it implied that more pupils were disadvantaged by not having access to the apparently more reliable source of lighting.

Structure of pupils' homes

What was the structure of pupils' homes?

The structure of pupils' homes is yet another variable that was used to measure the wealth of the home. It is expected that a child would attend to his homework and other school work better if he or she had good shelter. For instance, it is clear that a child who stays in a home that is well lit at night has an environment which motivates him or her to do homework. The child also needs to be protected against threats to his/her security, and a good home contributes to this. Therefore the quality of the home was considered to be an important home characteristic.

Pupils were asked to indicate the structure of their homes through three variables: the floors, walls, and roofs. The responses for floors included whether floors were made of earth, clay, canvas (recoded as not sealed), wooden planks (recorded as wood), cement or carpet/tiles. The responses for walls included whether they were made of cardboard/plastic sheeting/canvas (recoded as not sealed), or were made of stone, metal/asbestos sheets or wood (recoded as sheets/wood, or cut stone/bricks. The responses for roofs included whether they were made of cardboard/plastic sheeting/canvas, grass thatch and mud (all recoded as not sealed), cement, tiles or metal/asbestos.

Table 3.5: Percentages and sampling errors for structure of walls in pupils' homes (2000)

	Not sealed		Stones		Sheets/Wood		Cut stone/Bricks	
	%	SE	%	SE	%	SE	%	SE
Central	13.1	3.97	43.7	6.83	12.1	2.75	31.1	6.69
Eastern	13.3	6.14	39.4	6.83	13.0	2.89	34.3	7.45
Kagera	23.8	4.33	30.4	2.68	13.2	3.16	32.6	4.01
Kilimanjaro	5.0	1.88	29.2	7.18	16.5	3.59	49.4	6.59
Mwanza	15.8	4.29	48.6	6.10	11.7	3.05	23.9	4.76
Northeast	15.4	3.95	23.4	4.05	16.5	3.88	44.7	6.63
Northern	15.3	3.86	27.9	4.91	10.5	2.78	46.3	5.99
Southern Highlands	5.4	2.44	43.1	5.73	6.3	1.64	45.1	6.68
Southern	23.9	8.61	20.7	6.79	13.2	4.99	42.1	17.10
Southwest	17.9	3.42	28.5	5.48	7.6	1.64	45.9	6.52
Western	15.6	4.15	39.0	5.17	13.4	2.91	32.0	6.14
Tanzania	**13.8**	**1.37**	**35.0**	**1.88**	**11.7**	**0.93**	**39.5**	**2.30**

Table 3.5a: Percentages and sampling errors for structure of walls in pupils' homes (2007)

	Not sealed		Stones		Sheets/Wood		Cut stone/Bricks	
	%	SE	%	SE	%	SE	%	SE
Central	18.4	3.18	55.8	5.12	4.2	1.09	21.6	5.56
Eastern	13.4	7.50	30.7	4.07	4.3	1.31	51.6	7.07
Kagera	24.9	7.30	48.6	4.73	2.0	0.84	24.5	5.25
Kilimanjaro	19.4	8.42	27.3	6.30	29.8	9.07	23.5	7.43
Mwanza	17.2	3.89	50.0	3.74	4.3	0.72	28.6	5.36
Northeast	25.4	4.40	50.2	4.26	4.5	1.56	19.9	5.42
Northern	29.1	4.96	36.3	4.15	4.6	1.85	30.0	4.05
Southern Highlands	10.0	3.43	49.9	6.42	4.6	1.11	35.6	7.81
Southern	21.3	5.73	46.8	6.19	1.6	0.80	30.2	5.36
Southwest	11.0	3.48	49.7	7.27	2.0	0.79	37.3	7.56
Western	17.1	3.64	50.5	5.47	5.3	1.63	27.0	5.56
Tanzania	**18.8**	**1.51**	**45.7**	**1.72**	**5.2**	**0.63**	**30.4**	**1.98**

In Tanzania 45.7 percent of Standard 6 pupils came from homes whose walls were made of stones and 30.4 percent were from homes whose walls were made of cut stone/bricks. Of the

remaining pupils; 18.8 percent came from homes whose walls were not sealed and about 5 percent were from homes whose walls were made of sheets/wood.

In the dominant category of stones, the values among zones varied considerably, from a high of 55.8 percent in Central zone to a low of 27.3 percent in Kilimanjaro zone. In the second most popular category (cut stone/bricks) the variation across zones ranged from 51.6 percent in Eastern zone to a low of 19.9 percent in Northeast zone. Northern zone had relatively higher percentages of pupils' homes with walls that were not sealed (29.1%) compared to pupils' homes in the rest of the zones. Northeast and Kagera also had high percentages of the pupils from homes which were not sealed.

The quality of walls for Standard 6 pupils' homes deteriorated between 2000 and 2007. In the category of not sealed walls the percentage of pupils increased from 13.8 in 2000 to 18.8 percent in 2007. The two most common types of walls in pupils' homes in 2000 were cut stone/bricks, (39.5 percent) and stones (35 percent). This pattern was repeated in 2007 but in the reverse order where the cut stone/ bricks category was higher with 45.7 percent and stone accounting for 30.4 percent.

It can be seen from *Table 3.6a* that in 2007 the majority of Standard 6 pupils come from homes whose floors were not sealed (56.9 percent) this was followed closely by cement floors (40.2 percent). Among the zones there were notable variations in the two predominant types of floors. In the not sealed category, the variations ranged from a high of 68.5 percent in Central zone to a low of 22.4 percent in Eastern zone. All zones except Eastern zone had more than 50 percent of Standard 6 pupils who came from homes that had floors which were not sealed. In the cement category the variations ranged from a high of 75.2 percent in Eastern zone to a low of 26.3 percent in the Central zone. The figures for Eastern and Central zones are not surprising and can be largely explained by the fact that families who live in Eastern zone are mainly in urban settings and thus are less likely to live in houses with earth or clay floors. The opposite is true for Central zone where in addition to being very rural, there is a culture of constructing buildings using mud, grass and reeds.

Table 3.6a: Percentages and sampling errors for structure of floors in pupils' homes (2000)

	Not sealed		Wood		Cement		Carpet/Tiles	
	%	SE	%	SE	%	SE	%	SE
Central	55.6	6.87	1.7	1.68	41.0	6.88	1.7	0.76
Eastern	19.3	6.81	0.4	0.45	77.2	6.97	3.1	1.42
Kagera	49.7	5.74	3.7	1.83	43.4	4.72	3.2	1.33
Kilimanjaro	24.4	4.81	1.6	0.87	72.4	4.61	1.5	0.84
Mwanza	54.0	11.03	0.7	0.73	41.8	10.72	3.4	1.40
Northeast	39.2	6.50	0.7	0.44	55.6	7.17	4.5	2.05
Northern	44.4	7.77	0.7	0.54	52.4	7.99	2.4	1.05
S. Highlands	44.4	10.57	1.2	0.68	50.8	11.41	3.5	1.52
Southern	68.2	4.77	5.4	3.62	24.8	4.84	1.6	1.09
Southwest	46.3	8.34	2.6	1.35	47.7	7.79	3.4	1.36
Western	38.1	8.09	3.0	1.08	53.9	8.23	5.0	1.83
Tanzania	**43.2**	**2.66**	**1.7**	**0.36**	**52.0**	**2.75**	**3.1**	**0.45**

Table 3.6b: Percentages and sampling errors for structure of floors in pupils' homes (2007)

	Not sealed		Wood		Cement		Carpet/Tiles	
	%	SE	%	SE	%	SE	%	SE
Central	68.5	4.65	0.9	0.74	26.3	5.35	4.3	1.95
Eastern	22.4	7.48			75.2	7.25	2.4	0.93
Kagera	59.4	6.47	0.6	0.59	38.3	6.27	1.7	0.92
Kilimanjaro	51.4	8.02	0.3	0.26	45.6	8.00	2.6	1.00
Mwanza	51.3	4.79	0.2	0.24	45.6	5.23	2.9	1.27
Northeast	62.2	5.93			36.3	5.95	1.5	0.74
Northern	59.3	4.71	2.2	0.85	37.4	4.27	1.1	0.45
Southern Highlands	58.5	6.83	0.6	0.31	39.5	6.80	1.4	0.59
Southern	62.1	6.42	1.2	0.76	33.9	7.20	2.7	0.84
Southwest	56.5	6.82	1.6	1.28	38.4	7.11	3.5	1.68
Western	63.9	5.74	0.9	0.46	33.9	5.75	1.4	0.75
Tanzania	**56.9**	**1.95**	**0.8**	**0.19**	**40.2**	**1.97**	**2.1**	**0.30**

There have been unpleasant results in terms of progress from SACMEQ II to SACMEQ III. The percentages of those in homes with unsealed floors rose from 43.2 percent in 2000 to 56.9 percent in 2007. This decline in quality is also illustrated by the decline in the percentage of

students who come from homes with cement floors, from 52 percent in 2000 down to 40.2 percent in 2007.

Table 3.7a: Percentages and sampling errors for structure of roofs in pupils' homes (2000)

	Not sealed		Metal/Asbestos		Cement concrete		Tiles	
	%	SE	%	SE	%	SE	%	SE
Central	39.3	7.15	55.3	6.70	4.5	1.72	0.8	0.54
Eastern	14.3	7.63	71.6	7.14	7.1	2.12	7.0	2.57
Kagera	26.5	5.36	58.9	5.12	13.6	4.16	1.1	0.57
Kilimanjaro	4.5	2.63	89.2	3.32	4.1	1.62	2.2	1.08
Mwanza	41.9	11.24	49.3	9.94	8.4	2.46	0.4	0.45
Northeast	27.5	5.63	63.4	5.37	5.3	1.84	3.9	1.95
Northern	27.8	5.52	64.8	4.84	3.6	0.74	3.8	1.64
Southern Highlands	23.2	4.61	72.4	4.14	3.0	0.96	1.4	0.85
Southern	47.5	6.12	47.8	6.05	1.3	1.34	3.4	2.69
Southwest	33.2	8.47	56.9	7.85	7.9	2.27	2.0	1.09
Western	33.4	6.68	54.4	6.57	9.4	2.60	2.8	1.37
Tanzania	**28.5**	**2.10**	**63.2**	**1.95**	**5.6**	**0.54**	**2.8**	**0.47**

Table 3.7b: Percentages and sampling errors for structure of roofs in pupils' homes (2007)

	Not sealed		Metal/Asbestos		Cement concrete		Tiles	
	%	SE	%	SE	%	SE	%	SE
Central	48.2	7.72	49.1	7.58	1.7	0.74	1.1	0.60
Eastern	11.4	5.33	83.9	5.05	2.5	0.65	2.3	1.00
Kagera	29.1	6.10	65.7	6.21	2.9	1.01	2.3	1.01
Kilimanjaro	3.9	1.69	94.5	2.12	1.2	0.54	0.4	0.33
Mwanza	31.4	5.53	64.6	5.48	3.5	1.42	0.6	0.33
Northeast	37.2	5.84	59.1	5.91	2.3	0.92	1.3	0.55
Northern	36.2	6.16	61.3	5.77	2.0	0.70	0.5	0.40
Southern Highlands	32.2	5.68	62.0	5.44	2.9	0.86	2.9	1.49
Southern	43.6	6.20	55.7	6.19	0.6	0.42	0.2	0.16
Southwest	34.3	5.75	59.3	5.35	2.5	1.03	4.0	1.89
Western	50.9	6.94	46.0	6.53	3.2	1.29		
Tanzania	**34.6**	**2.01**	**61.6**	**1.93**	**2.4**	**0.29**	**1.4**	**0.30**

In 2007 61.6 percent of Standard 6 pupils came from homes with metal/asbestos roofing while 34.6 percent of them were from homes with roofs that were not sealed. Much lower percentages of Standard 6 pupils were from houses roofed with cement concrete (2.4 percent) and tiles (1.4 percent). The results are quite similar to those of 2000 except that in 2007 the figures for cement concrete and tiles decreased slightly and there was a similar increase in the unsealed roofs.

The structure of roofs in pupils' homes varied considerably across the zones in the two most common roof structures with Kilimanjaro zone having the highest percentage of homes with metal/asbestos roofs (94.5 percent) while Western had the least percentage (46.0 percent). On the other hand, in terms of not sealed roofs, approximately half of the Standard 6 pupils in Western zone came from homes that were not sealed while the figure in Kilimanjaro was only 3.9 percent.

It is discouraging to note that there was increase in the percentage of pupils from homes whose roofs were not sealed between 2000 and 2007. The percentage of pupils whose homes were not sealed increased by 6.1 percentage points from 28.5 percent in 2000 to 34.6 percent in 2007. Among the zones the variations depicted a mixed picture as in 7 out of the 11 zones there were increases in the percentages of not sealed homes. In the dominant type of roof structure of metal/asbestos there was a slight decline from 2000, (from 63.2 percent to 61.6 percent in 2007). However the difference must be considered in relation to the sampling error and was much smaller compared to the difference in the unsealed roofs.

The overall results appear to suggest that the majority of Standard 6 pupils came from modest houses with stone walls, not sealed floors and metal/asbestos roofs. However, it is discouraging that about one third of the pupils came from homes whose roofs were not sealed, more than half of them came from homes with floors that were not sealed and the average Standard 6 pupils' home environment deteriorated overtime. However these declining results of quality of houses must be considered in relation to the number of pupils in primary school that almost doubled in the period 2000-2007.

3.4 School level factors experienced by pupils

General Policy Concern 3.2

What were the school context factors experienced by Standard 6 pupils (such as location, absenteeism (regularity and reasons), Standard repetition, and homework (frequency, amount, correction, and family involvement)) that might impact upon teaching/learning and the general functioning of schools?

School location

What was the location of the school?

In Tanzania, government policy is that there must be a primary school in every village and a secondary school in every ward. Local communities in collaboration with local government authorities build schools according to the needs of the community. This policy decision was made to enforce the policy on provision of education to all children as a basic human right and to widen access to secondary education for the population in response to potential demand. The government also strives to provide healthcare, water, communication and all-weather roads, among other social amenities, to its people.

The distance that pupils walk or travel to in order to access basic amenities such as a health centre, a public library, a tarmac road, and a bookshop, is an important contributing factor to a pupil-friendly learning environment. When some of these amenities (e.g. library and bookshop) are within easy reach they provide the pupil with additional sources of reading material besides the school and the home. They can also ascertain and support the physical well-being of the pupil, as is the case with a health centre. If there are good roads, schools become more easily accessed and therefore are supported by the centre or district offices. Schools that are more easily accessible also attract and retain good teachers. In addition, the presence of a secondary school in the vicinity of primary schools motivates primary school pupils to work very hard in order to secure a smooth transition to secondary education. However, the availability of such amenities varies between the rural and the urban settings, and often rural areas have less available amenities, making pupils in the rural settings relatively disadvantaged. In this study it was thus considered important to collect information on the location of schools with respect to their rural or urban location and their proximity to various amenities.

Head teachers were asked to indicate where their schools were located using a 4-point scale as follows: '1' = isolated; '2' = rural; '3' = semi-urban; '4' = urban. The variable was re-coded to indicate "rural" and "urban" location of schools. The results of their responses have been presented in *Table 3.8* and *Table 3.8a.*

Table 3.8: School location (2000)

	Urban		Distance (Km)	
	%	SE	Mean	SE
Central	21.1	11.19	15.2	3.60
Eastern	70.1	12.05	14.7	6.57
Kagera	14.6	9.90	11.2	1.96
Kilimanjaro	6.4	6.42	12.0	1.40
Mwanza	23.5	12.71	14.8	3.80
Northeast	21.3	11.52	11.2	2.85
Northern	24.7	11.75	20.2	5.29
Southern Highlands	46.3	14.29	15.8	3.74
Southern	5.7	5.90	19.9	7.62
Southwest	12.5	9.08	13.9	4.82
Western	28.7	12.46	19.0	5.46
Tanzania	**28.6**	**4.04**	**15.9**	**1.49**

Table 3.8a: School location (2007)

	Urban		Distance (km)	
	%	SE	Mean	SE
Central	14.6	8.99	37.7	7.75
Eastern	72.5	11.54	11.0	4.15
Kagera	19.6	9.80	21.1	8.26
Kilimanjaro	9.0	7.76	10.8	2.99
Mwanza	19.3	9.78	28.2	7.93
Northeast	27.9	10.90	42.7	16.78
Northern	25.4	9.28	20.0	5.17
Southern Highlands	25.4	10.41	25.7	5.26
Southern	62.0	13.86	14.5	5.33
Southwest	23.4	12.05	46.8	15.79
Western	37.4	12.36	19.8	2.93
Tanzania	**31.7**	**3.67**	**25.4**	**2.67**

In *Table 3.8a* it can be seen that 31.7 percent of Standard 6 pupils were attending schools that were in urban areas and by implication 68.3 percent were attending schools that were in rural areas in 2007. Large variations were noted across the zones in the percentages of school location. As expected, Eastern zone had the highest percentage average of schools located in urban areas (72.5 percent). In contrast, Kilimanjaro and Central zones had the lowest percentages of schools located in urban areas (9.0 percent and 14.6 percent) respectively. The results for Southern Highlands and Southern zones changed dramatically between 2000 and 2007, with less schools in Southern Highlands located in urban settings in 2007 (25.4 percent) than in 2000 (46.3 percent). In Southern zone there was a huge increase in the percentage of schools in urban settings: from 5.7 percent in 2000 to 62 percent in 2007. However, the results should be interpreted with caution since their SEs are very large. All zones except two had schools that tended to be in rural settings. This result reflects a slight increase (approximately 2.0 percentage points) in pupils attending schools that were in urban settings when compared to the result for 2000.

Head teachers were asked to indicate the distance from the school to nearest of each of the following amenities: a health centre, public library, a tarmac road, a bookshop, a secondary school and a shopping centre. Mean distance was established by adding each of the distances and dividing by 5. In Tanzania the mean distance travelled by pupils to the amenities was 25.4 kilometres in 2007. This implies that Standard 6 pupils covered and additional 18.4 kilometres to the amenities compared to the distance they were expected to walk to and from school, i.e. the Ministry norm of 7 kilometres.

There were large variations in mean distance travelled by pupils to the amenities across the zones, with the highest mean of 46.8 kilometres in Southwest zone followed closely by Northeast Zone (42.7 kilometres). On the other hand, Kilimanjaro had the lowest mean distance of 10.8 kilometres travelled by pupils to the amenities. It is noteworthy that none of the mean distances travelled by pupils in each of the zones were within the Ministry norm. These results reflect a mixed picture as was the case in 2000. The expectation that schools in the urban setting would be closer to the amenities and vice versa was not always supported by the data. For instance, although Kilimanjaro was among the most rural zones, its schools were as close to the amenities (10.8 kilometres), as were schools of Eastern Zone (11.0 kilometres); which is largely urban.

The overall result on distance travelled by pupils to the amenities in urban school location increased from a mean of 15.9 kilometres in 2000 to a mean of 25.4 kilometres in 2007. The distances that pupils travelled to amenities in Southwest and Northeast zones were disturbingly long. It is desirable that the future plans on supplying these amenities prioritize these zones.

Policy Suggestion 3.5: *The Ministry, in collaboration with PMORALG, local authorities, and the communities in Southern Highlands, Northern and Western Zones, should establish health centres/clinics, public libraries, book shops, and secondary schools in order to reduce average walking distances of pupils accessing these facilities and to improve pupils' learning motivation and their well-being.*

Absenteeism

What were the rates of absenteeism and the reasons behind them?

Absenteeism can hinder learning as it creates difficulty for the pupil to follow the learning tasks that are regularly developed with days of schooling. High absenteeism can result in drop out and can clause grade repetition (Brophy, 2006). Pupils were asked to indicate how many days they had been absent during the month before the study was carried out. The results have been presented in *Table 3.9* and *Table 3.9a.*

The national mean for pupils' absenteeism in Tanzania was 2.1 days in 2007. The mean of absenteeism was also 2.1 days in 2000 which reflects no change in pupil absenteeism. Southwest zone had the highest mean of 3.0 days while the Kilimanjaro zone had the lowest mean of 1.2 days. Given that in Tanzanian pupils attend school for 22 days in a month and 194 days in a year the average Standard 6 pupil was absent for 18.52 days per year. These results are cumulative and are not insignificant as they suggest a loss of about one school month (approximately 19 out of 22 school days). Pupils were further requested to state the reasons why they were absent, reasons permitted included: illness, family reasons, fees, work, funerals and other.

Table 3.9: Percentages, means, and sampling errors for the pupil language, days absent, and repetition (2000)

	Speak Kiswahili		Days absent		Repetition	
	%	SE	Mean	SE	%	SE
Central	93.5	1.55	2.5	0.36	14.5	3.72
Eastern	97.5	1.03	2.7	1.07	12.9	6.51
Kagera	85.2	3.56	2.9	0.64	33.9	6.62
Kilimanjaro	95.3	1.04	1.4	0.35	20.2	5.47
Mwanza	85.8	4.08	3.2	0.61	36.8	8.78
Northeast	94.0	3.50	2.6	0.61	5.5	1.62
Northern	86.8	2.78	2.3	0.47	22.7	6.04
Southern Highlands	92.4	3.85	0.9	0.20	28.2	4.57
Southern	86.4	7.69	2.7	0.73	20.5	5.49
Southwest	87.9	4.50	2.3	0.50	36.7	9.79
Western	81.6	5.04	1.6	0.38	31.6	5.49
Tanzania	**89.9**	**1.19**	**2.1**	**0.17**	**23.3**	**1.81**

Table 3.9a: Percentages, means, and sampling errors for the pupil language, days absent, and repetition (2007)

	Speak Kiswahili		Days absent		Repetition	
	%	SE	Mean	SE	%	SE
Central	87.6	3.74	1.8	0.28	14.4	2.78
Eastern	99.1	0.62	1.9	0.35	9.1	1.47
Kagera	95.3	1.84	2.4	0.38	45.4	3.60
Kilimanjaro	86.4	7.26	1.2	0.24	7.8	1.77
Mwanza	93.3	1.72	2.5	0.56	16.2	3.02
Northeast	94.2	2.50	2.5	0.35	30.8	4.00
Northern	92.5	2.19	1.9	0.25	13.7	2.53
Southern Highlands	91.9	4.42	1.7	0.51	25.9	4.73
Southern	92.3	1.80	1.7	0.24	21.6	4.13
Southwest	88.2	5.51	3.0	0.51	27.1	3.20
Western	92.1	2.85	2.6	0.27	12.6	3.54
Tanzania	**92.3**	**1.07**	**2.1**	**0.12**	**20.4**	**1.15**

Table 3.10: Percentages and sampling errors for reasons of pupils' absenteeism (2000)

	Illness		Family reasons		Fees		Work	
	%	SE	%	SE	%	SE	%	SE
Central	42.0	5.58	7.6	2.08	0.0	0.00	5.8	2.05
Eastern	34.1	6.85	6.5	2.16	4.1	2.20	1.6	0.79
Kagera	45.9	5.12	16.3	4.46	4.1	1.54	5.5	2.31
Kilimanjaro	27.9	4.69	9.5	3.23	2.3	1.61	2.2	1.06
Mwanza	39.6	5.19	12.6	2.03	2.7	1.06	9.1	2.76
Northeast	41.0	5.41	9.6	3.10	1.2	0.83	5.1	1.59
Northern	37.5	5.59	8.4	2.02	1.6	1.08	7.3	2.53
Southern Highlands	15.3	1.72	5.1	1.70	0.0	0.00	2.6	1.05
Southern	37.6	6.65	9.8	3.68	2.4	1.92	5.0	2.24
Southwest	31.2	6.44	12.3	3.94	2.2	0.87	6.0	1.99
Western	27.5	5.82	13.9	4.06	1.6	0.74	6.3	2.20
Tanzania	**32.7**	**1.67**	**9.3**	**0.83**	**1.7**	**0.35**	**5.1**	**0.62**

Table 3.10a: Percentages and sampling errors for reasons of pupils' absenteeism (2007)

	Was ill		**Family member ill**		**Visit Doctor**		**Care for Brothers & Sisters**		**Go To Funeral**		**Other Reason**	
	%	**SE**	**%**	**SE**	**%**	**SE**	**%**	**SE**	**%**	**SE**	**%**	**SE**
Central	83.3	4.16	16.0	4.68	32.3	7.56	6.0	3.11	9.5	3.01	15.0	3.20
Eastern	72.0	12.46	11.8	3.76	22.4	8.20	4.4	2.33	11.7	3.98	27.5	13.38
Kagera	82.0	4.65	15.3	3.34	27.3	6.63	2.7	1.75	8.2	2.32	16.7	3.89
Kilimanjaro	84.6	4.65	6.5	1.60	17.3	4.34	0.6	0.45	5.6	2.29	17.5	4.70
Mwanza	86.6	5.34	16.4	7.33	21.0	7.83	8.4	3.53	8.4	2.99	10.2	3.27
Northeast	86.2	3.95	14.0	3.83	26.5	4.75	3.2	1.27	15.4	3.00	18.9	5.39
Northern	77.4	4.62	10.0	1.98	19.7	3.83	3.5	1.36	14.1	3.23	19.5	5.60
Southern Highlands	62.9	18.87	6.9	3.20	29.3	9.00	2.8	1.38	10.9	2.78	31.3	19.18
Southern	80.3	3.67	10.6	3.10	16.1	8.01	11.1	6.27	12.1	3.45	23.7	4.47
Southwest	72.7	7.05	16.7	5.38	19.0	5.21	6.8	3.29	10.8	2.94	29.8	7.75
Western	84.9	2.60	12.7	2.69	19.2	5.41	8.0	3.29	9.6	3.42	13.5	3.83
Tanzania	**79.1**	**3.03**	**12.5**	**1.25**	**22.8**	**1.99**	**5.4**	**0.93**	**11.0**	**1.02**	**20.2**	**3.06**

The overall results in *Table 3.10a* indicate that in 2007 about 79 percent of Standard 6 pupils were absent due to illness. 12.5 percent of pupils who were not in school because a family member was ill. In 2000 the percentages of Standard 6 pupils absent due to illness and ill family members were 32.7 percent and 9.3 percent respectively. The percentage of pupils in 2007 who were absent due to illness more than doubled while that caused by illness of a family member increased slightly. Another relatively salient reason which affected pupil attendance in 2007 were visiting a doctor (22.8 percent). The least mentioned reason was care for brothers and sisters at 5.4 percent.

There existed variations among the zones for each of the reasons for pupil absenteeism. Variations for pupils being ill as the cause for pupil absenteeism ranged from a high of 86.6 percent in Mwanza to a low of 62.9 in Southern Highlands. Variations for illness of a family member as the cause for pupil absenteeism ranged from a high of 16.7 percent in Southwest to a low of 6.5 percent in Kilimanjaro zone. Other reasons which affected pupil attendance in 2007 and the zones in which they were particularly were: visiting a doctor (Central, 32.3 percent), care for brothers and sisters (Southern, 11.1 percent), going to a funeral (Northeast, 15.4 percent) and other reasons (Southern Highlands, 31.3%). It is clear from the results that illness was consistently the main reason for pupil absenteeism in 2000 and in 2007; nevertheless in 2007 the proportion of pupils who were affected by illness was much higher which implies that the health of Standard 6 pupils was worse in 2007.

Overall, absenteeism in Tanzania primary schools due to illness was worrying. It is urgent that local governments, school heads and school committees design interventions that will minimize illness with special emphasis on the zones where it were particularly high.

Policy Suggestion 3.6*: The Ministry in collaboration with PMORALG (Departments of Health and Community Development) should design interventions that will minimize pupils' illness in primary schools with special emphasis on the zones where illness was particularly high. In addition the School Health Education Program and mechanisms used for making schools child friendly under the "Child Friendly Schools" (CFS) initiative should be explored to improve school hygiene.*

Grade repetition

What percentage of pupils had repeated a grade?

The Ministry policy on repetition is that, under normal circumstances, a pupil can repeat a class if he or she is seriously underachieving or has been unable to attend lessons for a long period due to illness or other genuine causes and it is felt by teachers and parents, or by other authorities, that the pupil will not to be able to follow instructions in the next year of study.. Pupils are allowed to repeat only twice in their primary school cycle. The highest repetition rates tend to occur at Standard 4 level where pupils sit the national Standard 4 examination and those that do not reach the required pass mark have to repeat the class. In this study pupils were asked to indicate if they had repeated class at least once, and the analysis of their responses has also been presented in *Table 3.9* and *Table 3.9a*.

In Tanzania 20.4 percent of Standard 6 pupils in 2007 had repeated at least once. There were small variations across the zones with regard to class repetition. Kagera zone had, by far, the highest average of pupils' repetition of about 45.4 percent while Kilimanjaro zone had the lowest repetition mean of 7.8 percent. The national repetition rates dropped slightly between 2000 and 2007 from 23.3 percent in year 2000 to 20.4 percent in 2007. In general the repetition rates appear to have fallen across the zones, however two zones displayed a very large increase in repetition rates. In Kagera zone the repetition rate went from 33.9 percent in 2000 to 45.4 percent in 2007, most worryingly of all is Northeast zones increase from just 5.5 percent in 2000 to 30.8 percent in 2007.

Homework given and corrected

How frequently was homework assigned and corrected?

Homework is associated with increased pupil achievement. It is important that it forms part of the basic learning experience of pupils and that it increases as pupils ascend the school system. The Ministry requires teachers to give pupils homework and correct it regularly since homework is among the basic means of tracking pupils' levels of mastery in the skills taught. An assessment of the frequency of homework assigned to pupils was made by asking pupils how often they received homework. Their responses ranged from no homework, one or two times per month, two

times per week and most days. The results from their responses have been presented in *Table 3.11* and *Table 3.11a.*

Table 3.11: Percentages and sampling errors for the frequency of homework given most days (2000)

	Reading homework		Mathematics homework		Mathematics or English homework	
	%	SE	%	SE	%	SE
Central	54.8	6.30	47.8	5.62	64.7	6.3
Eastern	54.9	4.44	52.2	5.11	67.9	3.6
Kagera	58.5	4.88	56.4	5.15	69.8	4.8
Kilimanjaro	72.3	3.83	70.9	4.48	84.6	3.0
Mwanza	50.8	9.70	54.3	6.82	67.4	8.2
Northeast	51.7	5.15	53.6	4.60	66.1	5.5
Northern	52.7	5.54	50.9	5.82	65.1	5.9
Southern Highlands	64.9	4.99	63.9	6.93	79.5	5.0
Southern	48.8	5.54	32.4	7.41	59.4	5.6
Southwest	53.7	5.46	45.8	6.22	65.1	6.4
Western	56.5	7.42	57.5	5.88	70.4	5.5
Tanzania	**56.6**	**1.92**	**54.1**	**1.99**	**69.7**	**1.9**

Table 3.11a: Percentages and sampling errors for the frequency of homework given most days (2007)

	No homework		Most days	
	%	**SE**	**%**	**SE**
Central	42.4	11.3	23.1	7.75
Eastern	16.8	7.1	30.0	6.54
Kagera	23.4	7.8	16.5	7.06
Kilimanjaro	17.9	5.3	40.4	7.22
Mwanza	17.8	4.7	16.3	4.81
Northeast	26.7	8.3	17.8	4.66
Northern	15.5	4.2	23.2	4.15
Southern Highlands	14.7	3.7	29.1	5.36
Southern	34.7	7.8	18.7	3.74
Southwest	26.0	8.5	19.0	4.20
Western	31.4	7.5	24.8	8.55
Tanzania	23.7	2.2	**23.4**	**1.87**

In *Table 3.11a*, it is noted that in Tanzania 23.4 percent of Standard 6 pupils were given homework most of the days where as 76.7 percent of them were given no homework in 2007. There were considerable variations among the zones with regard to the frequency with which pupils were given homework. Kilimanjaro had the highest percentage of Standard 6 pupils who received homework most of the days (40.4%) while Mwanza zone had the lowest average of 16.3 percent.

The results for Standard 6 pupils who were given homework most of the days declined dramatically in 2007 from approximately 70 percent (percentage of students who received Reading or Mathematics homework most days in 2000) to 23.4 percent in 2007. This is a dramatic decline with the percentages of pupils receiving homework most days more than halved across all zones; no probable explanations can be offered for the change. The variations among zones in the provision of homework were considerable and need to be addressed in order to ensure that homework contributes effectively to equalizing learning opportunities to all pupils. Generally, there were fewer Standard 6 pupils who were given homework most of the days in 2007 than in 2000.

Pupils were asked to indicate how frequently their Reading teacher had corrected their homework, and their responses have been presented in *Table 3.12* and *Table 3.12a.* Their responses ranged from 'no homework given', 'never corrected', 'sometimes corrected' to 'mostly/always corrected'.

In Tanzania 31.2 percent of Standard 6 pupils had their homework mostly corrected by their teachers. In addition, 17.9 percent and 17.6 percent of Standard 6 pupils had their homework always corrected and sometimes corrected respectively. The percentage of those whose homework was mostly or always corrected was 49.16 percent. By contrast, there were 23.7 percent and 9.6 percent of Standard 6 pupils who were not given homework and who had their homework never corrected respectively in 2007.

There were slight variations across the zones in the frequency of correcting pupils' homework. Kagera zone had the largest percentage of pupils with their homework mostly corrected, with a mean of 39.8 percent. On the other hand, Central zone had the lowest percentage, 21.83 percent,

of pupils with their homework mostly corrected. Central, Southern and Western zones had the largest percentages of pupils who were not given homework (42.4 percent, 34.6 percent and 31.5 percent respectively).

Table 3.12: Percentages and sampling errors for the frequency of homework being corrected by teacher (2000)

	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
Central	21.8	4.27	3.0	1.16	16.7	2.90	58.5	4.83
Eastern	18.3	3.32	5.1	1.74	14.6	3.04	62.0	4.40
Kagera	20.4	4.28	3.7	1.52	15.3	1.90	60.7	4.07
Kilimanjaro	9.6	2.21	8.0	1.96	6.6	2.03	75.9	3.73
Mwanza	13.6	4.00	4.3	1.69	25.5	4.47	56.6	6.64
Northeast	21.8	4.29	6.1	2.53	13.2	2.71	58.9	4.19
Northern	18.3	4.10	9.8	1.82	15.0	2.63	56.9	3.74
S. Highlands	11.6	2.39	5.4	1.85	7.5	2.05	75.5	4.45
Southern	22.5	6.17	2.9	1.30	15.5	5.41	59.0	10.76
Southwest	22.7	3.94	8.5	2.44	15.1	3.77	53.8	5.70
Western	21.3	4.80	4.7	1.31	13.8	2.64	60.2	6.68
Tanzania	**17.8**	**1.20**	**5.8**	**0.57**	**14.0**	**0.98**	**62.5**	**1.70**

Table 3.12a: Percentages and sampling errors for the frequency of homework being corrected by teacher (2007)

	No Homework		Never Corrected		Sometimes		Mostly		Always	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	42.4	11.30	11.8	4.55	10.2	3.14	21.8	6.91	13.8	4.39
Eastern	16.8	7.12	8.0	2.13	15.8	3.86	39.1	7.80	20.4	7.66
Kagera	23.4	7.78	12.1	2.63	13.1	3.52	39.8	8.14	11.7	3.44
Kilimanjaro	17.9	5.28	7.7	2.85	18.1	7.11	23.7	4.58	32.6	7.20
Mwanza	17.8	4.72	11.5	1.47	23.0	2.28	33.6	4.74	14.1	1.73
Northeast	26.7	8.32	5.1	1.45	15.0	5.71	24.9	5.01	28.3	8.35
Northern	15.5	4.18	10.4	3.78	22.7	4.06	32.8	3.37	18.6	3.72
S. Highlands	14.7	3.69	8.5	1.32	15.6	2.80	39.0	4.55	22.2	3.79
Southern	34.7	7.78	11.8	3.48	17.3	3.23	23.6	5.96	12.6	3.06
Southwest	26.0	8.46	9.5	2.39	23.5	6.81	31.2	6.04	9.8	2.80
Western	31.4	7.54	10.3	2.70	16.8	2.30	28.4	6.62	13.2	4.37
Tanzania	**23.7**	**2.16**	**9.6**	**0.86**	**17.6**	**1.26**	**31.2**	**1.81**	**17.9**	**1.54**

On average, fewer Standard 6 pupils were given homework in 2007 than they were in 2000 and about two thirds of them had their homework corrected sometimes, mostly or always. The percentage of Standard 6 pupils who had their homework mostly/always corrected by their teachers was lower in 2007, 49.16 percent than it was in 2000, 62.5 percent. It would appear that about 33.3 percent of Standard 6 pupils (that is, those not given homework 23.7% and those whose homework was never corrected 9.6%) were disadvantaged in this respect. Giving homework without correcting and not giving homework at all to pupils makes it difficult to ascertain whether or not pupils mastered the skills that were taught during the lessons. The situation in the mentioned zones is not acceptable and requires attention from PMORALG and the School Inspectorate Department.

Policy Suggestion 3.7: *The Ministry should investigate why in some zones teachers do not give homework, especially in the Central, Southern and Western zone. The Ministry (School Inspectorate Department and Primary Education Department) in collaboration with PMORALG (ward education coordinators and head teachers) should intensify monitoring in order to ensure that homework is regularly given, corrected and used for pupils' continuous assessment.*

3.5 Access to textbooks and learning materials

General Policy Concern 3.3

Did Standard 6 pupils have sufficient access to classroom materials (for example, textbooks, readers, and stationery) in order to participate fully in their lessons?

Some studies have shown those pupils who are in schools with school libraries, many classroom facilities, teachers who use modern teaching methods, give frequent tests and regular homework achieve higher. In addition, increasing pupils' access to relevant books by making them closer to ordinary classroom activities is a key factor in improving pupil literacy levels (Postlethwaite and Ross, 1992). The Ministry norm for classroom supplies is that every pupil should have an exercise book, a pencil, a pen, a ruler, an eraser, and a mathematical set. In addition, each pupil should have their own textbook. Notebooks are not compulsory and mathematical sets are used by higher classes (Standards 3 to 7).

In this study, an assessment was made of the provision of learning materials including textbooks, exercise books, note books, pens, pencils and erasers by asking Standard 6 pupils to indicate which of the listed material they possessed. It is worth noting that an exercise book is defined as a book for writing work which is marked by the teacher and a notebook as a book for writing work that is not marked by the teacher.

Reading and mathematics textbooks

What percentage of students had Reading and Mathematics textbooks?

The textbook is one of the key items children should have if they are to learn effectively. In an ideal situation, every child should have their own textbook. The percentages of pupils with their own Reading textbook and own Mathematics textbook have been presented in *Table 3.13* and *Table 3.13a*.

In Tanzania in 2007, around 3.5 percent of Standard 6 pupils indicated that they had their own Reading textbooks while around 2.9 percent of them indicated that they had their own Mathematics textbooks. In other words, 96 and 97 percent of Standard 6 pupils did not have their own Reading and Mathematics textbooks respectively. This suggests that the Ministry norm of one text book per pupil has been missed by a worryingly large margin.

There were notable variations among the zones in the percentages of pupils having their own Reading and Mathematics textbooks. In Reading variation ranged from a high of 6.2 percent in Western zone to a low of 1.7 percent in Northeast zone. In Mathematics variations were from a high of 4.8 percent in Mwanza to a low of 1.7 percent in Northeast zone. It is surprising that In Eastern and Northern zones at least 9 percent of pupils had their own Reading and Mathematics text books in 2000 but only two percent of them had their own Reading and Mathematics textbooks in 2007. Eastern zone and Northern had relatively more pupils with own Reading and Mathematics textbooks in 2000, with significant drops recoded in 2007. . Nationally there has been a significant decline in the percentages of pupils having their own Reading and Mathematics textbooks between 2000 and 2007. In Reading the percentages decreased by 2.5 percent points (from 6.0 percent in 2000 to 3.5 percent in 2007).and in Mathematics the percentages decreased by 3.9 percent points (from 6.8 percent in 2000 to 2.9 percent in 2007). The situation requires further investigation by the Ministry

Table 3.13: Percentages and sampling errors for pupils having own Reading and Mathematics textbook (2000)

	Own Reading textbook		Own Mathematics textbook	
	%	SE	%	SE
Central	3.7	1.18	5.2	1.83
Eastern	10.2	2.44	8.6	2.39
Kagera	6.3	2.30	7.9	2.07
Kilimanjaro	3.3	1.52	3.7	1.66
Mwanza	7.2	1.90	10.2	3.50
Northeast	4.7	1.39	3.7	1.65
Northern	9.0	2.05	11.0	1.88
Southern Highlands	3.8	1.57	4.7	2.29
Southern	4.8	2.69	4.2	3.35
Southwest	5.3	1.48	5.1	1.62
Western	6.1	1.36	8.1	1.57
Tanzania	**6.0**	**0.56**	**6.8**	**0.67**

Table 3.13a: Percentages and sampling errors for pupils having own Reading and Mathematics textbook (2007)

	Own Reading textbook		Own Mathematics textbook	
	%	SE	%	SE
Central	2.5	1.04	2.2	0.97
Eastern	2.1	0.75	2.1	0.94
Kagera	4.3	1.46	3.2	1.73
Kilimanjaro	4.0	1.70	2.8	1.18
Mwanza	5.4	1.71	4.8	1.75
Northeast	3.2	1.14	1.7	1.11
Northern	1.7	0.67	2.6	0.97
Southern Highlands	2.1	0.80	2.0	0.79
Southern	3.9	1.25	3.7	0.96
Southwest	4.0	1.12	4.5	1.58
Western	6.2	2.23	3.6	1.13
Tanzania	**3.5**	**0.41**	**2.9**	**0.36**

The results were not expected as through PEDP I most schools were provided with funds for textbook procurement on an annual basis. The proportions of pupils with their own textbooks were expected to increase steadily overtime. It is surprising to note that the overall percentage of Standard 6 pupils with their own textbook had decreased instead of increasing. Several reasons could have contributed to the disturbing results. The first reason is that the massive increase in enrolment, through the enforcement of the law on compulsory primary education that was renewed in 2002, created a large demand for textbooks which could not be matched by the supply of textbooks to schools. The other probable reason may be that funds allocated for the procurement of textbooks were not used exclusively for the intended purpose. A combination of the two reasons is yet another possibility.

***Policy Suggestion 3.8**: The Ministry (Department of Primary Education) in collaboration PMORALG) should examine why there were large shortages of Mathematics and Reading textbooks in primary schools in Tanzania mainland.*

Basic learning materials

What percentage of pupils had adequate classroom supplies for writing, ruling etc?

In Tanzania, approximately 1.7 percent of Standard 6 pupils reported that they did not have exercise books, 51.0 percent indicated a shortage of notebooks and 6.9 did not have pencils in 2007. Wide variations were noted among the zones. Southwest had the lowest percentage of pupils who stated that they did not have exercise books (0.5 percent) and Southern had the lowest percentage reporting a lack of pencils (2.4 percent) while Kagera zone had the lowest percentage of pupils who stated that they did not have notebooks (32.2 percent). Notheast had the highest percentages of Standard 6 pupils who indicated that they did not have exercise books (4.8 percent) and Central had the highest percentage lacking pencils (11.9 percent). Central zone had the highest percentage of Standard 6 pupils who indicated that they did not have notebooks (70.5 percent).

The national percentage averages for shortages of the three items between 2000 and 2007 have decreased slightly, suggesting slow progress in terms of resource allocation. The percentage of pupils reporting a lack of an exercise book decreased from 3.4 percent in 2000 to 1.7 percent in

2007, those reporting the lack of a notebook decreased from 56.5 percent in 2000 to 51.0 percent in 2007 and those who were lacked a pencil decreased from 14.1 percent in 2000 to 6.9 percent in 2007. Cleary much remains to be done, specifically in terms of notebook provision, but the signs are that the levels of resources are improving for Standard 6 pupils.

Table 3.14: Percentages and sampling errors for shortages of basic classroom materials: exercise books, notebook, and pencil (2000)

	Exercise books		Notebook		Pencil	
	%	SE	%	SE	%	SE
Central	4.9	2.20	63.6	6.32	19.7	3.86
Eastern	1.2	0.93	59.8	7.13	14.3	3.03
Kagera	4.0	1.05	59.7	6.98	18.4	5.37
Kilimanjaro	0.0	0.00	53.3	7.01	7.1	3.34
Mwanza	4.9	1.89	59.4	6.56	12.9	4.06
Northeast	0.8	0.82	69.2	4.64	14.7	3.05
Northern	1.9	1.43	43.7	8.28	8.2	2.29
Southern Highlands	3.8	1.33	52.0	6.22	9.2	2.84
Southern	1.6	1.04	49.9	12.48	12.7	5.95
Southwest	4.5	2.30	63.9	5.77	25.6	6.96
Western	9.5	3.18	60.6	6.74	23.7	4.96
Tanzania	**3.4**	**0.54**	**56.5**	**2.26**	**14.1**	**1.17**

Table 3.14a: Percentages and sampling errors for shortages of basic classroom materials: exercise books, notebook, and pencil (2007)

	Exercise books		Notebook		Pencil	
	%	SE	%	SE	%	SE
Central	3.1	1.18	70.5	6.99	11.9	4.08
Eastern	1.7	1.22	55.6	7.94	8.8	2.22
Kagera	1.6	0.93	32.2	4.78	5.1	1.95
Kilimanjaro	1.1	0.65	52.3	8.99	9.0	3.00
Mwanza	2.1	1.47	47.6	7.98	11.0	5.73
Northeast	4.8	2.07	52.7	8.12	10.8	2.99
Northern	0.9	0.40	42.2	6.09	7.3	1.92
Southern Highlands	1.5	0.79	60.6	6.72	3.6	1.13
Southern	1.1	0.76	38.9	7.53	2.4	1.25
Southwest	0.5	0.51	54.4	8.22	4.5	2.18
Western	1.1	0.78	52.5	6.82	6.1	1.79
Tanzania	**1.7**	**0.33**	**51.0**	**2.27**	**6.9**	**0.79**

Table 3.15: Percentages and sampling errors for shortages of basic classroom materials: eraser, pen, and ruler (2000)

	Eraser		Pen		Ruler	
	%	SE	%	SE	%	SE
Central	35.8	6.53	8.0	2.49	38.6	6.32
Eastern	27.2	6.85	3.7	1.57	27.9	6.37
Kagera	38.8	6.94	11.6	3.20	32.3	6.99
Kilimanjaro	25.6	6.69	4.5	1.88	17.0	4.96
Mwanza	31.2	6.10	5.5	1.87	28.7	4.67
Northeast	31.2	6.12	6.2	4.57	25.5	4.26
Northern	17.7	3.50	3.9	1.64	18.4	4.04
Southern highlands	24.4	6.11	7.0	3.30	20.4	6.01
Southern	40.8	11.14	5.6	2.49	22.2	7.16
Southwest	50.7	6.11	10.8	4.97	42.0	7.22
Western	30.3	6.23	11.1	4.01	35.5	4.93
Tanzania	**29.7**	**2.01**	**6.7**	**0.94**	**26.7**	**1.78**

Table 3.15a: Percentages and sampling errors for shortages of basic classroom materials: eraser, sharpener, and ruler (2007)

	Eraser		Sharpeners		Ruler	
	%	SE	%	SE	%	SE
Central	20.0	4.35	28.7	5.44	17.7	4.51
Eastern	10.9	2.20	28.0	6.44	9.8	2.22
Kagera	20.0	5.29	33.1	7.46	8.0	3.52
Kilimanjaro	15.2	5.91	25.4	6.94	14.5	4.82
Mwanza	25.6	8.07	33.9	8.06	14.8	5.01
Northeast	22.1	5.18	30.2	6.67	19.8	5.96
Northern	19.1	5.07	22.8	5.02	10.5	2.56
Southern Highlands	19.4	5.62	34.6	7.22	11.8	3.10
Southern	11.5	2.73	25.2	4.87	9.8	2.40
Southwest	18.6	5.56	34.2	8.57	12.0	2.82
Western	19.2	3.30	29.4	4.31	12.1	2.42
Tanzania	18.5	1.57	29.6	1.99	12.7	1.11

From *Table 3.15a* in Tanzania in 2007, 18.5 percent of Standard 6 pupils indicated that they did not have erasers, 29.6 percent did not have sharpeners, and 12.7 percent did not have rulers. That

is to stay that most of the Standard 6 pupils (70.4 percent) had the three classroom supplies in 2007. Large variations were observed among the zones in the percentages of Standard 6 pupils who indicated that they did not have erasers, sharpeners and rulers. Southern had the lowest percentage of pupils who stated that they did not have erasers (11.5 percent), Northern zone had the lowest percentage reporting a lack of sharpeners (22.8 percent) and Kagera the lowest reporting a lack of rulers (8.0 percent). In contrast, Mwanza zone had the highest percentages of Standard 6 pupils who indicated that they did not have erasers (25.6 percent), Southern Highlands the highest percentage lacking sharpeners (34.6 percent); whereas Northeast zone had the highest percentage of Standard 6 pupils who indicated that they did not have rulers (19.8 percent).

Compared to the results for 2000, the shortage of erasers and rulers had decreased significantly by 2007. The percentage of pupils without rulers dropped by 14 percentage points (from 26.7 percent in 2000 to 12.7 percent in 2007) and pupils lacking their own erasers dropped by 11.2 percentage points (from 29.7 percent in 2000 to 18.5 percent in 2007). Overall, the results for classroom teaching/learning materials and classroom supplies indicated improvement over time although they were still inadequate in some zones. It is important that, the Ministry continues with the provision of key learning materials to schools and solicit contributions from parents and the local communities.

Policy Suggestion 3.9: *The Ministry (School Inspectorate department) in collaboration with PMORALG (District Education Offices) should put in place mechanisms for monitoring the levels of instructional materials including textbooks in schools annually. Information obtained from such monitoring could be used by the central government to review the amount of funds allocated to schools for instructional materials.*

Policy Suggestion 3.10: *The Ministry in collaboration with PMORALG and school committees should mobilize parents so that they can contribute additional resources for the procurement of classroom supplies that cannot be procured through capitation grant.*

3.6 Extra tuition

General Policy Concern 3.4

Has the practice of Standard 6 pupils receiving extra tuition in school subjects outside school hours become widespread, and have these been paid lessons?

In Tanzania there has been, over the years, a shift of in-depth teaching and learning during regular lesson periods within school hours to extra lessons in school subjects outside the official school day (tuition classes). The teachers who provide this type of tuition often demand a fee from pupils as a condition for attending such extra tuition lessons. The practice was checked by the issuance of a ministry circular in 1999 which allowed tuition for remedial purposes only. The practice is now so endemic that it is conducted both in and outside school premises by teachers and other people who are not necessarily teachers. Parents, especially those in urban areas, send their children to tuition classes not as a remedial measure, but because it has simply become a fashionable practice. Extra tuition is largely not monitored. As such, it has the potential to have various deleterious effects on learners.

Percentages of pupils receiving extra tuition

What percentage of pupils received extra tuition?

The responses to whether pupils took extra tuition outside school hours have been presented in *Table 3.16* and *Table 3.16a*.

It **c**an be seen that in Tanzania in 2007 that 43.5 percent of Standard 6 pupils were receiving extra tuition in any subject. There were significant variations among zones in the percentages of pupils receiving extra tuition in any subject. Central zone had the highest percentage of 62 percent, followed closely by Southern Highlands and Kilimanjaro zones, which had 61.4 percent each. By contrast, Kagera zone had the lowest percentage of 29.8 percent. This practice effectively enhances learning opportunities but where payment is a condition to receive tuition it denies those who cannot pay, even when they need it for remedial purposes.

Table 3.16: Percentages and sampling errors for the extra tuition taken by pupils outside school hours (2000)

	Extra tuition in any subject	
	%	**SE**
Central	79.6	4.75
Eastern	91.4	2.09
Kagera	85.1	3.33
Kilimanjaro	90.1	5.69
Mwanza	88.6	2.79
Northeast	79.5	6.61
Northern	94.5	1.15
Southern Highlands	84.5	5.65
Southern	85.2	5.57
Southwest	75.1	5.35
Western	89.6	2.98
Tanzania	**86.6**	**1.37**

Table 3.16a: Percentages and sampling errors for the extra tuition taken by pupils outside school hours (2007)

	Extra tuition in any subject	
	%	SE
Central	62.0	12.11
Eastern	51.6	10.23
Kagera	29.9	9.55
Kilimanjaro	61.4	13.62
Mwanza	37.7	11.24
Northeast	32.6	9.70
Northern	31.9	7.43
Southern Highlands	61.4	11.04
Southern	46.5	10.84
Southwest	40.8	9.74
Western	32.1	9.92
Tanzania	**43.5**	**3.21**

Between 2000 and 2007 there has been a dramatic decline, of 43.1 percentage points, in the percentage of pupils receiving extra tuition, from 86.6 percent in 2000 to 43.5 percent in 2007.

There was no particular trend observed in the provision of extra tuition among zones between 2000 and 2007. The zones with relatively large percentages of pupils who stated that they received extra tuition in 2000 were not necessarily the zones that had large percentages of pupils who stated that they received extra tuition in 2007. In 2000 Eastern, Northern and Kilimanjaro zones had had relatively higher percentages of pupils receiving extra tuition outside school hours while Central, Southern Highlands and Kilimanjaro zones had relatively higher percentages of pupils receiving extra tuition outside school hours in 2007.

This result may be partly due to an increase in formal classroom teaching which lessened the demand for pupils to seek extra tuition. Another potential explaining factor may be increased difficulties for parents financing the extra tuition.

Paid extra tuition

Was payment made for receiving extra tuition?

In *Table 3.17* and *Table 3.17a* the results on whether or not pupils paid for tuition classes have been presented.

In 2007, 32.9 percent of Standard 6 pupils indicated that they paid for tuition lessons and 59.9 percent of them responded that there was no payment. Some 3.2 percent of pupils did not know whether tuition lessons were paid for or not. Northeast zone had the highest percentage of Standard 6 pupils who indicated that they did not pay for tuition (75.4 percent) while Eastern Zone had the lowest percentage of pupils who indicated that they did not pay for tuition.

Nationally, the percentages of Standard 6 pupils who stated that they paid for tuition dropped by more than 3.4 percent during 2007 compared to the result for 2000. Eastern zone had consistently the highest percentages of standard 6 pupils who indicated that they paid for tuition between 2000 and 2007. Other zones with relatively high percentages of Standard 6 pupils who indicated that they paid for tuition were Kilimanjaro and Southwest zones. The zones with lowest percentages of standard 6 pupils who indicated that they paid for extra tuition changed overtime, being Southern zone in 2000 and Southern highlands zone in 2007.

Table 3.17: Percentages and sampling errors for the payment of extra tuition taken by pupils outside school hours (2000)

	There is payment		There is no payment		Don't know	
	%	SE	%	SE	%	SE
Central	31.0	7.20	54.7	7.08	14.2	3.41
Eastern	47.1	5.71	33.3	7.21	19.6	4.17
Kagera	43.5	5.77	49.2	4.99	7.4	2.67
Kilimanjaro	28.3	4.97	63.1	5.41	8.6	3.14
Mwanza	28.0	7.62	59.1	8.60	12.9	4.92
Northeast	45.4	4.99	31.0	3.48	23.6	5.21
Northern	39.7	7.12	46.2	6.45	14.1	3.44
S. Highlands	37.2	7.48	49.3	6.24	13.5	4.41
Southern	15.9	7.21	70.2	10.47	14.0	4.97
Southwest	33.9	4.94	53.0	4.95	13.1	3.04
Western	38.5	10.56	39.7	8.35	21.9	5.71
Tanzania	**36.1**	**2.38**	**48.5**	**2.30**	**15.4**	**1.38**

Table 3.17a: Percentages and sampling errors for the payment of extra tuition taken by pupils outside school hours (2007)

Zone	There is payment		There is no payment		Other Kind Of Payment		Money & Other Kind Of Payment	
	%	SE	%	SE	%	SE	%	SE
Central	25.6	12.43	70.3	12.46	2.9	1.44	1.3	0.84
Eastern	57.9	9.34	31.8	10.58	9.2	3.09	1.1	1.07
Kagera	42.0	17.74	54.6	18.97	2.3	1.66	1.0	1.11
Kilimanjaro	47.2	9.46	44.7	10.18	3.8	1.84	4.3	0.98
Mwanza	39.9	7.73	48.0	10.40	7.6	3.11	4.6	1.40
Northeast	23.4	9.09	75.4	9.69	0.6	0.67	0.6	0.67
Northern	37.9	8.11	47.9	8.37	10.1	3.44	4.2	1.57
Southern Highlands	22.4	6.83	72.7	7.78	3.3	1.29	1.5	0.87
Southern	24.2	7.79	70.4	8.40	3.8	2.28	1.6	0.87
Southwest	42.9	5.32	46.1	7.11	4.8	2.48	6.2	3.31
Western	23.0	8.66	69.7	11.75	4.5	2.69	2.8	1.71
Tanzania	**32.9**	**2.97**	**59.9**	**3.41**	**4.8**	**0.75**	**2.5**	**0.44**

Extra tuition is an additional source of income for teachers and for all those practicing it, however extra tuition deprives the teacher of the time he or she needs in order to go through pupils

assignments or homework and to effectively prepare for the next day's lessons. These results show that during 2007 there was a substantial decrease in the provision of tuition lessons outside school hours and in the payment made for the tuition lessons. Nevertheless the percentages of pupils who were receiving tuition still raises concerns over how much time teachers were actually devoting to effective teaching during school hours and preparing for the next day's lessons. It takes away pupils' time-on-task, pupils' time for rest and recreation and reduces the length of the school year.

The figures for pupils receiving tuition indicate non adherence to the Ministry's circular of 1999 on the control of tuition. If we accept that the official time allocated for teaching is adequate, then the fact that teachers have to offer extra tuition to majority large number of their pupils suggests that they are failing to teach effectively. Furthermore, a large proportion of those pupils who take extra tuition are required to pay for it. Given this scenario, it is reasonable to conclude that, teachers deliberately put up a lower-than-expected performance so that they may create a demand for extra tuition, and receive an illegal second salary in their work place. This should be a concern to the ministry

Overall, 43.5 percent of Standard 6 pupils were in schools where they were receiving extra tuition in any subject 32.9 percent of Standard 6 pupils indicated that they paid for tuition lessons and 59.9 percent of them responded that there was no payment in 2007. The percentages of Standard 6 pupils who stated that they paid for tuition dropped from 2000 to 2007. Despite the decline in the provision of tuition, especially paid tuition, the figures for paid tuition are still large and require examination from the Ministry.

Policy Suggestion 3.11 (a): *The Ministry should establish whether there is a genuine need for extra tuition especially in Central, Southern Highlands and Kilimanjaro zones and, in the cases where it is necessary, regulate it so that the costs involved do not disadvantage the pupils who need it most.*

Policy suggestion 3.11 (b): *The Ministry should monitor tuition to ensure that teachers do not take advantage of this practice for unfair personal gain.*

3.7 Conclusion

The aim of this chapter was to present to the reader Standard 6 pupils' characteristics and their learning environment. They included personal characteristics and school context factors. The characteristics included their age, sex, days absent and rates repetition. Home characteristics included possessions in the home, while school characteristics included distance from amenities, classroom supplies, the giving and correction of homework. The presentation of this information was considered to be important for the proper contextualization of subsequent analyses. Furthermore, since levels and distributions of data changed over time, the data was used to compare Standard 6 pupils between 2000 and 2007. Finally, the home characteristics of pupils were considered important as they are among the most influential factors determining levels of academic achievement.

The results indicated that Standard 6 pupils were older than would be expected compared to the official school age; but were 5.4 months younger in 2007 than they were in 2000. It was suggested that the Ministry (School Inspectorate Department) in collaboration with PMORALG (head teachers, village executive officers and ward education officers) should ensure the law on compulsory enrolment is implemented in order that children of school going age are timely admitted to school.

There was improvement in the gender distribution towards gender parity over time but for some zones the gender distribution was far from equal, oscillating between 2000 and 2007 in favour of both boys and girls. It was suggested that the Ministry in collaboration PMORALG examines gender inequality in zones with relatively wide gender disparity.

The health of Standard 6 pupils was worse due to illness in 2007 than in 2000 and illness was consistently the main reason for pupil absenteeism in 2000 and in 2007. It was suggested that PMORALG (Departments of Health and community development and school committees) should design interventions that will minimize pupils' illness in primary schools with special emphasis on the zones where illness was particularly high.

Generally, Standard 6 pupils' home environment deteriorated overtime. The results revealed that majority of Standard 6 pupils came from modest houses with stone walls, unsealed floors and metal/asbestos roofs; used oil lamp for lighting and more families used less electricity for lighting

in 2007 than in 2000. However there was a positive change with a marked increase in the number of possessions in the pupils' homes.

On average, fewer Standard 6 pupils were given homework and had their homework regularly corrected by their teachers in 2007 than in 2000 and a suggestion was made that the Ministry in collaboration with PMORALG should investigate why in some zones teachers did not give and correct homework, and should intensify monitoring in order to ensure that homework is regularly given, corrected and used for pupils' continuous assessment.

There was a decline in the percentages of pupils having their own Reading and Mathematics textbooks between 2000 and 2007. Nevertheless, the supply of classroom teaching/learning materials improved overtime although they were still inadequate in some zones. It was suggested that the Ministry in collaboration with PMORALG should examine why there were dismal shortages of Mathematics and Reading textbooks in primary schools. In addition, it should put in place mechanisms for monitoring the levels of instructional materials including textbooks in schools annually and use the information from the study to monitor and to review the amount of funds allocated to schools for purchasing instructional materials.

There was a dramatic decline in the percentages of pupils who stated that they took extra tuition outside school hours and who stated that they paid for tuition between 2000 and 2007. Despite the decline in the provision of tuition, especially paid tuition, the figures for paid tuition are still large. It was suggested that the Ministry should establish whether there is a genuine need for extra tuition and to regulate it so that teachers do not take advantage of this practice for unfair personal gain.

Chapter 4
Characteristics of Teachers and Their Classrooms

4.1 Introduction

Teachers are and may continue to be for the foreseeable future, the most valuable input that schools have. This remains true even in this era characterized by the extensive use of information technology where computer and internet-assisted instruction is gaining momentum as an alternative means of knowledge and skills production and delivery. The role of teachers in the socialization of learners, for example, can hardly be substituted by technological gadgets, however sophisticated they may be. It is also pertinent to note that in SACMEQ countries, modern technology still has not reached the majority of schools, and infrastructure to support information communication technologies (ICTs) is still weak. While other instruction support mechanisms should continue to be developed to facilitate pupil learning, the role of the teacher remains critical.

Teachers are defined by certain minimum initial characteristics pertaining to their general academic background, teacher training (pre- and in-service training), their teaching experience, and age. These characteristics and others have a big impact on the learning achievement of pupils. In this chapter, the focus is on teachers' personal characteristics and their working conditions, their views on the curriculum, the existing teacher support mechanisms and their assessment of what contributed most to job satisfaction.

From the second half of the 1990s onwards, the government policy on the recruitment of primary school teachers required all recruits to have at least an ordinary secondary education background i.e. teachers who successfully completed 4 years of secondary education with at least 5 passes in their national Form 4 examination (grade A teachers). Prior to this, some recruits only had 7 years of primary education (grade C teachers). Such teachers found their way into teaching during the first few years following the introduction of Universal Primary Education (UPE) in the mid 1970s. The introduction of UPE resulted in an unprecedented rise in enrolment which, in turn, created the need for more teachers than the system could supply. Teachers with only 7 years of primary education were therefore recruited and given a 3-week residential teacher training

course in order to meet this demand. Another programme was designed to train primary school leavers, who had minimum qualifications, to continue with secondary education but could not be admitted into secondary education due to insufficient places. These were given two year residential secondary education followed by two year residential teacher training in teacher colleges. The successful graduates were classified as grade B teachers. In addition, a special programme was designed by the teacher training department to upgrade the under qualified teachers to grade A level teachers. Under the programme all under-qualified teachers were required to undergo training through a modular approach and residential training so that they were ultimately equivalent to grade A teachers.

The Government, while aware of the diverse qualifications of the teaching force, has designed and implemented support programmes to cater for the needs of teachers from different academic backgrounds. Continuous improvement of teachers' skills contributes to improved performance. In pursuit of this goal, in 1986 the Ministry issued a directive to all districts to establish teachers' centres. Some local authorities implemented this directive and during the 1990s some donors supported efforts to implement the policy through the District Based Support to Education (DBSP) initiative that was introduced in a few districts. While the two initiatives focused on the establishment of teachers' centres at the district level, the Ward Based Education Management (WABEM) initiative introduced in 1999 which focused on the establishment of resource centres at the ward level, and these were known as Education Cluster Centres (ECCs). Teachers, pupils and community members can easily access and share education resources widely using these ECCs, and can also use them to exchange experiences and prepare teaching and learning materials.

The civil service government reform calls for good governance through, in part, the decentralization of powers and responsibilities to the lower levels (regions, districts, community, and the school). Transparency is a critical factor in good governance; therefore the opinions of teachers are important inputs that contribute in shaping government policies, including those pertaining to teachers' working conditions and their job satisfaction. The results presented in this chapter, it is hoped, will provide an assessment of teachers' qualifications, the scope of the effectiveness of the existing teacher support mechanism and their views on selected issues in

2007, the charges observed between 2000 and 2007. They will provide evidence on the deployment of teachers across the zones, the support services and offer recommendations to be considered by the Ministry, the Government and other education stakeholders.

4.2 Personal characteristics of teachers

General Policy Concern 4.1:

What were the personal characteristics of Standard 6 teachers (age and gender), and what was the condition of their housing?

A number of variables, which were considered vital in assessing teacher characteristics, namely age, gender and the condition of their housing, were assessed. The results of the analysis of teachers' responses have been reported in *Table 4.1*and *Table 4.1a*.

Teacher age

What was the age distribution of teachers?

The mean age of Standard 6 teachers in Tanzania in 2007 was 36.3 years for Reading teachers, 35.9 years for Mathematics teachers and 35.4 for Health teachers. There were noteworthy variations across the zones in the mean age of Standard 6 teachers in all subjects. In Reading the range was from a high of 40.4 years in Kilimanjaro zone to a low of 33.6 years in Mwanza zone. Similarly in Mathematics the range was from a high mean age of 44.3 years in Kilimanjaro zone to a low of 32.2 years in Western zone. In Health the lowest mean age was in Southwest (30.2) and the highest was 40.1 in Kilimanjaro. When compared with the 2000 results, nationally, the mean age of Standard 6 teachers in 2007 was 1.7 years less for Reading teachers and 1.1 years less for Mathematics teachers. Further analysis indicates that the age gap across the zones for Reading teachers was reduced by about one year (from a range of 7.9 in 2000 to 6.8 years 2007). By contrast the age gap widened by about 4 years among Mathematics teachers (from a range 8.4 years in 2000 to 12.1 years in 2007).

Table 4.1: Means, percentages, and sampling errors for age, gender and socio economic background of Reading and Mathematics teachers (2000)

	Reading teacher						Mathematics teacher					
	Age (years)		Gender (female)		Possession at home (index)		Age (years)		Gender (female)		Possession at home (index)	
	Mean	SE	%	SE	Mean	SE	Mean	SE	%	SE	Mean	SE
Central	38.6	2.27	41.3	13.29	4.4	0.53	39.2	1.80	12.3	8.78	3.7	0.20
Eastern	35.6	1.89	81.7	10.08	4.7	0.56	33.3	1.69	57.5	12.70	4.0	0.42
Kagera	42.8	1.86	15.2	10.32	3.3	0.35	36.1	2.31	13.8	9.47	3.2	0.37
Kilimanjaro	38.5	1.74	70.3	13.00	4.3	0.30	38.1	2.28	25.0	11.44	4.3	0.25
Mwanza	34.9	3.37	62.4	14.95	2.8	0.52	36.0	2.14	15.4	10.74	3.7	0.66
Northeast	40.6	3.13	50.1	14.62	4.8	0.41	40.9	1.99	33.9	14.37	3.9	0.84
Northern	40.6	1.89	47.2	12.22	4.0	0.24	40.8	1.42	35.4	12.75	3.5	0.52
S. Highlands	35.9	1.21	69.2	11.50	4.7	0.69	32.5	1.30	30.2	9.78	4.3	0.62
Southern	39.5	2.90	11.3	11.58	4.2	0.36	35.7	1.83	1.8	1.85	3.9	0.47
Southwest	37.8	1.64	46.0	14.90	4.1	0.46	38.3	1.84	4.3	4.36	4.0	0.41
Western	36.5	1.71	38.7	11.87	3.8	0.36	37.2	1.63	9.0	6.50	4.0	0.30
Tanzania	**38.0**	**0.67**	**51.9**	**4.11**	**4.2**	**0.16**	**37.0**	**0.56**	**23.9**	**3.42**	**3.9**	**0.17**

Table 4.1a: Means, percentages, and sampling errors for age and gender of Reading, Mathematics, and Health teachers (2007)

	Reading teacher				Mathematics teacher				Health teacher			
	Age (years)		Gender (female)		Age (years)		Gender (female)		Age (years)		Gender (female)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	38.8	0.65	60.4	0.03	37.7	0.56	5.8	0.03	31.5	1.92	21.4	12.13
Eastern	36.1	0.58	77.7	0.02	34.1	0.39	39.0	0.02	32.7	1.57	69.7	11.18
Kagera	34.2	0.61	61.2	0.03	32.5	0.49	5.3	0.03	31.8	2.04	20.3	10.03
Kilimanjaro	40.4	0.66	73.2	0.03	44.3	0.68	37.3	0.03	40.1	1.88	48.5	15.51
Mwanza	33.6	0.59	30.1	0.03	35.4	0.52	5.0	0.03	39.3	2.15	9.8	7.09
Northeast	37.8	0.43	76.1	0.02	33.7	0.43	18.2	0.02	35.0	2.60	17.2	8.37
Northern	36.8	0.48	68.1	0.02	40.5	0.48	17.2	0.02	38.5	2.26	38.9	9.86
S. Highlands	36.0	0.38	68.2	0.02	34.3	0.31	7.4	0.02	36.3	1.86	21.6	9.20
Southern	36.4	0.51	49.9	0.03	38.6	0.67	10.1	0.03	38.2	4.27	16.1	9.76
Southwest	38.2	0.52	38.3	0.03	35.5	0.53	8.1	0.03	30.2	1.81	15.7	10.41
Western	34.0	0.36	55.0	0.02	32.2	0.41	26.3	0.02	34.5	1.32	29.2	11.05
Tanzania	**36.3**	**0.15**	**60.4**	**0.01**	**35.9**	**0.16**	**15.7**	**0.01**	**35.4**	**0.73**	**27.4**	**3.27**

During the same period the age gap among the zones varied with no particular pattern; increasing dramatically in some zones while simultaneously decreasing in others. In Kagera zone the mean age of Reading teachers declined significantly by 8.6 years between 2000 and 2007 from 42.8 years in 2000 to a mean age of 34.2 years in 2007. In contrast, the mean age of Mathematics teachers in Kilimanjaro zone increased significantly by 6.2 years between 2000 and 2007; from a mean age of 38.1 years in 2000 to 44.3 years in 2007. The figures for Kilimanjaro and Kagera may be explained by the likelihood that in Kilimanjaro the majority of the teachers who were teaching in the zone during 2000 continued to teach in the same zone up to 2007. On the other hand, in Kagera the rejuvenation of the Reading teachers may be probably due to the posting of new and younger teachers to the zone.

Overall, the results appear to suggest that between 2000 and 2007 Standard 6 pupils were consistently taught by teachers with a mean age in their mid to late 30s. There were variations in the mean age of teachers among zones across the two time points with significant variation in some zones.

Teacher gender

What was the gender distribution of Standard 6 teachers?

Ideally schools, especially co-educational schools, should have a balanced representation of male and female teachers. This is because teachers can shape pupils' behaviour through role modeling, thus creating a boy-friendly and girl-friendly environment. Where all the teachers are females, for example, male pupils may lack a positive role model. The presence of both male and female teachers offers better opportunities for the provision of guidance to male and female pupils alike. A system that has a big gender gap among teachers might reflect a history of subtle or overt gender–based discrimination, which is a negative attribute. It is important, therefore, to examine the gender composition of teacher groups. In *Table 4.1a* the results for the gender distribution of Reading, Mathematics, and Health teachers have been presented.

In 2007, Standard 6 pupils were in schools where the percentage of female teachers was 60.4 percent among Reading teachers, 15.7 percent among Mathematics teachers and 27.4 percent among Health teachers. Across the zones, there was a very large variation in the gender

distribution of teachers in both subjects. Eastern zone had the highest percentage of female Reading teachers (77.7 percent) and Mwanza had the lowest percentage of female Reading teachers (30.1 percent). In Mathematics, Eastern zone had the highest percentage of female Mathematics teachers (39.0 percent) and Mwanza had the lowest percentage of female Mathematics teachers (5.0 percent), closely followed by Kagera (5.3 percent), and Central zones (5.8 percent). There was dramatic variation in terms of percentages of pupils with female Health teachers from a high of 69.7 percent in Eastern zone to a low of 9.8 percent in Mwanza. The peripheral and rural zones tended to have fewer female Mathematics teachers than urban zones, especially Eastern zone which had the highest percentages across all 3 categories.

There were notable changes between 2000 and 2007 in the gender distribution of teachers in both subjects, nationally and across the zones. At the national level there was an increase of about 9 percentage points in female Reading teachers while there was a decrease of 8 percentage points in female Mathematics teachers. Across the zones a trend is observed where the largely urban Eastern zone, had the highest percentage of both female Reading and female Mathematics teachers in 2000 and again in 2007. The other feature is that there has been a general decrease in the percentages of female Mathematics teachers particularly in Mwanza, Kagera, and Central zones where the figures were alarmingly low. Interestingly, gender distribution improved impressively in Southern zone from the most unequal distribution in 2000. Between the two studies the percentage of female Mathematics teachers in the zone increased significantly by 8.3 percentage points, from 1.8 percent to 10.1, and by 38.6 percentage points, from 11.3 percent to 49.9 percent, for Reading teachers.

The overall results suggest that by 2007 the gender gap in both subjects had widened. In Mathematics the situation has become worse with much fewer female teachers. By contrast there were more female Reading teachers than male teachers.

The large national differences in the distribution of female Reading, Mathematics and Health teachers and the wide gender variations among zones in all 3 subjects can be partly explained by a number of reasons. The first reason is the fact that although the revised admission recruitment policy of trainee teachers encourages both sexes to venture into teaching all subjects in the

primary school curriculum subjects, far fewer female teachers opt to teach Mathematics. The success of the policy depends largely on the availability of trainees who have a strong Mathematics foundation from secondary level. The second reason is that there could be inequitable gender posting of teachers resulting in fewer female teachers in some zones. During 2000 this situation was viewed as likely to create the perception among female and male pupils that Mathematics is a subject that can only be successfully pursued by males, the legitimacy of this view remains. Clearly the steps that have been taken have not been adequate in addressing the misbalance observed in 2000. The problems that existed in 2000, continued to exist in 2007; therefore this issue requires the Ministry's further attention.

Policy Suggestion 4.1: *The Ministry and PMORALG should explore potential strategies to encourage female teachers to teach Mathematics and should review their teacher deployment policy in order to ensure a more equitable distribution of male and female teachers in schools.*

Policy Suggestion 4.2: *The School Inspectorate Department in collaboration with the Tanzania Institute of Education and Teacher Education Department should carry out a study on why female teachers do not opt to teach Mathematics in primary schools and recommend corrective measures.*

Teacher housing conditions

What was the general condition (repair status and lighting) of teacher housing?

Teachers need to be well housed in order to have enabling suitable working environment. They need to prepare well for their lessons, mark pupils' work and to be assured of their personal security as well as the security of their families and possessions. In the study it was therefore vital to examine the living conditions of teachers, and so teachers were asked to indicate the condition of their houses. Their responses were categorized as: 'generally poor', 'required major repair', 'required minor repair' or 'were generally good'. The variables were recoded and their responses for the variable 'teacher housing in acceptable conditions' (that is requiring either minor repair or generally good) were analysed and their results have been presented in *Table 4.2* and *Table 4.2a*.

Table 4.2: Percentages and sampling errors for teacher housing in acceptable conditions (2000)

	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Central	23.9	11.08	7.2	7.29
Eastern	28.5	9.04	34.5	11.11
Kagera	24.5	11.34	0.0	0.00
Kilimanjaro	18.3	10.06	23.7	11.01
Mwanza	2.7	2.72	0.0	0.00
Northeast	20.5	11.18	13.1	9.08
Northern	28.0	9.76	18.7	7.88
S. Highlands	15.8	10.87	24.6	11.77
Southern	39.6	19.09	21.4	19.46
Southwest	23.6	13.83	0.0	0.00
Western	8.0	6.01	9.6	6.31
Tanzania	**20.6**	**3.30**	**16.1**	**3.12**

Table 4.2a: Percentages and sampling errors for teacher housing in an acceptable conditions (2007)

	Reading teacher		Mathematics teacher		Health teacher	
	%	SE	%	SE	%	SE
Central	29.1	10.76	23.3	11.70	10.4	10.01
Eastern	8.7	5.17	9.1	7.29	20.7	9.56
Kagera	33.1	12.01	38.2	12.23	36.6	12.16
Kilimanjaro	30.8	13.48	42.5	14.82	27.4	13.41
Mwanza	4.2	4.33	13.4	7.94	22.2	12.57
Northeast	14.2	7.90	13.3	7.67	25.8	9.74
Northern	30.3	8.96	14.2	6.36	20.6	8.24
S. Highlands	15.3	8.54	12.1	6.99	27.8	10.44
Southern	33.7	9.78	46.1	15.84	33.6	17.96
Southwest	7.5	7.45	26.9	12.05	20.6	10.75
Western	10.0	6.94	27.7	11.46	15.5	9.47
Tanzania	**18.9**	**2.70**	**22.3**	**3.26**	**23.4**	**3.50**

In 2007, at the national level, 18.9 percent, 22.3 percent and 23.4 percent of Standard 6 pupils were taught by Reading teachers, Mathematics teachers and Health teachers respectively who

stated that they lived in acceptable conditions. Considerable variations were noted in the percentages of teachers who stated that they lived in acceptable conditions across the three subjects. The Southern Zone had the highest percentage averages of 33.7 and 46.1 percent for Reading and Mathematics teachers respectively while Kagera zone had the highest percentage, 36.6 percent, of health teachers who stated that they lived in acceptable conditions. The lowest percentages were registered in Mwanza Zone (4.2 percent for Reading teachers), in Eastern Zone (9.1 percent for Mathematics teachers) and in Northern Zone (8.2 percent for Health teachers).

The results for living conditions of teachers between 2000 and 2007 reveal a mixed picture. Nationally, a slight improvement is noted in the living conditions of Mathematics teachers where the percentages of students with teachers who stated that they lived in acceptable living conditions increased to from 16.1 percent in 2000 to 22.3 percent in 2007. In contrast the situation declined slightly for Reading teachers from 20.6 percent in 2000 to 18.9 percent in 2007. Nevertheless taken together, on average, only about 18 out of every 100 pupils had teachers who lived in acceptable conditions in 2000 whereas 22 out of 100 had teachers who lived in acceptable conditions in 2007. This implies that, although progress has been made, the vast majority, approximately 80 percent, of students have teachers not living in acceptable housing conditions.

Considerable improvement is noted in Mwanza, Southwest and Kagera where the percentage of pupils with Mathematics teachers living in acceptable housing conditions increased from 0.0 percent in 2000 to 13.4 percent, 26.9 percent and 38.2 percent respectively in 2007. A less impressive trend is noted in Eastern zone for both Reading and Mathematics teachers where a large decline occurred over time from 28.5 percent and 34.5 percent in 2000 down to 8.7 percent and 9.1 percent, respectively, in 2007.

Improvements registered in many zones can be partly explained by the construction of staff quarters – a component of PEDP which is heavily supported by the local communities. In the zones where declines are noted it may be due to the failure of some local authorities in mobilizing the local community to effectively implement the PEDP. Another reason for the decline in Eastern zone may be that the majority of teachers located in Dar es Salaam city where there has

been a tradition of teachers renting houses from the community; many of which are not in good living conditions but remained an affordable option for them since rents for good quality houses in the city are rather high.

Overall, the results show that there was a slight improvement for Reading and Mathematics teachers of Standard 6 teachers who lived in unacceptable housing conditions between 2000 and 2007. But although the results are positive they reveal very slow progress being made in this regard under PEDP I. The Government move to build teachers' quarters remains a serious challenge to be met under PEDP II (2007-11) and beyond so that in the long run the majority and not the minority of teachers live in acceptable housing conditions.

Policy Suggestion 4.3: *The Ministry in collaboration with PMORALG should step-up efforts to improve teachers' housing conditions through building more teachers' quarters and maintaining those that are in place. Special attention should be paid to those zones where teachers housing conditions are worst.*

Policy Suggestion 4.4: *The Ministry in collaboration with PMORALG should sensitize the local communities to start initiatives of building more teachers' quarters especially in those zones with the lowest housing conditions.*

4.3 Professional characteristics of teachers

General Policy Concern 4.2:

What were the professional characteristics of Standard 6 teachers (in terms of academic, professional, and in-service training) and did they consider in-service training to be effective in improving their teaching?

Pre-service training, however short it may be, is essential for teachers because it enables new teachers to quickly master the basics of the profession. It equips the trainees with basic pedagogical skills, knowledge, values, and codes of conduct. However, it is also important that all teachers, young and old, receive regular in-service and on-service training if they are to meet

the challenges of the ever-changing curriculum, the needs of the individual (pupil), and the needs of society. Good pedagogical skills and a sound academic background that is well beyond the level of the pupils they teach are crucial factors that influence teachers' performance. In-service training needs to be provided regularly in order enable teachers to keep track of developments in education.

It is widely acknowledged that, with minor exceptions, teachers who have taught longest produce better results than those with limited experience. They have the advantage of having applied and perfected various pedagogical techniques that they learned during training. Through in-service, practicing teachers are also likely to have had the opportunity over the years to enhance their capabilities through learning new skills and adapting old ones to meet the demands of various educational innovations. These factors were considered important in the study and hence teachers were asked to indicate their professional qualifications, the level of their in-service training and the effectiveness of the trainings they received. The results of their responses have been presented in *Table 4.3* and *Table 4.3a*.

Table 4.3: Means and sampling errors for experience and training of Reading and Mathematics teachers (2000)

	Reading teacher				Mathematics teacher (2000)			
	Experience (years)		Training (years)		Experience (years)		Training (years)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	13.6	2.06	2.5	0.20	12.8	2.01	2.1	0.12
Eastern	12.5	1.90	2.2	0.09	10.4	1.53	2.1	0.08
Kagera	18.7	1.54	2.1	0.19	14.7	2.35	2.4	0.17
Kilimanjaro	15.9	1.76	2.2	0.11	14.8	2.29	2.2	0.18
Mwanza	9.9	2.40	2.0	0.20	12.2	2.09	2.3	0.35
Northeast	16.9	2.54	2.0	0.11	15.1	1.45	2.3	0.12
Northern	16.4	1.57	2.2	0.16	16.7	1.48	2.0	0.11
S. Highlands	12.5	1.29	2.1	0.12	8.5	1.26	2.3	0.14
Southern	15.3	3.42	2.3	0.27	9.0	1.60	2.1	0.21
Southwest	14.2	2.08	2.3	0.13	12.5	2.21	2.2	0.14
Western	12.5	1.76	2.3	0.15	12.4	1.50	2.1	0.11
Tanzania	**14.1**	**0.62**	**2.2**	**0.05**	**12.5**	**0.53**	**2.2**	**0.05**

Table 4.3a: Means and sampling errors for experience and training of Reading, Mathematics and Health teachers (2007)

	Reading teacher				Mathematics teacher				Health teacher			
	Experience (years)		Training (years)		Experience (years)		Training (years)		Experience (years)		Training (years)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	14.7	2.80	1.8	0.20	14.0	2.76	1.9	0.15	7.7	1.63	1.7	0.13
Eastern	10.2	2.48	2.0	0.08	10.2	1.50	1.9	0.09	9.0	1.68	2.2	0.17
Kagera	11.0	2.73	1.6	0.14	8.3	1.69	1.8	0.18	8.4	2.16	1.9	0.17
Kilimanjaro	17.7	3.18	2.0	0.24	19.7	2.19	1.9	0.18	15.0	1.61	2.1	0.11
Mwanza	9.5	2.53	1.7	0.19	8.9	2.25	1.7	0.12	12.6	2.48	2.1	0.12
Northeast	14.9	2.47	2.1	0.11	8.9	2.14	1.8	0.13	11.4	2.35	1.9	0.11
Northern	13.3	2.04	2.1	0.16	16.3	2.18	2.3	0.16	12.2	2.20	2.2	0.12
S. Highlands	11.5	2.56	2.0	0.10	8.8	2.11	1.9	0.12	9.4	1.95	2.0	0.10
Southern	12.9	2.51	2.1	0.15	13.7	3.67	2.0	0.27	12.7	3.62	2.2	0.19
Southwest	14.7	2.72	2.3	0.21	9.7	2.74	2.0	0.19	4.5	1.20	1.7	0.12
Western	9.9	2.07	1.9	0.18	7.7	1.94	1.5	0.18	7.9	1.48	2.0	0.22
Tanzania	**12.5**	**0.79**	**2.0**	**0.05**	**11.1**	**0.77**	**1.9**	**0.05**	**10.0**	**0.70**	**2.0**	**0.05**

Teaching experience

How many years of teaching experience had teachers completed?

In columns 2, 6 and 10 of *Table 4.3a*, it can be seen that in Tanzania Standard 6 pupils were taught Reading, Mathematics and Health knowledge by teachers whose average teaching experiences were 12.5 years, 11.1 years and 10.0 years respectively during 2007. In 2000 teachers' experience in Reading and Mathematics were 14.1 and 12.5 years respectively, which implies a decrease of teachers' experience by 1.6 years for Reading teachers and 1.4 year for Mathematics teachers. However the differences were not significant. There were notable variations among the zones in the teaching experience of Standard 6 teachers across the three subjects. Kilimanjaro Zone had the highest mean teaching experience of 17.7 years, 19.7 and 15 years for Reading, Mathematics and Health respectively. On the other hand, the lowest mean teaching experiences in the three subjects were 9.5 years for Reading in Mwanza, 7.7 years in Western zone for Mathematics and 4.5 years in Southwest for Health.

A comparison of the results for teaching experience between 2000 and 2007 reveal several trends. Nationally, teaching experience of both Reading and Mathematics teachers decreased by just over

one year which means that teachers were on average just over one year less experienced in 2007 than in 2000. It is surprising that Kagera zone, which had the most experienced teachers (Reading) in 2000, dropped particularly sharply from 18.7 to approximately 11 years in 2007. The substantial drop in the experience of teachers can be explained largely by the success of the ambitious training programme for training primary school teachers that the government had embarked on through PEDP I (2002-2006). Through the programme, the primary education system recruited new and younger teachers. The figures for Kagera can be partly explained by several reasons: the possibility that many Reading teachers were transferred out of the zone during the period coupled with massive intakes of newly trained teachers to alleviate possible shortages. The other may be a possibility of marked attrition rates overtime including voluntary retirements.

Generally, a pattern was noted where zones with relatively low means in teaching experience for Reading teachers' also had low means for the experience of Mathematics teachers, with a few exceptions. The reverse was also true. This may be explained by the possibility that the two subjects were largely taught by the same teachers across the zones. Overall, the results suggest that Standard 6 pupils were taught by slightly less experienced teachers in 2007 than in 2000. The most experienced teachers were Mathematics teachers in Kilimanjaro zone (19.7 years) and the least experienced teachers were Health teachers in Southwest zone (4.5 years).

Professional training

How many years of teacher training had teachers completed?

Teacher training for the majority of primary school teachers lasts 2 years. Over the years a variety of pre-service programmes had been introduced in order to meet the demand for teachers. Programmes included those lasting 2 years for trainees who completed Ordinary level secondary education (for Grade A teachers), 4 years for trainees who completed 7 years of primary education and were in the reserve list for joining secondary education (for Grade B teachers), 3 weeks for trainees who completed 7 years of primary education (for Grade C teachers), and 1 year residential training for trainees who completed Ordinary level secondary education (for Grade A teachers). In the study, teachers were asked to indicate the number of years they had spent in teacher training. *In Table 4.3* and *Table 4.3a* a summary of their responses has been presented.

The national average number of years of pre-service training for Standard 6 teachers across the three subjects in 2007 was approximately 2 years (2.0 years each for Reading and Health teachers and 1.9 years for Mathematics). There was some variation across the zones in the number of years of training that teachers had completed. In Reading, the range was from a high mean of 2.3 years Southwest zone to a low of 1.6 years in Kagera zone. In Mathematics mean teacher training ranged from a high of 2.3 years in Northern to a low of 1.5 years in Western. For Health teachers the range was from a high mean of 2.2 years in Northern, Eastern and southern zones to a low mean of 1.7 years in Central and Southwest.

In 2000 the mean levels of teacher training of both Reading and Mathematics teachers was 2.2 years. By 2007 the mean years of teacher training had decreased, slightly but significantly, to 2.0 years. This decrease may, in part, be explained in the same as the decrease in experience discussed above. The rapid expansion of the teaching force under PEDP may also have introduced a large number of teachers who had completed less than two years teacher training.

Academic education

How many years of academic education had teachers completed?

Standard 6 teachers were asked to indicate the level of academic education which they had attained. They selected their responses from the following categories: primary, junior secondary, senior secondary, advanced level, and tertiary level. The results of their responses have been presented in *Table 4.4*, *Table 4.4a*, *Table 4.5*, *Table 4.5a*, and *Table 4.6*.

In *Table 4.4a* it can be seen that in 2007, approximately 87.5 percent of Standard 6 pupils were taught by Reading teachers who had completed senior secondary education. Small minorities of them were taught by teachers who had only completed primary education (7.0 percent), junior secondary education (1.8 percent) and A-level (3.7 percent). No Standard 6 pupils had Reading teachers who had completed tertiary education.

Table 4.4: Academic education of Reading teachers (2000)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	59.6	13.20	33.9	12.76	0.0	0.00	6.5	6.55	0.0	0.00
Eastern	10.2	7.10	83.3	8.01	2.9	2.89	3.6	3.64	0.0	0.00
Kagera	32.8	12.59	60.1	13.19	0.0	0.00	7.1	7.08	0.0	0.00
Kilimanjaro	29.2	11.80	70.8	11.80	0.0	0.00	0.0	0.00	0.0	0.00
Mwanza	24.2	11.94	75.8	11.94	0.0	0.00	0.0	0.00	0.0	0.00
Northeast	28.5	12.68	64.5	13.58	6.9	6.97	0.0	0.00	0.0	0.00
Northern	37.1	11.52	62.9	11.52	0.0	0.00	0.0	0.00	0.0	0.00
S. Highlands	12.5	8.20	87.5	8.20	0.0	0.00	0.0	0.00	0.0	0.00
Southern	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Southwest	20.1	11.32	65.2	13.79	0.0	0.00	6.6	6.60	8.1	8.17
Western	26.5	10.81	68.4	11.41	0.0	0.00	5.0	5.07	0.0	0.00
Tanzania	**25.2**	**3.34**	**71.3**	**3.45**	**0.9**	**0.70**	**2.1**	**0.96**	**0.5**	**0.45**

Table 4.4a: Academic education of Reading teachers (2007)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	25.8	11.62	0.0	0.00	74.2	11.62	0.0	0.00	0.0	0.00
Eastern	0.0	0.00	0.0	0.00	95.3	3.70	4.7	3.70	0.0	0.00
Kagera	6.1	5.78	5.6	5.65	88.4	7.66	0.0	0.00	0.0	0.00
Kilimanjaro	7.0	7.04	1.4	1.50	91.6	7.21	0.0	0.00	0.0	0.00
Mwanza	8.4	6.30	0.0	0.00	91.6	6.30	0.0	0.00	0.0	0.00
Northeast	10.4	6.94	0.0	0.00	89.6	6.94	0.0	0.00	0.0	0.00
Northern	7.6	5.33	0.0	0.00	87.7	6.84	4.7	4.63	0.0	0.00
S. Highlands	4.6	4.59	5.3	5.30	85.5	8.07	4.7	4.68	0.0	0.00
Southern	7.4	7.38	6.9	6.97	76.5	10.15	9.2	7.78	0.0	0.00
Southwest	0.0	0.00	0.0	0.00	84.4	10.41	15.7	10.41	0.0	0.00
Western	4.9	4.91	0.0	0.00	95.1	4.91	0.0	0.00	0.0	0.00
Tanzania	**7.0**	**1.83**	**1.8**	**1.06**	**87.5**	**2.46**	**3.7**	**1.49**	**0.0**	**0.00**

Table 4.5: Academic education of Mathematics teachers (2000)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Eastern	1.8	1.77	92.0	6.39	6.2	6.24	0.0	0.00	0.0	0.00
Kagera	20.5	10.94	79.5	10.94	0.0	0.00	0.0	0.00	0.0	0.00
Kilimanjaro	11.5	7.98	88.5	7.98	0.0	0.00	0.0	0.00	0.0	0.00
Mwanza	3.2	3.23	95.2	3.60	0.0	0.00	1.6	1.62	0.0	0.00
Northeast	22.9	11.91	77.1	11.91	0.0	0.00	0.0	0.00	0.0	0.00
Northern	4.6	4.59	87.4	7.13	4.1	4.13	3.9	3.94	0.0	0.00
S. Highlands	6.6	6.68	82.9	8.92	10.5	6.36	0.0	0.00	0.0	0.00
Southern	0.0	0.00	92.0	8.17	0.0	0.00	8.0	8.17	0.0	0.00
Southwest	16.5	12.56	77.0	13.36	0.0	0.00	6.6	6.60	0.0	0.00
Western	8.6	6.34	88.8	6.81	0.0	0.00	2.6	2.62	0.0	0.00
Tanzania	**7.7**	**2.09**	**87.4**	**2.60**	**2.9**	**1.31**	**1.9**	**0.94**	**0.0**	**0.00**

Table 4.5a: Academic education of Mathematics teachers (2007)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	21.1	11.62	0.0	0.00	78.9	11.62	0.0	0.00	0.0	0.00
Eastern	0.0	0.00	0.0	0.00	92.2	5.36	7.8	5.36	0.0	0.00
Kagera	6.2	6.28	0.0	0.00	93.8	6.28	0.0	0.00	0.0	0.00
Kilimanjaro	0.0	0.00	0.0	0.00	93.2	6.87	6.8	6.87	0.0	0.00
Mwanza	3.1	3.24	0.0	0.00	92.7	5.44	4.2	4.33	0.0	0.00
Northeast	0.0	0.00	0.0	0.00	93.5	6.38	6.5	6.38	0.0	0.00
Northern	13.6	7.60	0.0	0.00	82.9	7.71	3.5	2.47	0.0	0.00
S. Highlands	0.0	0.00	0.0	0.00	90.9	6.39	9.1	6.39	0.0	0.00
Southern	0.0	0.00	0.0	0.00	94.3	5.81	5.7	5.81	0.0	0.00
Southwest	0.0	0.00	0.0	0.00	85.1	10.10	14.9	10.10	0.0	0.00
Western	0.0	0.00	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00
Tanzania	**3.8**	**1.35**	**0.0**	**0.00**	**90.8**	**2.11**	**5.4**	**1.64**	**0.0**	**0.00**

In *Table 4.5a* it can be seen that in 2007, 90.8 percent of Standard 6 pupils were taught by Mathematics teachers who completed senior secondary education. A much smaller minority of

pupils, compared to Reading teachers, were taught by Mathematics teachers who had only completed primary education (3.8 percent) and the remaining 5.4 percent had completed A-Level. Across the zones the variations in percentage of pupils whose Reading teachers had achieved senior secondary education ranged from a high of 95.3 percent in the Eastern zone to a low of 74.2 percent in the Central zone. In Mathematics the percentages of pupils whose teachers had completed senior secondary education ranged from a high of 100.0 percent in the Western zone to a low of 78.9 percent in the Central zone. Eastern zone had the highest percentage of pupils whose teachers, in both subjects, had completed senior secondary education. It is disturbing to note that the Central and Northern zones had, relative to the other zones, larger numbers of teachers with only primary education in 2007 (21.1 percent and 13.6 percent respectively in Reading and 21.1 and 13.6 percent respectively in Mathematics) which should be of concern to the Ministry.

The overall results for 2007 on the academic education of Standard 6 teachers indicate an extremely impressive improvement from 2000. In 2007 87.5 percent of students had a Reading teacher with senior secondary education, up from 0.9 percent in 2000. Similarly in Mathematics in 2007 90.9 percent of Standard 6 pupils had a teacher with senior secondary education, up from 2.9 percent in 2007. As expected, there was a major decline in the percentage of pupils whose teachers only had junior secondary education, down from 71.3 percent (Reading) and 84.7 percent (Mathematics) to 1.8 percent and 0.0 percent respectively in 2007. The percentages of Standard 6 pupils with teachers who only had primary education level decreased to 7.0 percent in Reading and 3.8 percent in Mathematics from 25.2 percent in Reading and 7.7 percent in Mathematics in 2000.

It is worrying that despite the general decrease in the proportion of Standard 6 pupils whose teachers only had primary education level in 2007 there were a few zones that still had substantial proportions of them namely Central zone (25.8 percent and 21.1 percent for Reading and Mathematics teachers respectively); Northern zone (13.6 percent for Mathematics teachers); Kilimanjaro and Northeast (10.4 percent each for Reading and Health teachers respectively). The enormous decrease in the proportion of the less qualified teachers (those with primary and junior

secondary education) and the corresponding large increase in the percentages of Standard 6 pupils with teachers who have senior secondary education are impressive results.

The 2007 figures can be explained by the successful implementation of the Ministry's teacher education upgrading programme which aims at ensuring that all primary school teachers attained senior secondary education by year 2009.

Table 4.6: Academic education of Health Teachers (2007)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	3.9	4.04	0.0	0.00	88.6	8.27	7.5	7.39	0.0	0.00
Eastern	0.0	0.00	0.0	0.00	99.1	0.87	0.9	0.87	0.0	0.00
Kagera	0.0	0.00	0.0	0.00	95.5	4.60	4.5	4.60	0.0	0.00
Kilimanjaro	10.4	10.11	0.0	0.00	82.8	11.73	6.8	6.87	0.0	0.00
Mwanza	5.3	5.40	0.0	0.00	86.2	8.18	8.5	6.23	0.0	0.00
Northeast	0.0	0.00	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00
Northern	4.6	3.92	0.0	0.00	95.4	3.92	0.0	0.00	0.0	0.00
Southern Highlands	0.0	0.00	0.0	0.00	95.8	4.26	4.2	4.26	0.0	0.00
Southern	0.0	0.00	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00
Southwest	0.0	0.00	0.0	0.00	93.5	6.53	6.5	6.53	0.0	0.00
Western	5.5	5.52	0.0	0.00	85.4	8.12	9.0	6.35	0.0	0.00
Tanzania	**2.5**	**1.11**	**0.0**	**0.00**	**93.5**	**1.74**	**4.1**	**1.39**	**0.0**	**0.00**

In *Table 4.6* it can be seen that in 2007, 93.5 percent of Standard 6 pupils were taught by Health teachers who completed senior secondary education. A minority of them and were taught by teachers who had completed A-level secondary (4.1 percent) and primary education (2.5 percent). There were some variations in the academic education levels of health knowledge teachers among the zones. In the senior secondary education level, the range was from a high average of 100 percent in Northeast and Southern Zones to a low of 85.4 percent in the Western zone. As expected, the pattern from Reading and Mathematics was repeated where much fewer Standard 6 pupils were taught health knowledge by teachers with a primary or A-level academic background (2.5 percent with primary education and 4.1 percent with advanced level of education).

Kilimanjaro zone appeared to have more pupils taught by teachers with only primary education relative to the rest of the zones which is worrying.

The levels of academic education of health teachers was not assessed in 2000 hence no comparison can be made. The results for Health teachers as well as for Reading and Mathematics teachers indicated that Standard 6 pupils were predominantly taught by teachers who had completed senior secondary education. In other words the Ministry's benchmark on the academic education of primary school teachers was largely met. Nevertheless, the ministry should be concerned with the remaining proportions of unqualified teachers especially in the zones that still had notable numbers of under qualified teachers.

In-service training

How much in-service training had teachers completed?

Teachers were asked to give the number of in-service courses and the total number of days of the in-service courses they had attended during the past 3 years from the base year of the study (year 2000). Their responses have been presented in *Table 4.7* and *Table 4.7a*.

Table 4.7: Means and sampling errors for teacher in-service courses and days attended in the last three years (2000)

	Reading teacher				Mathematics teacher			
	In-service courses		Days		In-service courses		Days	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	0.0	0.04	0.6	0.58	0.5	0.20	7.5	3.45
Eastern	0.3	0.15	8.2	5.96	0.5	0.24	5.3	2.54
Kagera	0.7	0.29	41.8	26.36	0.7	0.41	2.1	1.24
Kilimanjaro	0.6	0.22	23.6	13.64	0.6	0.23	34.6	20.52
Mwanza	0.5	0.25	27.4	21.18	0.1	0.09	0.5	0.37
Northeast	0.3	0.34	4.7	4.74	0.6	0.29	9.6	3.91
Northern	0.4	0.19	25.7	17.14	0.2	0.09	23.2	14.31
S. Highlands	0.2	0.17	11.9	11.23	0.3	0.11	11.8	7.84
Southern	0.5	0.19	15.8	9.35	0.4	0.18	23.1	14.16
Southwest	0.2	0.16	9.3	7.37	0.6	0.22	28.6	15.32
Western	0.1	0.08	5.0	4.56	0.6	0.26	16.6	9.14
Tanzania	**0.3**	**0.06**	**14.5**	**3.92**	**0.4**	**0.06**	**14.9**	**3.29**

Table 4.7a: Means and sampling errors for teacher in-service courses and days attended in the last three years (2007)

	Reading teacher				Mathematics teacher				Health teacher			
	In-service courses		Days		In-service courses		Days		In-service courses		Days	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	0.7	0.30	7.3	3.90	0.8	0.27	10.3	4.57	0.5	0.24	8.3	4.38
Eastern	0.4	0.17	4.5	2.31	0.4	0.23	1.8	1.10	1.2	0.61	16.0	7.72
Kagera	0.8	0.42	8.9	7.29	1.2	0.44	20.5	9.06	0.5	0.14	15.0	8.48
Kilimanjaro	0.6	0.19	10.9	6.00	0.9	0.43	14.1	7.70	0.9	0.29	15.0	7.18
Mwanza	1.5	0.42	21.4	9.00	0.8	0.38	4.8	2.52	0.9	0.35	9.8	6.14
Northeast	0.8	0.34	19.7	9.64	0.6	0.32	7.1	5.18	0.9	0.35	10.6	6.36
Northern	0.7	0.23	7.9	3.44	0.9	0.33	8.0	3.77	1.3	0.37	16.7	7.12
S. Highlands	0.2	0.13	3.1	2.09	0.4	0.20	6.5	4.27	0.0	0.04	0.9	0.88
Southern	0.7	0.18	5.4	2.52	0.3	0.19	3.4	1.86	0.3	0.18	2.5	1.53
Southwest	1.0	0.61	16.2	10.52	0.3	0.18	2.5	1.66	0.1	0.13	0.3	0.32
Western	0.6	0.21	10.4	4.96	0.3	0.14	8.7	6.26	0.7	0.25	11.0	6.48
Tanzania	**0.7**	**0.09**	**10.1**	**1.85**	**0.6**	**0.09**	**7.4**	**1.48**	**0.7**	**0.09**	**9.2**	**1.78**

Nationally, in 2007 the average Standard 6 pupil was taught by a Reading teacher who attended 0.7 in-service courses lasting a total number of 10.1 days, a Mathematics teacher who had attended 0.6 in-service courses lasting a total number of 7.4 days and a Health teacher who had attended 0.7 in-service courses lasting a total number of 9.2 days.

There were notable variations across the zones in the number of in-service courses and number of days Reading, Mathematics and Health knowledge teachers attended. In Reading the number of in-service courses ranged from a high of 1.5 in Mwanza zone to 0.2 in Southern Highlands. The number of days varied significantly from a high of 21.4 days in Mwanza zone to a low of 3.1 days in the Southern Highlands zone. In Mathematics the range was from 1.2 courses in Kagera zone to a low of 0.3 courses in Southern, Southwest and Western zones. The number of days varied significantly from a high of 20.5 days in Kagera zone to a low of 1.8 days in Eastern zone. The national average number of in-service courses for Mathematics teachers was slightly smaller compared to the national average number of in-service courses for Reading teachers the national average number of days for Mathematics teachers mirrored this be being also only marginally

smaller (7 days compared to 10 days) than for Reading teachers. For Heath teachers the range was from 1.2 courses in Eastern zone to a low of 0.0 courses in Southern Highlands zone. The number of days varied significantly from a high of 16.7 days in Northern zone to a low of 0.3 days in Southwest zone.

The trend from 2000 to 2007 reveals a mixed picture but notable improvement, overall, in the number of courses but a decline in the number of days spent on the courses in both reading and Mathematics. The Mathematics in-service courses increased slightly to 0.6 in 2007 from 0.4 in 2000 whereas in Reading in-service courses increased significantly to 0.7 in 2007 from 0.3 in 2000. Conversely, in Reading the number of days decreased to 10.4 in 2007 from 14.9 days in 2000 and in Mathematics the number of days decreased to 8.0 in 2007 from 14.5 days in 2000. Among the zones the highest number of days spent on in-service courses declined sharply in 2007. The highest was 21 days for Mathematics in Kagera zone during 2007 compared to approximately 35 days, in Kilimanjaro in 2000. In Reading the highest was 21.4 days in Southwest zone in 2007 compared to approximately 42 days in Kagera zone.

On the basis of the results it is clear that there was slight improvement in the provision of in-service courses overtime with Reading teachers attending many more courses than their counterpart Mathematics teachers. However since the number of courses is generally a function of several things including the number of days spent, a substantial difference in the number of days spent on the in-service courses between Reading and Mathematics would also be expected. The marginal difference observed raises doubts on the match between quantity of courses and the contents covered in Reading courses. In addition since the number of courses were attended over a 3 year period it is doubtful if these were sufficient especially given that there had been a major review of the primary education curriculum from content based to a competence based one (learner centred and measuring what the learner can do) in 2005. This paradigm shift required adequate in servicing of teachers to assist them in the change.

The results over time can probably be explained partly by the absence of a clearly defined policy and mechanism which ensured that teachers received in-service training especially at school level. This explanation was given in 2000 and remains valid in the light of 2007's results since

not much progress appears to have been made in this regard. The Ministry needs to formulate an in-service training policy and develop sustainable mechanisms for the equitable provision of continuous in-service training within a decentralized framework focusing on more disadvantaged zones.

Policy Suggestion 4.5: *The Ministry in collaboration with PMORALG should formulate a policy that requires teachers to attend a certain minimum number of in-service courses over a given period of time to ensure that every teacher keeps abreast with the changing demands of the curriculum as well as the needs of learners and of society.*

Policy Suggestion 4.6: *The Ministry (Department of Primary Education) in collaboration with PMORALG should revive and consolidate Education Cluster Centres under WABEM and District and Zonal Resource Centres in order to broaden teachers' access to opportunities for in–service training. Mentoring, a component of WABEM, should be developed in each cluster to provide regular teacher in-servicing at school level. Backup services should be provided to the Education Cluster Centres by District, Zonal Teacher/ Resource Centres, the Inspectorate and the Teacher Training Colleges when more specialized training is required.*

Effectiveness of in-service training

Did teachers consider that in-service training improved their teaching?

Teachers were asked to describe the effectiveness of in-service courses they received. Their possible responses were 'no in-service course', 'not effective', 'reasonably effective', 'effective' and 'very effective'. The variables were recorded to produce two categories of responses, namely, 'not effective' and 'effective'. The analysis of their responses as "effective Reading and Mathematics in-service courses" has been summarized in *Table 4.8* and *Table 4.8a.*

It can be seen from *Table 4.8a* that in 2007 the national averages for teachers responding that in-service courses were effective was 18.8 percent for Reading teachers, 14.3 percent for Mathematics teachers and 15.6 percent for Health teachers. There were disparities across the

zones in the percentages pupils whose teachers responded that in-service courses were effective, and in some, the disparities were considerable.

Table 4.8: Percentages and sampling errors for the teachers' perception of effectiveness of Reading and Mathematics in-service courses (2000)

	Reading in-service courses		Mathematics in-service courses	
	%	SE	%	SE
Central	4.2	4.16	19.5	10.63
Eastern	23.0	8.48	20.0	8.75
Kagera	30.6	12.16	12.9	8.83
Kilimanjaro	31.5	12.37	25.2	11.53
Mwanza	18.1	10.45	12.2	8.71
Northeast	0.0	0.00	26.1	12.08
Northern	21.6	10.64	13.0	7.36
Southern Highlands	8.1	5.13	23.6	10.87
Southern	47.0	19.01	28.2	15.95
Southwest	10.3	8.19	36.6	14.23
Western	13.2	7.55	26.6	9.50
Tanzania	**17.1**	**2.93**	**21.8**	**3.30**

Table 4.8a: Percentages and sampling errors for the teachers' perception of effectiveness of Reading, Mathematics and Health in-service courses (2007)

	Reading in-service courses		Mathematics in-service courses		Health in-service courses	
	%	SE	%	SE	%	SE
Central	8.6	5.28	9.2	6.25	8.5	6.47
Eastern	9.2	5.35	7.3	7.22	21.6	9.62
Kagera	33.1	14.38	10.7	7.55	18.2	8.35
Kilimanjaro	31.7	14.56	40.0	15.25	28.8	13.01
Mwanza	16.2	8.48	21.5	12.42	24.3	13.32
Northeast	30.2	11.18	17.1	9.08	22.6	10.09
Northern	9.9	4.69	17.8	7.18	21.3	8.25
Southern Highlands	13.1	7.39	10.8	6.45	4.1	4.19
Southern	29.2	10.46	15.2	9.19	5.4	5.52
Southwest	9.1	6.52	11.3	10.77	0.0	0.0
Western	24.8	10.77	7.7	5.77	22.4	9.38
Tanzania	**18.8**	**2.88**	**14.3**	**2.59**	**15.6**	**2.62**

Kilimanjaro zone had the highest percentage of students whose Mathematics teachers (40.0 percent) and Health teachers (28.8 percent) responded that in-service courses were effective while Kagera zone had highest percentage for Reading teachers (33.1 percent). Central zone had the lowest percentage for Reading teachers (8.6 percent) who responded that in-service courses were effective. Eastern zone had the lowest percentage for Mathematics teachers (7.3 percent) while Southwest zone had the lowest percentage for Health teachers (0.0 percent) who responded that in-service courses were effective.

Between 2000 and 2007 the results reflect mixed picture in the effectiveness of in-service courses to teachers. Nationally, the percentage of students with teachers responding that in-service courses were effective increased for Reading from 17.1 percent in 2000 to 18.8 percent but declined for Mathematics from 21.8 percent to 14.27 percent in 2007. However, though the changes were insignificant for Reading teachers they were significant for Mathematics teachers. The situation with regards to Reading teachers in Northeast zone improved considerably between 2000 and 2007. In 2000, 0 percent of pupils had Reading teachers who thought that in-service courses were effective; by 2007 this figure was 30.2 percent. With these results it is likely that, among other things, teachers were not adequately involved in identifying the content of the in-service programmes that meet their needs. Another reason could be the inadequacy in the modes of delivery of the courses. A challenge remains, therefore, especially in the zones where the responses were relatively low. It would be desirable if designers and facilitators of in-service courses: the inspectors, curriculum developers, teacher trainers, and resource centre facilitators examined further why the majority of teachers did not find the in-service courses effective.

Policy Suggestion 4.7: *The Ministry (Teacher Education Department) should identify the strategies used in zones where teachers responded particularly positively on effectiveness of in-service courses in Reading and Mathematics and adapt the same approaches to less positive zones and tailor the strategies to in-service teachers teaching other subjects in primary school.*

4.4 Teachers' time allocation

General Policy Concern 4.3:

How did Standard 6 teachers allocate their time among responsibilities concerned with teaching, preparing lessons, and marking?

The school curriculum is designed to be implemented within a specific period of time. Therefore it is important that time is managed so that every effort contributes to its effective implementation. A successful lesson begins with careful preparation, which is a function of time, and is associated with the number of lesson periods per day that the teacher teaches. As stated earlier, a primary school pupil in Standards 3-7 should spend four hours of lesson periods per day or 20 hours of lesson periods per week. When a reasonable amount of time is spent on lesson preparation, it can impact positively on teaching. The informed teacher can, for instance, formulate with clarity the teaching objectives, carefully organize the course material into sequential learning tasks, and design relevant questions or tasks to assess pupils' mastery of the skills taught.

Lesson preparation and marking

How many hours per week did teachers spend in lesson preparation and marking?

The Standard 6 teachers were asked to indicate the time spent on lesson preparation per week and the results have been presented in *Table 4.9* and *Table 4.9a*.

In 2007 the average Standard 6 pupil was taught by a Reading teacher who spent 11.9 hours on lesson preparation per week, a Mathematics teacher who spent 13.8 hours on lesson preparation per week and a Health teacher who spent 13.2 hours on lesson preparation per week. The corresponding national mean for time spent by teachers for preparation of lessons in 2000 was 19.0 hours for Reading lessons and 18.9 hours for Mathematics lessons. This result suggest a substantial decline of about 7 hours per week on the time spent on lesson preparation in Reading and about 5 hours per week on the time spent on lesson preparation in Mathematics, which is worrying.

Table 4.9: Means and sampling errors for the teacher time spent on lesson preparation (2000)

	Time spent on lesson preparation			
	Reading lesson (hours)		Mathematics lesson (hours)	
	Mean	SE	Mean	SE
Central	20.7	4.05	19.8	3.78
Eastern	22.5	2.93	22.0	2.67
Kagera	19.4	4.22	16.4	2.85
Kilimanjaro	20.6	3.65	22.4	4.84
Mwanza	19.8	2.89	16.4	3.82
Northeast	12.9	2.82	11.0	2.28
Northern	20.0	3.45	20.7	3.25
Southern Highlands	22.5	2.83	17.5	2.95
Southern	15.6	3.91	21.5	5.23
Southwest	12.9	1.49	17.8	3.15
Western	16.8	3.22	20.9	3.08
Tanzania	**19.0**	**1.04**	**18.9**	**1.06**

Table 4.9a: Means and sampling errors for the teacher time spent on lesson preparation (2007)

	Time spent on lesson preparation					
	Reading lesson (hours)		Mathematics lesson (hours)		Health lesson (hours)	
	Mean	SE	Mean	SE	Mean	SE
Central	10.3	0.39	13.6	0.39	14.9	0.43
Eastern	11.0	0.41	14.8	0.33	14.7	0.39
Kagera	11.9	0.39	11.8	0.34	11.4	0.41
Kilimanjaro	10.3	0.24	13.3	0.32	10.8	0.25
Mwanza	11.0	0.36	13.9	0.29	14.9	0.30
Northeast	13.4	0.36	13.9	0.37	11.9	0.33
Northern	11.9	0.29	14.6	0.34	12.9	0.28
Southern Highlands	12.8	0.32	14.8	0.27	14.3	0.34
Southern	14.8	0.41	14.5	0.42	14.5	0.43
Southwest	10.7	0.43	13.5	0.41	10.8	0.33
Western	12.6	0.42	12.0	0.42	13.7	0.41
Tanzania	**11.9**	**0.11**	**13.8**	**0.11**	**13.2**	**0.11**

There were some variations, across the zones, in the time spent on lesson preparation per week between the two subjects in 2007 however the variations were less wide during 2007 compared to variations during 2000. Southern Zone had the highest mean of 14.8 hours spent on lesson preparation in Reading per week while Kilimanjaro and Central zones had the lowest mean of 10.3 hours each spent on lesson preparation. In 2000 the highest mean, in Eastern Zone, was 22.5 hours spent on lesson preparation in Reading per week while the lowest mean was 12.9 hours spent on lesson preparation, in Northeast zone. In Mathematics Eastern and Southern Highlands had the highest mean of 14.8 hours spent on lesson preparation per week while Kagera had the lowest mean of 11.8 hours spent on lesson preparation per week. In 2000 the highest mean of 22.4 hours spent on lesson preparation per week was in Kilimanjaro while Northeast Zone had the lowest mean 11.0 hours spent on lesson preparation per week.

The decline in hours spent on lesson preparation per week by teachers can probably be explained by the fact that during the period under review, the number of periods taught by teachers per week had gone down due to the increase in the supply of teachers. Another potential reason could be that teachers gave less importance to lesson preparation due to new assignments and new priorities. It would therefore be imperative for the relevant authorities to examine further the causes of this decline. It appears therefore that an average Standard 6 pupil was taught by a Reading and a Mathematics teacher who spent fewer hours on lesson preparation per week in 2007 than in 2000.

Policy Suggestion 4.8: *The Ministry (School Inspectorate Department) should investigate why teachers spent fewer hours on lesson preparation per week in 2007 than in 2000 in both Reading and Mathematics.*

Teaching load

How many periods did teachers teach and how long were these periods?

Teachers were asked to state how many periods they taught and how long these periods were. Their responses have been summarized in *Table 4.10* and *Table 4.10a*.

Table 4.10: Means and sampling errors for the periods and time spent on teaching per week (2000)

	Reading teacher				Mathematics teacher			
	Periods per week		Hours per week		Periods per week		Hours per week	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	24.2	2.13	16.1	1.42	28.1	3.53	18.7	2.36
Eastern	16.8	1.87	11.2	1.21	19.0	2.07	12.5	1.21
Kagera	20.6	2.43	13.7	1.55	23.5	2.46	15.7	1.52
Kilimanjaro	26.0	2.39	17.3	1.59	24.4	2.10	16.3	1.40
Mwanza	27.5	3.15	18.3	1.91	26.6	2.57	17.7	1.71
Northeast	18.8	2.66	12.6	1.77	20.8	2.72	14.6	1.71
Northern	27.4	2.57	18.3	1.72	24.5	2.57	16.5	1.44
S. Highlands	29.8	2.47	20.0	1.57	28.7	2.48	19.1	1.65
Southern	27.1	3.08	18.1	2.05	26.4	2.40	17.6	1.60
Southwest	25.3	2.55	16.9	1.70	27.1	2.51	18.1	1.67
Western	29.4	3.33	19.4	2.05	29.7	3.19	20.3	2.31
Tanzania	**25.4**	**0.85**	**16.9**	**0.56**	**25.7**	**0.84**	**17.2**	**0.54**

Table 4.10a: Means and sampling errors for the periods and time spent on teaching per week (2007)

	Reading teacher				Mathematics teacher				Health teacher			
	Periods per week		Hours per week		Periods per week		Hours per week		Periods per week		Hours per week	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	20.1	0.29	10.3	0.39	23.4	0.25	13.6	0.39	24.7	0.34	14.9	0.43
Eastern	19.6	0.34	11.0	0.41	20.0	0.28	14.8	0.33	19.7	0.35	14.7	0.39
Kagera	30.3	0.47	11.9	0.39	22.9	0.53	11.8	0.34	25.9	0.49	11.4	0.41
Kilimanjaro	30.6	0.30	10.3	0.24	28.9	0.29	13.3	0.32	29.5	0.34	10.8	0.25
Mwanza	22.0	0.42	11.0	0.36	22.8	0.43	13.9	0.29	26.9	0.57	14.9	0.30
Northeast	23.4	0.30	13.4	0.36	24.2	0.39	13.9	0.37	23.1	0.43	11.9	0.33
Northern	25.4	0.27	11.9	0.29	23.7	0.44	14.6	0.34	24.9	0.41	12.9	0.28
S. Highlands	21.5	0.42	12.8	0.32	23.8	0.35	14.8	0.27	23.5	0.35	14.3	0.34
Southern	27.6	0.52	14.8	0.41	28.7	0.53	14.5	0.42	25.8	0.55	14.5	0.43
Southwest	26.0	0.63	10.7	0.43	27.0	0.68	13.5	0.41	25.9	0.64	10.8	0.33
Western	27.7	0.61	12.6	0.42	25.7	0.53	12.0	0.42	27.9	0.55	13.7	0.41
Tanzania	**24.8**	**0.14**	**11.9**	**0.11**	**24.5**	**0.14**	**13.8**	**0.11**	**25.2**	**0.14**	**13.2**	**0.11**

At the national level, in 2007, the average Standard 6 pupil was taught by: a Reading teacher who taught for a mean of 24.8 periods and 11.9 hours per week, a Mathematics teacher who taught for a mean of 24.5 periods and 13.8 hours per week and a Health teacher who taught for a mean of 25.2 periods and 13.2 hours per week. In the year 2000, nationally, the average Standard 6 pupil was taught by: a Reading teacher teaching 25.4 periods per week which translated to 16.9 hours per week, and a Mathematics teacher teaching 25.7 periods translating into 17.2 hours per week.

In 2007 there were variations across the zones in the number of periods per week in all three subjects. In Reading, Kilimanjaro Zone had the highest mean number of periods per week (30.6) and the Eastern Zone had the lowest mean of 19.6 periods per week. The range for Mathematics was from a high of 28.9 in Kilimanjaro to a low of 20 in Eastern zone and in Health knowledge it was from a high of 29.5 in Kilimanjaro to a low of 19.7 in Eastern zone. An interesting pattern is observed where Kilimanjaro zone consistently had the highest mean of teaching periods per week in each of the 3 subjects (the largest workload) and likewise Eastern zone had consistently the lowest mean of teaching periods per week in each of the 3 subjects (the lowest workload). Similarly, variations across the zones were noted in the time spent on teaching per week in all three subjects, nevertheless it is strange that contrary to expectations the zones with the highest and the lowest means hours spent for teaching were not the same zones that had the highest and the lowest mean number of periods per week. For instance, Kilimanjaro had the lowest mean of hours spent for teaching in Reading (10.3 hours) but had the highest mean of teaching periods (30.6). In contrast Western zone had the least number of hours spent on teaching for Mathematics (12.0 hours) per week but it was Eastern zone that had the lowest number of periods (20.0 periods) spent on teaching per week .

Taking the three subjects together the results indicate that the highest mean hours spent on teaching were very nearly equal, being 14.9 hours for Health Knowledge and 14.8 for both Reading and Mathematics. On the other hand the lowest mean hours spent on teaching were between 12.0 hours for Mathematics in Western zone and 10.3 hours for Reading in both Kilimanjaro and Central zone. This was far below the Ministry's norm of 28 teaching periods per week (equivalent to 18.7 hours per week).

The trend between 2000 and 2007 appears to suggest a slight decrease in the mean number of periods but a significant decrease in the mean hours spent teaching per week. The decrease in Reading was from on average of 25.4 periods per week and 16.9 hours per week in 2000 to an average of 24.8 periods per week and 11.9 hours per week in 2007. In Mathematics the decrease was from a mean of 25.7 periods per week and 17.2 hours per week in 2000 to on a mean of 24.8 periods per week and 13.8 hours per week in 2007. Teachers in Eastern Zone had consistently lower workloads in both subjects during both surveys although the figures went up slightly in 2007 (from 16.8 periods in Reading in 2000 to 19.6 periods per week in 2007 and stagnated at around 19.0 periods per week in Mathematics). The most probable explanation for the small average number of teaching periods in Eastern Zone could be the over-deployment of teachers, the majority of whom are females who followed their working husbands particularly to Dar es Salaam city. No obvious explanations could be offered for other zones with peculiar results.

In Reading and Mathematics the figures fell short of the Ministry norm of 28 teaching periods per week and 18.7 hours per week as was the case for the results of 2000. Furthermore in 2007 the national figures reflected a mismatch between the number of teaching periods and hours per week spent on teaching. The figures for time spent on lesson preparation per week create doubts whether they were derived on the basis of the Ministry norm of 40 minutes per period and if the length of time resulted in well managed classroom instruction. This therefore warrants further investigation.

In summary the results in both 2007 and 2000 showed that, generally, teachers' workloads were slightly below the Ministry norm of 28 periods and time spent on teaching. There was a slight decline over time in this regard. Given the multi-facet nature of the results it would be desirable to conduct a study to establish whether the time spent on lesson preparation and actual teaching would guarantee effective instruction on the basis of the Ministry norm of 28 periods per week.

4.5 Tests and communication with parents

General Policy Concern 4.4:

What was the frequency of tests, meeting with parents, and what mode of reporting and informing parents about pupil performance and was there a special section for reporting on a subject? Do parents sign homework?

Frequency of written tests

How often did teachers give written tests in Reading and Mathematics?

Testing pupils helps the teacher to be informed of the extent to which their teaching has succeeded in facilitating the mastery of the skills by pupils, and it also informs the pupils on their success in mastering skills taught. It holds both the teacher (as facilitator) and the pupil (as learner) accountable for their tasks. Testing should be regular but its frequency should be controlled to provide space for other learning tasks. Teachers were asked to indicate the frequency of giving pupils written tests in Reading and Mathematics. The results of their responses have been presented separately in *Tables 4.11, Table 4.11a, Table 4.12*, and *Table 4.12a*.

From *Table 4.11a* it can be seen that in Tanzania the mode for the frequency of Reading tests in 2007 was 2 to 3 tests per month (49.43 percent) implying that almost half of Standard 6 pupils were taught by Reading teachers who gave them 2 to 3 tests per month. On the other hand 31.8 percent of Standard 6 pupils were taught by Reading teachers who gave them one test per week while much fewer (18.8 percent) Standard 6 pupils were taught by Reading teachers who tested them less often. Variations were considerable in each of the 3 categories of results. Northern Zone had the highest percentage, 68.0 percent, in the 2 to 3 tests per month category while the lowest percentage was 38.1 percent in Eastern Zone. Western Zone had the highest average of 41.4 percent of Reading teachers who tested pupils less often and the lowest was 4.1 percent in Mwanza zone. In the 1 test per week category Eastern Zone had the highest percentage of 55.4 percent while the lowest was 18.9 percent in Western zone. The results for Western Zone in the 'tested less often category' were disturbing since a relatively large proportion (4 out of 10 pupils) were tested less often and hence disadvantaged. Equally disturbing were the particularly high figures for Eastern zone in the 'tested once per week category' where again pupils were

disadvantaged since they appeared to have been stretched too much creating a likelihood that teaching was focused on answering test questions (drilling) and not on the curriculum. Both cases deserve attention.

Table 4.11: Percentages and sampling errors for the frequency of Reading tests (2000)

	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Central	13.9	9.41	33.1	12.61	53.0	13.40
Eastern	4.4	4.38	35.1	11.72	60.5	11.74
Kagera	0.0	0.00	21.3	11.27	78.7	11.27
Kilimanjaro	0.0	0.00	12.4	8.52	87.6	8.52
Mwanza	11.8	8.54	41.6	16.74	46.5	15.82
Northeast	0.0	0.00	17.1	10.23	82.9	10.23
Northern	13.2	7.04	26.6	10.14	60.2	10.56
S. Highlands	2.4	2.48	26.4	10.95	71.2	11.20
Southern	14.0	12.50	19.4	12.84	66.6	16.65
Southwest	16.1	10.93	10.8	7.68	73.1	12.59
Western	10.9	7.77	3.0	3.02	86.1	8.23
Tanzania	**7.9**	**2.06**	**23.2**	**3.46**	**68.9**	**3.71**

Table 4.11a: Percentages and sampling errors for the frequency of Reading tests (2007)

	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Central	20.2	11.64	45.1	12.83	34.6	11.88
Eastern	6.5	4.58	38.1	11.42	55.4	12.31
Kagera	21.4	9.66	57.8	12.50	20.9	10.66
Kilimanjaro	11.3	7.43	49.1	12.58	39.6	12.54
Mwanza	4.1	4.26	43.3	14.38	52.6	14.83
Northeast	26.7	10.09	48.4	11.41	24.9	10.47
Northern	12.6	6.16	67.9	8.82	19.5	7.37
S. Highlands	14.4	8.33	47.3	12.26	38.3	11.60
Southern	22.2	11.01	56.7	10.79	21.1	9.42
Southwest	13.9	9.02	45.8	13.72	40.4	13.40
Western	41.4	11.97	39.6	11.91	19.0	8.96
Tanzania	**18.8**	**2.90**	**49.4**	**3.74**	**31.8**	**3.46**

A comparison of the results with results for 2000 show improvement in testing where there was considerable increase in the percentages of pupils whose teachers gave Reading tests 2 to 3 times per month, from 23.2 percent in 2000 to 49.4 percent in 2007. There was a considerable decrease in the percentages of pupils in schools were teachers gave Reading tests once per week, from 68.9 percent in 2000 to 31.9 percent in 2007. However, another feature is that the percentages of teachers who tested pupils less often (although a minority) increased significantly, from 7.4 percent in 2000 to 18.7 percent in 2007; which undermined somewhat the improvement reached. It would seem worthwhile to investigate the effect of testing on pupils' performance by comparing those who have received less testing with those who have received more.

In *Table 4.12a* it can be seen that 49.0 percent of Standard 6 pupils were taught Mathematics by teachers who gave them 2 to 3 tests per month and 37.9 percent of them were taught Mathematics by teachers who gave 1 or more tests per week, whereas 13.1 percent were in schools where they were tested less often. This result when compared with the results from 2000 show slight decreases in the 'less often' and 'one or more tests per week' categories of testing , 1.0 percent and 0.9 percent respectively, but an increase in the 2 to 3 tests per month of 2 percentage points. Notable variation among the zones is observed in the frequency of testing across the three testing categories. In the 2 to 3 tests per month category, the range was from a high of 59.6 percent in the Southern zone to a low of 29.4 percent in the Eastern zone. Results for the one or more test per week category ranged from a high of 63.8 percent in Eastern zone to a low of 18.4 percent in Mwanza zone. On the other hand in the 'testing less often' category the range was from a high of 27.4 percent in Mwanza zone to a low of 6.3 percent in Southern zone.

A comparison of the variations in the frequency of testing over time indicate that by 2007 substantial improvement had been made in the preferable '2 to 3 tests a month category" (12.6 percentage points) with related declines in the 'one or more tests per week' and the 'tests less often' categories, of 11.4 and 7.9 percentage points respectively.

The decline in the figures for the testing less often category and the one or more tests a week category is progress but the pace of eliminating these categories, in favour of the 2 to3 tests per month, needs to be increased. Attention has to be focused on the zones that were testing pupils

less often: Mwanza, Southwest, and Central zone, and those that gave one or more tests per week. Overall there has been significant improvement in the frequency of testing Standard 6 pupils, over time towards the preferable 2 to 3 tests per month.

Table 4.12: Percentages and sampling errors for frequency of Mathematics tests (2000)

	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Central	0.0	0.00	56.0	13.89	44.0	13.89
Eastern	14.2	7.92	57.4	11.85	28.4	11.45
Kagera	18.3	10.16	47.9	13.50	33.8	12.79
Kilimanjaro	11.8	8.17	49.8	13.75	38.5	13.14
Mwanza	5.0	5.04	42.1	15.30	52.9	15.82
Northeast	21.1	11.55	43.8	14.24	35.1	14.76
Northern	7.8	5.51	61.2	10.85	30.9	10.02
Southern Highlands	6.1	4.42	45.0	10.19	48.9	9.93
Southern	16.1	12.70	36.0	17.65	47.9	18.85
Southwest	33.3	13.50	40.2	14.07	26.6	14.51
Western	34.7	11.49	30.5	10.76	34.8	12.60
Tanzania	**14.2**	**2.56**	**47.0**	**3.99**	**38.8**	**3.95**

Table 4.12a: Percentages and sampling errors for frequency of Mathematics tests 2007

	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Central	19.9	11.41	43.7	11.79	36.4	11.85
Eastern	6.9	4.83	29.5	11.01	63.6	11.15
Kagera	8.9	6.52	51.0	13.02	40.2	13.22
Kilimanjaro	11.7	8.47	52.6	12.58	35.7	12.39
Mwanza	27.4	12.16	54.2	14.63	18.4	9.56
Northeast	5.8	5.75	57.3	11.47	36.9	11.07
Northern	8.4	4.84	46.5	10.06	45.1	9.47
Southern Highlands	14.9	7.46	55.0	12.22	30.1	12.02
Southern	6.3	6.42	59.6	13.93	34.0	12.91
Southwest	25.7	11.83	46.9	14.06	27.4	13.39
Western	13.6	7.75	40.4	12.62	46.0	12.29
Tanzania	**13.1**	**2.41**	**49.0**	**3.92**	**37.9**	**3.69**

The results in Table 4.13 show that approximately half of the Standard 6 pupils (48.13 percent) were taught health knowledge by teachers who gave them 2 to 3 tests per month. In addition, 37.13 percent of them were taught health knowledge by teachers who gave 1 or more tests per week and 14.75 percent were in schools where they were tested less often. Variations among the zones were observed in the frequency of testing the three categories. In the 2 to 3 tests per month category, the range was from a high of 67.9 percent in the Kilimanjaro zone to a low of 22.3 percent in the Southern Highlands zone. Variations in the one or more test per week category of testing (column 4 of the table) ranged from a high of 73.5 percent in Southern Highlands zone to a low of 19.3 percent in Kilimanjaro zone. On the other hand in the 'testing less often' category the range was from a high of 32.2 percent in Southwest zone to a low of 4.3 percent in Southern Highlands. It is clear that pupils in Southern Highlands and in Kilimanjaro zones were most disadvantaged by being tested too often and less often respectively.

Table 4.13: Percentages and sampling errors for frequency of Health Knowledge test (2007)

	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Central	13.9	10.38	55.5	13.82	30.6	12.56
Eastern	11.1	8.29	55.9	13.12	33.0	12.50
Kagera	24.5	12.24	43.8	12.38	31.7	11.26
Kilimanjaro	12.8	8.53	67.9	13.22	19.3	11.21
Mwanza	9.6	6.97	60.7	14.21	29.8	13.26
Northeast	5.8	5.75	65.5	11.20	28.7	10.49
Northern	9.1	6.12	50.8	10.22	40.1	9.73
Southern Highlands	4.3	4.33	22.3	10.23	73.5	10.70
Southern	19.7	11.12	47.1	16.41	33.2	13.67
Southwest	32.2	12.60	46.9	13.71	20.9	11.25
Western	27.6	10.27	41.3	11.99	31.2	11.46
Tanzania	**14.8**	**2.61**	**48.1**	**3.89**	**37.1**	**3.66**

The results for health knowledge tests were similar to the results for Mathematics and Reading where substantial numbers of pupils were disadvantaged. Therefore more needs to be done so that pupils are not being drilled in passing tests; a practice that encourages memorizing (rote learning) rather than encouraging pupils to use other learning tasks for mastery learning. In addition testing

too little provides little or no room for the teacher to assess progress of pupils and in turn design remedial or informed remedial programmes for weaker pupils.

Policy Suggestion 4.9: *The Ministry (School Inspectorate Department) should investigate why teachers in some zones gave too many or too few tests to pupils especially in Eastern and Mwanza zones for Mathematics, Eastern and Mwanza for Reading and Southern Highlands and Southwest for Health knowledge.*

Policy Suggestion 4.10: *The Ministry (School Inspectorate Department) and curriculum specialists should determine the appropriate frequency of testing in Reading and Mathematics, and collaborate with head teachers to ensure that teachers test pupils with the required regularity.*

Meeting parents

How often did teachers meet with parents each year?

It is widely acknowledged that where teachers have frequent meetings with parents they establish and maintain relationships that contribute to higher pupil Reading achievement (Postlethwaite and Ross, 1992). On the basis of this empirical evidence a generalization could be made to all activities leading to learning achievement. In this study therefore teachers were asked to indicate the frequency with which they met with pupils' parents. The range of the responses were categorized as 'never', 'once a year', 'once a term', and 'once+ a month'. The variable was recorded so that it was possible to calculate the percentage of teachers who responded that they met with parents frequently, that is, either 'once a term', or 'once+ a month. The results have been presented in *Table 4.14* and *Table 4.14a*.

In Tanzania, 43.6 percent of Standard 6 pupils were taught by Reading teachers, 33.6 percent were taught by Mathematics teachers and 37.3 percent of them were taught by Health teachers who indicated that they met parents frequently during 2007. Compared to the results from 2000 which were 71.6 percent in Reading and 72.6 percent in Mathematics, the results for 2007

indicate significant decreases of 38.0 percentage points for Reading teachers and 39 percentage points for Mathematics teachers.

Table 4.14: Percentages and sampling errors for the frequency of teachers frequently meeting parents (2000)

	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Central	79.0	11.14	83.9	8.97
Eastern	70.4	11.24	67.4	11.51
Kagera	87.1	8.83	75.6	11.29
Kilimanjaro	83.7	11.28	93.8	6.17
Mwanza	70.1	13.54	71.0	13.78
Northeast	59.9	14.72	86.1	9.60
Northern	72.3	10.42	69.9	9.32
Southern Highlands	49.7	13.62	47.4	13.41
Southern	98.2	1.85	61.8	17.65
Southwest	79.9	10.67	78.2	10.95
Western	75.2	10.28	89.5	7.31
Tanzania	**71.6**	**3.91**	**72.6**	**3.76**

Table 4.14a: Percentages and sampling errors for the frequency of teachers frequently meeting parents (2007)

	Reading teacher		Mathematics teacher		Health teacher	
	%	SE	%	SE	%	SE
Central	66.1	12.97	28.7	11.38	11.9	8.62
Eastern	38.5	10.36	30.9	10.78	40.5	11.81
Kagera	46.2	14.41	42.3	12.84	33.5	11.85
Kilimanjaro	55.7	15.27	13.9	7.84	28.5	10.85
Mwanza	66.5	12.46	46.8	14.90	65.6	12.85
Northeast	26.4	9.87	33.9	10.99	43.2	11.60
Northern	55.8	9.96	38.6	9.62	49.2	10.26
Southern Highlands	40.1	11.79	34.1	11.03	32.2	11.09
Southern	32.6	17.11	45.2	15.99	41.1	17.16
Southwest	38.1	13.65	8.5	8.33	35.6	13.49
Western	32.5	10.86	33.4	11.92	24.0	9.89
Tanzania	**43.6**	**3.88**	**33.6**	**3.72**	**37.3**	**3.82**

Across the zones for Reading teachers, variations existed in the levels of frequent meetings with parents; ranging from a high of 66.5 percent in Mwanza zone to a low of 26.4 percent in Northeast. In 2000 the levels of frequent meetings varied significantly, in Southern Zone 98.2 percent pupils had teachers who indicated that they met parents frequently but in Southern Highlands and in Northeast zone this figure was 49.7 percent and 59.9 percent respectively. There was a significant decline in the percentage of pupils whose Reading teachers frequently met their parents. In 2000 the highest percentage of Standard 6 pupils whose Reading teachers stated that they met parents frequently was 98.2 percent (Southern) but by 2007 the highest corresponding figure was 66.5 percent.

In Mathematics there were considerable variations across the zones in the percentage of pupils with teachers who indicated that they met parents frequently in the 2007 survey. Variations were from a high of 46.8 percent in Mwanza zone to a low of 8.5 percent in the Southwest zone. In 2000 variations in this regard ranged from a high of 93.8 percent in Kilimanjaro zone to a low of 47.4 percent in Southern Highlands zone. The results imply that there has been a decline in the frequency of teacher meetings with parents between 2000 and 2007. In Health there were also variations in the percentage of pupils whose teachers indicated that they met parents frequently. Variations ranged from a high of 65.6 percent in the Mwanza zone to a low of 11.9 percent in Central zone. A striking feature can be observed in Mwanza zone as the percentage of pupils with teachers who indicated that they met parents frequently was consistently high in each of the 3 subjects.

The overall results suggest that, over time; a decline has been registered in the frequency of teachers meeting parents, that is to say more Standard 6 pupils were disadvantaged in this regard. Therefore, more efforts should be directed towards increasing the frequency of teacher-parent meetings particularly in Northeast for Reading teachers, Southwest for Mathematics teachers and in Central zone for Health teachers. Teachers, community members and parents need to be sensitized to the benefits of the teacher-parent meetings. Teachers are at the centre of the teacher-parent liaison but fulfilling this role effectively requires the necessary skills. Parent/community members on the other hand can only support the relationship if they understand their roles. The institutions providing teacher pre-service and in-service training should ensure the inclusion of

teacher-parent liaison training in their curricula or training programmes in order to give the trainees as well as the practising teachers the requisite knowledge and strategies for developing sustainable teacher-parent relationships.

Policy Suggestion 4.10(a): *The Ministry (School Inspectorate Department) should collaborate with District Education Offices to establish stable teacher-parent link systems in all schools. Once established, the Ward Education Coordinators should oversee the effectiveness and sustainability of the system.*

Policy Suggestion 4.10(b): *The Agency for Development of Educational Management (ADEM) and the Teacher Education Department and School Inspectorate Department should include in their management, pre-service and in-service, training programmes content that enhances teachers' appreciation of the importance of teacher-parent meetings, as well as equipping them with skills for enhancing parental participation in pupil learning.*

4.6 Availability of classroom furniture and equipment

General Policy Concern 4.5:

What was the availability of classroom furniture (for example, sitting/writing places, teacher table, teacher chair, and bookshelves) and classroom equipment (for example, chalkboard, dictionary, maps, book corner, and teacher guides) in Standard 6 classrooms?

There is sufficient evidence to show that instructional materials like textbooks, workbooks, loose folders, desks, chalkboards and others are prerequisites for effective learning (Fuller, 1994). Teachers may be very competent but without these prerequisites their effect on learning can be limited. In this study it was considered important to establish the extent to which these were available.

A well resourced classroom creates an environment that is conducive to learning. Pupils are more easily motivated to learn while teachers are encouraged to play more of a facilitator role. The analysis of teachers' responses for the availability of items for both Mathematics and Reading teachers has been presented in *Table 4.15* and *Table 4.15a*.

Table 4.15: Percentages and sampling errors for the availability of classroom resources (2000)

	Availability of classroom resources			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
A usable writing board	96.9	1.16	93.0	2.38
Chalk	94.9	1.52	92.2	2.49
A wall chart of any kind	57.6	3.94	56.3	4.17
A cupboard	16.3	3.13	15.8	3.06
One or more bookshelves	13.5	2.76	9.6	2.22
A classroom library or book corner	7.0	1.85	3.5	1.18
A teacher Table	34.8	3.92	29.6	3.60
A teacher chair	38.1	4.03	33.6	3.82

Table 4.15a: Percentages and sampling errors for availability of classroom resources (2007)

	Availability of classroom resources					
	Reading teacher		Mathematics teacher		Health teacher	
	%	SE	%	SE	%	SE
Writing Board	96.0	1.44	98.1	0.87	98.0	1.04
Chalk	98.9	0.68	97.5	1.01	99.2	0.62
Duster	97.3	1.08	95.9	1.36	95.5	2.00
Wall Chart	79.2	3.14	83.1	2.64	82.6	3.14
Cupboard	31.4	3.42	32.6	3.70	36.4	3.58
Bookshelf	15.7	2.51	15.2	2.58	18.5	2.72
Classroom Library	34.0	3.74	33.8	3.73	33.8	3.77
Teacher Table	62.5	3.72	55.4	3.82	56.3	3.86
Teacher Chair	65.9	3.63	57.8	3.81	59.3	3.82

In *Table 4.15a* it can be seen that over 50 percent of Standard 6 pupils were in classrooms with 6 out of the 9 listed items. Only classroom libraries, cupboards and bookshelves were not available to over half the pupils. The most readily available resources across the 3 subjects were: writing boards, chalk, and dusters which were available to more than 95 percent each. The least available resource was bookshelves which were 15.7 percent for Reading teacher, 15.2 percent for Mathematics teacher and 18.5 percent for health knowledge teacher. From *Table 4.15*, 95 percent of Standard 6 pupils in 2000 were in classrooms with a usable writing board and chalk. The resources that were relatively less available were the classroom library or book corner, bookshelves and cupboards (averages of 3.5 percent, 9.6 percent, and 15.8 percent, respectively, all for Mathematics teachers).

Compared to 2000 survey results, it can be seen that there was slight improvement in the availability of usable classroom resources in 2007. For example the percentage of pupils with a teacher who had a table increased from 34.8 percent in 2000 to 62.5 percent in 2007, availability of cupboard increased to 31.4 from 16.3 percent in 2000 and teacher chair increased to 65.9 percent from 38.1 percent in 2000. It is obvious that the scarcity of essential resources such as a classroom library or book corner limited pupils' opportunities for independent learning and perpetuated heavy reliance on teachers as the only source of knowledge. It deprived pupils of an opportunity to develop a culture of reading and research. In addition, the inadequate supply of bookshelves and cupboards raises concerns on how classroom supplies like books, teaching aids etc. were managed. When classroom supplies are limited, teachers have to be careful to manage the equal utilization of resources by pupils.

On the other hand, the availability of teacher tables and chairs improved between 2000 and 2007 to between 53 percent and 64 percents respectively from around 30 and 38 percent in 2000. Following teachers' responses on classroom resources, a classroom index was constructed by adding up the number of items that each teacher had reported out of a total of 9 items. In *Table 4.16* and *Table 4.16a* the mean score for the indices among the zones and for the nation have been reported.

Table 4.16: Means and sampling errors for the classroom resources index (2000)

	Classroom resources index			
	Reading teacher		Mathematics teacher	
	Mean	SE	Mean	SE
Central	3.3	0.37	3.2	0.43
Eastern	3.6	0.57	3.1	0.35
Kagera	3.5	0.57	3.2	0.38
Kilimanjaro	5.1	0.56	4.4	0.69
Mwanza	2.7	0.33	3.6	0.34
Northeast	4.1	0.64	3.4	0.66
Northern	3.6	0.38	2.6	0.37
Southern Highlands	3.5	0.33	3.4	0.33
Southern	4.3	0.65	3.5	0.50
Southwest	3.6	0.42	3.5	0.44
Western	2.6	0.38	3.3	0.38
Tanzania	**3.6**	**0.14**	**3.3**	**0.14**

Table 4.16a: Means and sampling errors for the classroom resources index (2007)

	Classroom resources index					
	Reading teacher		Mathematics teacher		Health teacher	
	Mean	SE	Mean	SE	Mean	SE
Central	4.5	0.42	5.2	0.39	5.1	0.38
Eastern	4.6	0.44	3.6	0.39	4.9	0.38
Kagera	5.2	0.52	5.1	0.43	5.9	0.49
Kilimanjaro	5.6	0.30	5.4	0.32	5.6	0.27
Mwanza	4.8	0.35	4.4	0.39	4.7	0.40
Northeast	4.3	0.45	4.4	0.49	4.6	0.50
Northern	4.8	0.26	4.4	0.27	4.4	0.32
Southern Highlands	4.8	0.44	4.7	0.36	4.5	0.42
Southern	5.9	0.42	5.6	0.42	6.3	0.35
Southwest	4.2	0.34	4.3	0.54	4.1	0.38
Western	4.9	0.27	5.1	0.35	4.7	0.37
Tanzania	**4.8**	**0.13**	**4.7**	**0.13**	**4.8**	**0.13**

In Tanzania Standard 6 pupils were taught by Reading teachers, Mathematics teachers and health knowledge teachers whose mean classroom resource indexes were 4.8, 4.7 and 4.8 respectively in 2007. The mean resource indexes in 2000 were 3.6 for Reading teachers and 3.3 for Mathematics teachers. The results for 2007 show significant improvement in the classroom resource indices. There were significant variations among the zones in the classroom resource index for the three subjects. In Reading the range was from a mean of 5.9 in Southern zone to a low mean of 4.2 in Southwest zone. In Mathematics the range was from a high of 5.6 in Southern zone to a low of 3.9 in Eastern zone. In Health knowledge the range was from a high of 6.3 in Southern zone to a low of 4.1 in Southwest zone. It is interesting to note that Southern zone had consistently higher classroom resource indices than the rest of the zones across the three subjects. The result for Southern zone may in part be due to other agencies, in addition to PEDP, operating in the zone which supported the provision of classroom resources.

The overall picture portrayed by these results reveals a scarcity of usable classroom resources since the average Standard 6 pupils were in schools with only 5 out of the 9 items. There was slight improvement in the availability of usable classroom resources between 2000 and 2007. The data could be used to guide Ministry efforts under PEDP to resource schools so that these deficiencies are corrected.

Professional support

General Policy Concern 4.6:

What professional support (in terms of education resource centres, inspections, advisory visits, and school head inputs) was given to Standard 6 teachers?

As stated earlier, teachers need to be continuously supported in order to keep them abreast of developments in education, and to ensure imparting relevant knowledge and skills that meet the needs of individuals and those of the society. School inspectors, academic advisors, ward education coordinators, education cluster/teacher resource centre facilitators, and head teachers play an important role in this regard. The interaction of teachers with these professionals, their

visits and the use of education cluster/teacher resource centres impact positively on teacher professional development which develops a spirit of confidence in their work.

Education resource centres

Did teachers use education resource centres?

Teachers were asked to indicate how they used the resource centres. The responses included "no education resource centre", "not visited" and "visited". The results of their responses have been presented in *Table 4.17* and *Table 4.17a*.

In *Table 4.17a* it can be seen that on average, 52.2 percent of Standard 6 pupils had Reading teachers, 51.4 percent had Mathematics teachers and 52.8 percent had Health teachers who used the resource centres in 2007. In the "non available category" 44.8 percent of Standard 6 pupils had Reading teachers, 48.6 percent had Mathematics teachers and 47.2 percent of them had Health teachers who stated that the resource centres were not available in 2007; which is alarming. There were considerable variations among the zones in the use of the resource centres across the 3 subjects. Mwanza zone had the highest percentage (86.0 percent) of pupils with Reading teachers who used the resource centres as well as pupils whose Mathematics teachers used the resource centres (76.7 percent). Eastern zone had the highest percentage of pupils whose Health teachers used the resource centres (83.0 percent). Worryingly Southwest zone had significantly the lowest percentages of pupils with teachers using the centres in all 3 subjects: Reading (23.9 percent), Mathematics (28.4 percent) and Health (26.1 percent).

In the "none available", three zones: Southwest, Northern and Western had more than 50 percent of pupils with teachers who stated that they did not have resource centres. These zones remained the most deprived in 2007 as was the case during 2000. This is a cause for concern and the provision of resource centres should be a priority especially in the most deprived zones. There has, however been a slight improvement in the overall provision of resource centres with a reduction in the proportion of pupils' Reading teachers reporting a lack of resource centres, from 49.1 percent in 2000 to 44.8 in 2007. It is also positive to note that across all zones and in all 3 subject areas there were no pupils with teachers who had not visited a resource centre when one was available. This suggests significant improvement from 2000 when approximately 10 percent of pupils had teachers (both in Mathematics and Reading) who had never visited a resource

centre even when one was available. It also suggests that the only limiting factor in 2007 on teachers' use of resource centres was the availability of the centres.

Table 4.17: Percentages and sampling errors for the availability of education resource centres for teachers (2000)

	Reading teacher						Mathematics teacher					
	None available		Have not visited		Have used		None available		Have not visited		Have used	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	38.4	12.95	16.8	9.53	44.8	12.88	8.0	8.02	19.1	10.53	72.9	12.21
Eastern	24.1	9.62	28.5	8.85	47.3	10.75	33.4	9.95	27.1	11.28	39.5	9.83
Kagera	79.5	10.97	7.3	7.35	13.2	9.02	71.6	12.37	7.1	7.08	21.3	11.27
Kilimanjaro	21.8	11.90	6.2	6.17	72.0	12.63	27.6	12.54	6.2	6.17	66.2	13.09
Mwanza	58.2	15.16	0.0	0.00	41.8	15.16	49.4	16.19	8.1	6.05	42.5	15.28
Northeast	61.6	13.87	16.6	9.81	21.8	11.84	75.0	12.13	9.6	7.35	15.3	10.52
Northern	74.8	10.91	3.8	3.81	21.4	10.59	87.6	7.04	0.0	0.00	12.4	7.04
S. Highlands	22.5	8.72	15.0	8.34	62.4	12.09	24.0	9.13	13.9	7.44	62.1	9.15
Southern	50.5	18.79	0.0	0.00	49.5	18.79	50.5	18.79	21.4	19.46	28.1	14.98
Southwest	50.1	14.86	5.9	5.93	44.0	15.08	39.6	14.18	0.0	0.00	60.4	14.18
Western	75.1	9.44	5.5	5.58	19.4	8.58	69.2	12.71	0.0	0.00	30.8	12.71
Tanzania	**49.1**	**3.90**	**10.3**	**2.24**	**40.5**	**4.00**	**49.5**	**3.79**	**10.1**	**2.43**	**40.4**	**3.61**

Table 4.17a: Percentages and sampling errors for the availability of education resource centres for teachers (2007)

	Reading teacher				Mathematics teacher				Health teacher			
	None Available		Have Visited		None Available		Have Visited		None Available		Have Visited	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	27.6	12.04	72.4	12.04	37.7	13.14	62.3	13.14	42.0	13.63	58.0	13.63
Eastern	15.2	7.36	84.8	7.36	26.4	9.82	73.6	9.82	17.0	9.71	83.0	9.71
Kagera	64.8	13.33	35.2	13.33	58.0	12.64	42.0	12.64	42.1	12.05	57.9	12.05
Kilimanjaro	43.7	16.16	56.3	16.16	45.7	16.04	54.3	16.04	55.1	15.29	44.9	15.29
Mwanza	14.0	8.35	86.0	8.35	23.3	10.61	76.7	10.61	38.2	15.68	61.8	15.68
Northeast	46.4	11.68	53.6	11.68	47.4	11.65	52.6	11.65	43.4	11.96	56.6	11.96
Northern	61.7	9.41	38.3	9.41	51.9	10.51	48.1	10.51	56.0	9.93	44.0	9.93
S. Highlands	41.6	11.67	58.4	11.67	67.2	10.99	32.8	10.99	51.9	12.24	48.1	12.24
Southern	27.8	12.18	72.2	12.18	27.8	12.18	72.2	12.18	31.0	13.40	69.0	13.40
Southwest	76.1	11.18	23.9	11.18	71.6	12.57	28.4	12.57	73.9	11.76	26.1	11.76
Western	58.7	12.35	41.3	12.35	57.4	12.66	42.6	12.66	56.3	12.02	43.7	12.02
Tanzania	**44.8**	**3.71**	**52.2**	**3.71**	**48.6**	**3.85**	**51.4**	**3.85**	**47.2**	**3.88**	**52.8**	**3.88**

The trend between 2000 and 2007 show a reasonable improvement in the use of resources centres. In 2000, the average percentages of pupils with Reading and Mathematics teachers who indicated that they used the centres were 40.5 percent and 40.4 percent respectively but these increased to 53.2 percent and 53.9 percent respectively by 2007. The improvement registered in this regard may be in part due to increased availability of the centres confirmed by the corresponding reduction, as mentioned above, in the percentage of pupils whose teachers responded that they did not have resource centres.

It can be concluded that there was a reasonable improvement in the use of the resource centres. Slightly over half of Standard 6 pupils had teachers who used the resource centres. However, the resource centres were inequitably distributed across the zones, leaving teachers in Southwest, Northern, Kagera and Western zones very much disadvantaged with regard to the provision of resource centres. However, the use of education resource centres for all teachers leaves room for further improvement since a substantial proportion of teachers responded that the resource centres were not available in 2007.

How did teachers use education resource centres?

Education resource centres provide an opportunity for teachers to share experiences among themselves. The centres can also provide an opportunity for both teachers and pupils to make research further and share resources that cannot be easily made available to individual schools, teachers, pupils and the general community. Teachers can also exercise their innovative abilities through, for instance, preparing teaching/learning materials and aids using facilities and services provided by the resource centre. The question addressed below is whether teachers used the resource centres for these purposes. Teachers were asked to indicate how they used the resource centres. The results of their responses have been presented separately in *Table 4.18, Table 4.18a, Table 4.19, Table 4.19a,* and *Table 4.20*.

Table 4.18: Percentages and sampling errors of Reading teacher's purposes for using resource centres (2000)

	Reading teacher									
	Don't use		Borrow material		Make material		Training		Speak with teachers/staff	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	27.2	15.03	31.2	11.97	25.1	11.27	24.4	11.02	44.8	12.88
Eastern	37.6	11.28	35.2	9.96	27.5	7.95	36.4	10.22	43.0	11.16
Kagera	35.8	41.73	7.0	7.04	0.0	0.00	7.0	7.04	7.0	7.04
Kilimanjaro	7.9	7.97	40.3	13.54	50.2	13.75	65.5	13.21	59.1	13.56
Mwanza	0.0	0.00	41.8	15.16	23.2	12.14	11.4	8.24	36.8	14.56
Northeast	43.1	24.54	15.8	10.75	6.0	6.09	15.8	10.75	21.8	11.84
Northern	15.1	17.55	21.4	10.59	17.9	10.29	16.8	10.02	21.4	10.59
S. Highlands	19.4	11.28	55.2	13.07	49.2	13.90	40.5	14.47	62.4	12.09
Southern	0.0	0.00	37.5	19.67	27.7	19.28	43.3	19.16	40.1	19.43
Southwest	11.8	12.76	36.2	15.08	29.9	14.98	36.2	15.08	44.0	15.08
Western	22.3	24.28	10.0	7.00	10.0	7.00	19.4	8.58	19.4	8.58
Tanzania	**20.3**	**4.33**	**31.8**	**4.06**	**26.0**	**3.88**	**29.0**	**3.86**	**37.9**	**4.04**

Table 4.18a: Percentages and sampling errors of Reading teacher's purposes for using resource centres (2007)

	Reading teacher											
	Look at materials		Borrow material		Make material		Attend Courses		Exchange Ideas		Seek Advice	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	69.7	12.19	61.4	13.16	58.7	13.60	30.3	12.71	32.3	12.44	25.5	11.97
Eastern	83.6	7.30	74.2	9.61	71.6	9.28	30.2	10.57	10.1	5.26	14.2	7.55
Kagera	24.7	10.09	24.7	10.09	29.8	12.84	21.2	9.70	11.5	7.58	16.6	11.51
Kilimanjaro	53.6	16.00	44.2	15.48	27.0	13.08	29.8	13.36	17.5	11.41	31.9	14.05
Mwanza	80.5	9.88	67.3	12.27	10.7	6.90	55.5	14.80	67.1	12.32	30.9	13.66
Northeast	53.6	11.68	38.0	11.24	40.9	11.29	20.4	8.71	20.8	8.82	0.0	0.00
Northern	27.1	8.32	23.5	8.05	18.5	7.47	20.9	7.74	25.1	8.27	17.5	6.70
S. Highlands	47.3	12.16	47.3	12.16	42.7	12.03	31.1	11.15	28.4	12.29	17.3	9.44
Southern	72.2	12.18	59.4	14.33	36.2	10.53	25.1	9.80	30.0	10.13	32.1	16.96
Southwest	23.9	11.18	19.7	10.63	13.1	8.99	0.0	0.00	4.2	4.31	0.0	0.00
Western	41.3	12.35	26.4	11.18	27.0	11.30	24.2	11.06	9.4	6.56	0.0	0.00
Tanzania	**50.7**	**3.71**	**42.5**	**3.75**	**33.8**	**3.43**	**25.9**	**3.30**	**23.3**	**3.20**	**15.3**	**2.96**

The results in *Table 4.18a* for 2007 show that on average 42.5 percent of Standard 6 had Reading teachers who predominantly visited centres for borrowing material, 33.8 percent who made material, 25.9 percent who attended courses, 23.3 percent who exchanged ideas and 15.3 percent who sought advice. The corresponding figures for those and similar purposes during 2000 were 31.8 percent for borrowing material, 26.0 percent for making material, 29.0 percent for training, 37.9 percent for speaking with teachers and 20.3 percent who did not use the centres. Borrowing material remained a popular activity in 2000 and 2007, and looking at materials was found to be extremely popular in 2007, with making material increasing in terms of popularity between 2000 and 2007. This trend was also observed among Mathematics teachers.

The results in *Table 4.19a* for 2007 show that on average 39.6 percent of Standard 6 pupils had Mathematics teachers who visited centres for borrowing material, 30.5 percent who visited centres for making material, 21.6 percent who visited centres to attend courses, 29.4 percent who visited centres to exchange ideas or seek advice and 48.5 percent who look at materials. Teachers predominantly used the centres for looking at, borrowing, for making material in 2007. This was also the case for Reading teachers. The most predominant purpose during 2000 was speaking with teachers for both Reading and Mathematics teachers. It appears that there has been a shift, in the uses of resource centres between 2000 and 2007, away from speaking with fellow teachers to material based activities.

There were variations in the popularity of the listed purposes across the zones and in some the variations were considerable. Under the “borrowing material” option the percentages were particularly high in the Eastern zone (65.8 percent) and particularly low in Southwest zone (28.4 percent). For “making material” the percentages were particularly high in Mwanza zone (47.0 percent) and were lowest in Kagera zone (13.6 percent). For attending courses the percentages were particularly high in Southern zone (47.2 percent) and particularly low in Southwest zone (6.9 percent). For exchange ideas or seek advice the highest percentage was in Mwanza zone (69.8 percent) and the lowest percentage was in the Southwest zone (0.0 percent). In 2000, some considerable variation among the zones in the uses of the resource centres existed. For instance Northern zone had particularly low percentages for each of the following purposes: borrowing material (8.8 percent), making material (7.0 percent), training (2.4 percent), and for speaking with

teachers (12.4 percent). Other zones which had relatively low percentages include Southern zone for borrowing and making material and Kagera for speaking with teachers.

The trend between 2000 and 2007 indicated an improvement where more teachers used the resource centres for making materials and borrowing materials.

In table *Table 4.20* it can be seen that on average 49.9 percent of Standard 6 pupils had Health teachers who visited centres to look at materials, 39.3 percent for borrowing materials, 31.8 percent who made material, 24.1 percent who attended courses, and 31.7 percent who sought advice and exchanged ideas. There was some significant variation across the zones in each of the listed purposes. For instance Eastern zone had the highest percentages of pupils with teachers who looked at material (83.0 percent), compared to only 19.6 percent in Southwest zone. Southern zone had the highest percentage for attending a course (43.0 percent) and Eastern had the lowest, 10.7 percent. On a national level one can say that Health teachers predominantly used the resource centres for looking at, borrowing, and making material.

Overall, the results show that Standard 6 pupils were taught by Reading, Mathematics and Health knowledge teachers who used the resource centres mainly for borrowing material and making material. More teachers used the resource centres for borrowing and making material in 2007 than in 2000. In contrast there were a higher percentage of pupils with teachers who did not use the resource centres in 2007 than in 2000. Reading teachers used the resource centres slightly more extensively than their Mathematics counterparts. Resource centre facilitators will need to focus their attention on a more balanced activity schedule when planning for future activities of resource centres.

The Ministry is commended for endeavoring to improve the resource centres in the primary school system. However a formalized system with resource centres at the Ward level (that is nearest to schools) is necessary if all teachers are to have to access them. There seems to have been little effort made in adapting the initiative. It is desirable that, the initiative is reviewed and adapted.

Table 4.19: Percentages and sampling errors of Mathematics teachers' purposes for using resource centres (2000)

	Mathematics teacher									
	Don't use		Borrow material		Make material		Training		Speak with teachers/staff	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	20.8	11.39	38.0	14.10	26.7	12.14	49.6	13.94	72.9	12.21
Eastern	40.7	14.67	15.4	8.36	7.0	4.67	31.0	8.96	32.3	9.51
Kagera	24.9	27.84	21.3	11.27	14.3	9.68	14.0	9.48	14.0	9.48
Kilimanjaro	8.5	8.64	46.5	13.71	66.2	13.09	56.1	13.86	46.7	13.72
Mwanza	16.1	11.95	29.3	13.30	26.7	13.01	24.1	11.90	33.3	14.12
Northeast	38.6	33.61	15.3	10.52	8.4	8.46	15.3	10.52	15.3	10.52
Northern	0.0	0.00	8.8	6.19	7.0	5.13	2.4	2.40	12.4	7.04
S. Highlands	18.3	9.45	23.7	9.92	15.6	8.39	31.3	11.87	54.0	9.87
Southern	43.3	39.11	5.7	5.90	5.7	5.90	21.9	13.78	20.5	13.66
Southwest	0.0	0.00	19.9	11.85	17.3	11.70	52.7	14.75	33.5	13.81
Western	0.0	0.00	19.7	12.06	19.2	11.96	26.2	9.98	30.8	12.71
Tanzania	**20.0**	**4.49**	**21.1**	**3.22**	**17.9**	**2.87**	**27.5**	**3.34**	**33.9**	**3.61**

Table 4.19a: Percentages and sampling errors of Mathematics teachers' purposes for using resource centres (2007)

	Mathematics teacher											
	Look at materials		Borrow material		Make material		Attend Courses		Exchange Ideas		Seek Advice	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	62.3	13.14	41.7	12.94	33.5	12.64	21.4	10.46	27.0	11.91	13.9	9.29
Eastern	73.6	9.82	65.8	9.89	45.1	10.99	23.6	9.62	9.1	6.90	16.4	9.47
Kagera	30.3	11.99	32.1	12.26	13.6	10.25	23.6	11.76	22.1	10.14	18.3	10.42
Kilimanjaro	54.3	16.04	49.3	15.39	41.1	14.91	16.1	9.01	14.6	8.11	13.2	7.91
Mwanza	61.1	14.13	36.5	13.47	47.0	15.33	37.4	14.29	50.6	15.06	19.2	9.83
Northeast	52.6	11.65	45.5	11.47	45.5	11.47	10.9	7.27	8.6	6.11	5.1	4.76
Northern	40.7	10.17	38.1	9.83	26.9	8.23	20.3	7.83	20.1	7.88	17.4	7.39
Southern Highlands	32.8	10.99	28.6	10.55	14.6	8.21	14.6	8.21	10.4	7.27	10.6	7.38
Southern	72.2	12.18	55.8	14.75	31.6	12.87	47.2	15.76	27.3	11.83	10.9	7.03
Southwest	28.4	12.57	28.4	12.57	21.6	11.47	6.9	6.91	0.0	0.00	0.0	0.00
Western	42.6	12.66	28.4	11.73	28.4	11.73	20.4	10.98	10.6	7.30	10.6	7.30
Tanzania	**48.5**	**3.88**	**39.6**	**3.80**	**30.5**	**3.53**	**21.6**	**3.35**	**17.3**	**2.78**	**12.1**	**2.36**

Table 4.20: Percentages and sampling errors of Health teachers' purposes for using resource centres (2007)

	Health teacher											
	Look at materials		Borrow material		Make material		Attend Courses		Exchange Ideas		Seek Advice	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	58.0	13.63	40.0	13.44	25.8	12.20	21.4	10.88	17.1	10.25	11.6	9.02
Eastern	83.0	9.71	70.2	11.12	59.4	10.98	10.7	6.90	22.5	9.74	18.4	9.95
Kagera	57.9	12.05	57.9	12.05	49.5	12.82	22.6	11.51	27.9	12.25	16.7	9.19
Kilimanjaro	44.9	15.29	29.7	12.82	25.4	12.61	22.1	11.42	17.0	8.76	19.8	11.19
Mwanza	56.4	15.44	39.0	14.45	48.8	15.03	21.0	9.77	26.4	11.11	10.1	7.25
Northeast	56.6	11.96	28.5	11.39	33.0	11.65	33.6	11.26	23.7	10.90	13.0	9.25
Northern	28.8	8.71	28.8	8.71	15.7	6.21	27.6	8.49	19.2	6.84	7.4	4.57
S. Highlands	48.1	12.24	43.1	12.28	38.5	12.25	24.9	11.66	19.2	9.06	14.2	7.93
Southern	69.0	13.40	59.4	14.83	20.3	10.71	43.0	16.89	19.6	10.51	11.6	7.51
Southwest	19.6	10.57	19.6	10.57	13.1	8.99	13.2	9.02	13.0	8.91	13.0	8.91
Western	43.7	12.02	28.8	11.05	28.8	11.05	18.5	10.30	11.8	6.78	7.5	5.49
Tanzania	**49.9**	**3.84**	**39.3**	**3.83**	**31.8**	**3.57**	**24.1**	**3.56**	**19.4**	**2.90**	**12.3**	**2.43**

Policy Suggestion 4.11(a): *The Ministry (Departments of Primary Education and the School Inspectorate) in collaboration with TIE and PMORALG should build more resource centres and develop the capacity of the centres so that the teachers who use them may enhance their innovative skills.*

Policy Suggestion 4.11(b): *The Ministry (Department of Teacher Education and TIE), in collaboration with PMORALG should ensure the establishment of district and zonal teacher resource centres across the districts and zones in order to support the grassroots education cluster centres under WABEM.*

School head advice

Did school heads advise teachers on their teaching?

The head teacher is the first and most regular teacher advisor in any school system. He or she oversees the realization of the school vision and mission, and is at the heart of the functioning of the school administration. Teachers were asked to rate the frequency of advice they received from

their school head teachers. The ratings ranged from 'never', 'once a year,' 'once a term', 'once+ a month' and 'I am the head teacher' (in the case where the subject teacher was also the head teacher). The variable was recorded so that it was possible to calculate the percentage of teachers receiving advice at least once a year. Their responses were analysed and the results are shown in *Table 4.21* and *Table 4.21a.*

In *Table 4.21a* it is noted that nationally in 2007. 76.9 percent of Standard 6 pupils were taught by Reading teachers, 76.7 percent were taught by Mathematics teachers and 72.9 percent of them were taught by Health teachers who received advice at least once a year from their head teachers.. There were considerable variations among the zones in the percentages of Reading, Mathematics and Health teachers who got advice sometimes or often from their head teachers. The variations across the 3 subjects taken together were from a low of 34.3 percent in Southern zone for Health knowledge teachers to a high of 94.9 percent in Eastern zone for Reading teachers.

The results for 2007 compared with those for 2000 indicate a decline in the percentages of pupils whose Reading teachers received advice at least once a year from their head teachers i.e. from 95.4 percent in 2000 to 76.9 percent in 2007. There was also a significant decline for pupils of Mathematics teachers, from 92.7 percent in 2000 to 76.7 percent in 2007. Generally, it can be concluded that, over time, Standard 6 pupils were taught by the Reading and Mathematics who got advice sometimes from their head teachers. However, fewer pupils had teachers who got advice from their head teachers in 2007 than did in 2000.

This result indicates deterioration in head teacher support to teachers from 2000, a situation which should not be allowed to continue, bearing in mind that great numbers of newly trained teachers have been recruited into the profession between 2000 and 2007 under PEDP. These new teachers need close monitoring by head teachers and indeed senior teachers if they are to be effective and efficient in executing their teaching roles. This state needs to be addressed in order to strengthen teacher performance especially for those newly recruited teachers while bearing in mind that the head teacher is the closest supervisor and adviser of the teachers.

Table 4.21: Percentages and sampling errors for the frequency of advice given to teachers from school head (2000).

	Percentage of teachers receiving advice 'at least once a year'			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Central	100.0	0.00	81.0	13.06
Eastern	96.2	3.86	94.8	3.43
Kagera	85.1	10.15	100.0	0.00
Kilimanjaro	100.0	0.00	100.0	0.00
Mwanza	100.0	0.00	88.0	12.34
Northeast	92.5	6.74	93.6	6.51
Northern	90.3	6.76	84.0	9.06
Southern Highlands	100.0	0.00	96.1	3.99
Southern	100.0	0.00	100.0	0.00
Southwest	93.1	6.93	92.0	8.19
Western	86.6	9.46	93.6	6.53
Tanzania	**95.4**	**1.56**	**92.7**	**2.15**

Table 4.21a: Percentages and sampling errors for the frequency of advice given to teachers from school head (2007).

	Percentage of teachers receiving advice 'at least once a year'					
	Reading teacher		Mathematics teacher		Health teacher	
	%	SE	%	SE	%	SE
Central	69.5	12.17	67.2	11.91	68.1	13.65
Eastern	94.9	5.21	75.2	10.05	94.9	5.21
Kagera	80.6	8.92	72.9	12.11	76.3	10.96
Kilimanjaro	89.5	8.17	74.0	13.16	75.3	11.60
Mwanza	77.1	12.27	83.0	11.88	55.6	15.68
Northeast	80.7	9.81	83.7	7.84	85.6	8.24
Northern	66.7	10.24	76.6	8.85	71.9	9.76
Southern Highlands	65.5	11.10	84.8	8.50	76.6	9.84
Southern	78.7	9.46	58.0	16.25	34.3	13.55
Southwest	56.9	13.39	85.5	9.64	67.2	12.64
Western	94.9	5.14	74.8	10.33	85.8	7.18
Tanzania	**76.9**	**3.12**	**76.7**	**3.42**	**72.9**	**3.56**

Policy Suggestion 4.12: *The Ministry, (School Inspectorate Department) should ensure that head teachers provide professional advice to their teachers on a regular basis.*

The Ministry in collaboration with PMORALG should review the role of head teachers as an advisor. Furthermore, PMORALG in collaboration with ADEM should organize nationwide seminars that focus on teacher support given by head teachers ADEM should re-work the head teacher training packages underlining this aspect of a head teacher's role.

4.7 Conclusion

This chapter examined teachers' characteristics and their views on teaching, classroom resources, and professional support, and tracked any changes that took place between 2000 and 2007. An analysis of the results was compared with Ministry norms and benchmarks where these existed. The analysis was clustered into the following seven areas of general concern: personal characteristics, professional characteristics and teachers' views on in-service training, and time allocated for teaching. Other areas were teachers' views on pupils', assessment, and meeting with parents. The final cluster was on the availability of selected classroom furniture and supplies, resource centres, and the professional support that teachers received from their head teachers.

The results revealed that disparities in the gender distribution had widened in both subjects. Much fewer female teachers taught Mathematics in 2007 compared to 2000. Suggestions were made to the Ministry in collaboration with PMORALG to review the teacher deployment policy to bring about a more equitable distribution of teachers by gender and by academic qualification.

Other findings indicated that in 2007 the mean years of teacher training for Reading and Mathematics teachers had remained constant at approximately 2 years. Remarkable improvement was registered in the academic education of teachers to predominantly senior secondary education in 2007 from junior secondary in 2000; which was commendable. However, some significant proportions of unqualified teachers remained in some zones. In addition there was a slight improvement in the provision of in-service courses over time with Reading teachers attending more course days than their counterpart Mathematics teachers. Suggestions made

included the formulation of a policy by the Ministry that requires teachers to attend a certain minimum number of in-service courses over a given period of time.

Improvement was also made in the frequency of testing pupils (2/3 times per month) for both, but especially Reading, teachers compared to 2000. However, this improvement is not enough since substantial numbers of Standard 6 pupils were either tested too often (1+ per week) or were not test often enough. A suggestion was made to school inspectors to investigate why teachers in some zones rarely tested pupils in Mathematics and in Reading.

The availability of usable classroom resources improved during 2007. Standard 6 pupils were in schools with approximately 5 out of 9 items compared to 3 resource items out of 9 in 2000. However, the availability of several essential usable resources like classroom libraries and bookshelves was consistently low overtime.

Slightly over half of Standard 6 pupils had teachers who used resource centres in 2007. This was higher than during 2000 where only one third of teachers used the resource centres. Nevertheless, the resource centres were inequitably distributed across the zones. Teachers used the resource centres mainly for reading, borrowing and making materials. It was suggested that the Ministry in collaboration with PMORALG should build more resource centres and develop the capacity of the centres so that, in turn, teachers who use them may enhance their professional and innovation skills.

As regards teachers' housing, overall the results show that there was a slight improvement in the percentage of pupils with teachers who lived in acceptable housing conditions; up from 16 percent in 2000 to 22 percent in 2007 for Mathematics teachers. However this still means that the vast majority of pupils (77 percent) have teachers who live in unacceptable conditions. A suggestion was made that the Ministry in collaboration with PMORALG and local communities address the unacceptable teacher housing conditions through the construction of teachers' houses with a focus on the zones that are least provided for and maintain those that are already constructed.

Chapter 5
Characteristics of School Heads and Their Schools

5.1 Introduction

In this chapter the school heads' characteristics and their viewpoints on educational infrastructure, the organization and operations of schools and problems with pupils and staff have been presented. The reasons for presenting these data are much the same as those that have already been provided in Chapter 3 and 4 for teacher and pupil data.

The head teacher plays a central role in all facets of a school's operation. He or she, manages the school curriculum, provides instructional leadership, and initiates or strengthens partnerships among members of the school community and between the school community and the local community. In Tanzania the primary school system is decentralized and with the introduction of PEDP, the head teachers have been charged with the extra responsibility of managing funds that are sent directly to schools. Each school has its own school development plan and bank account. The head teacher, in collaboration with the school committee, is the final authority on school plans and the budgets linked to them. An analysis of their characteristics and viewpoints is therefore important since they provide internal supervision, mobilise funds and other resources to meet the needs of the staff and pupils, and in addition they act as a bridge between the school and the local community. It is expected that these results will provide a good picture of the capacity of school heads in the context of the roles they should play within their schools. Where appropriate, recommendations have also been made.

5.2 Personal characteristics of school heads

General Policy Concern 5.1:

What were the personal characteristics of school heads (for example, age, and gender)?

Head teacher age and gender are important attributes for various purposes, e.g. planning their utilisation and allocation among schools and among regions. For example, head teachers tend to be older members of the school staff and of the teaching service as a whole, and therefore plans for their replacement need to be in place as they reach their retirement age or when they die. On the other hand, it is also important to know the degree of gender among head teachers because this reflects the extent to which the school system utilises all the human resource pool available, as well as offering equal opportunities to both male and female members of the teaching profession.

Age distribution

What was the age distribution of school heads?

In *Table 5.1a*, it can be seen that, in Tanzania, Standard 6 pupils were in schools with head teachers whose mean age was 41.7 years. There was considerable variation in head teachers' mean ages among the zones. Kilimanjaro zone had the oldest head teachers with a mean age of 45.1 years. In comparison the head teachers in Southwest Zone were the youngest with a mean age of 38.4 years.

The figures for the Southwest zone may be explained by the fact that over the years teachers posted to this zone were reluctant to report to schools due to poor infrastructure and the remote location of the zone. However, with the development of the infrastructure and school facilities there is a move for teachers including newly appointed ones to accept posts in this area. The figures for Kilimanjaro zone could be explained by the fact that this zone has good infrastructure, favourable weather and adequate living facilities which attract and retain teachers to work in the zone. This creates a pool of experienced teachers from which to select head teachers.

Some changes were registered in the mean age of head teachers between 2000 and 2007. The mean age of head teachers in 2007 (41.7 years) was 0.4 years or 4. 8 months less than the mean age of head teachers in 2000 (mean 42.1 years). The results indicate a slightly younger pool of head teachers in 2007 than in 2000. The most likely explanation for this is that the large numbers of teachers newly trained and upgraded during PEDP I (2002-2006), in order to match the

enrolment expansion, resulted in opportunities for relatively young teachers to be selected as head teachers.

Table 5.1: Means, percentages, and sampling errors for school head age and gender (2000)

Zone	Age (years)		Gender (female)	
	Mean	SE	%	SE
Central	42.6	1.98	7.1	7.08
Eastern	46.6	1.19	49.3	13.93
Kagera	44.1	1.87	19.4	10.45
Kilimanjaro	41.8	1.63	39.0	13.91
Mwanza	41.8	2.48	23.5	12.71
Northeast	42.3	1.63	14.5	10.07
Northern	43.9	1.47	15.0	8.59
Southern Highlands	41.6	1.80	0.0	0.00
Southern	40.1	1.49	31.4	20.08
Southwest	37.5	1.54	8.1	8.17
Western	39.4	1.25	14.2	8.08
Tanzania	**42.1**	**0.53**	**18.4**	**3.18**

Table 5.1a: Means, percentages, and sampling errors for school head age and gender (2007)

Zone	Age (years)		Gender (female)	
	Mean	SE	%	SE
Central	39.8	2.25	21.1	9.89
Eastern	44.5	1.71	34.2	12.32
Kagera	44.3	1.51	15.0	8.65
Kilimanjaro	45.1	1.83	27.7	16.26
Mwanza	41.1	1.41	8.7	6.36
Northeast	42.2	1.45	24.7	10.11
Northern	44.0	1.29	19.4	8.08
Southern Highlands	39.2	1.72	10.3	7.14
Southern	43.0	1.87	2.9	3.03
Southwest	38.4	2.12	25.5	12.94
Western	39.9	1.41	18.4	10.38
Tanzania	**41.7**	**0.53**	**18.0**	**2.96**

School head gender

What was the gender distribution of school heads?

It is expected that the staffing of primary schools, including the appointment of head teachers, should ideally ensure a fair representation of males and females as this generally helps to create a balanced and healthy learning environment. Pupils (both girls and boys) are more motivated to learn and have higher aspirations when they see role models of their gender among the school staff, including their head teachers.

Regardless of the government initiatives to emphasize gender equity in access to education and employment opportunities, the results that are summarized in *Table 5.1a* column 4 showed that 18.0 percent of Standard 6 pupils had female head teachers. Considerable variations among the zones were observed whereby the Eastern zone had the highest percentage of female head teachers, 34.2 percent and Southern zone had the lowest, 2.9 percent, which should be a concern for the Ministry. Strikingly, Southern Highlands zone which had no female head teachers in 2000 had an average of 10.3 percent of female head teachers in 2007. This is commendable progress.

The teacher training policy in Tanzania directs gender equality during admission for teacher training (ETP 1995). The execution of the policy is attested by the enrolments in teacher training between 2001- 2007 where gender parity was around 0.98 (BEST 2006:33), (BEST 2006:71). Since head teachers are appointed from a pool of experienced teachers, of approximately equal representation by gender it is strange that there in such inequality in terms of school heads. This state should be of concern to the Ministry.

It is thus generally conclusive that, Standard 6 pupils were in schools headed by predominantly by male head teachers. The distribution of head teachers deteriorated slightly between 2000 and 2007. This situation needs to be addressed by the Ministry in order to find ways and strategies of appointing head teachers based on achieving gender equality.

Policy Suggestion 5.1: *The Ministry in collaboration with PMORALG should review its school head teacher appointment and deployment policies in order to ensure that both male and female teachers are equitably appointed as primary school head teachers.*

Policy Suggestion 5.2: *The Ministry (School Inspectorate Department) should investigate zones with the lowest percentages of female head teachers and liaise with District Education Officers to correct the shortfall.*

5.3 Professional characteristics of school heads

General Policy Concern 5.2:

What were the professional characteristics of school heads (in terms of academic, professional, experience, and specialized training)?

Effective management of the school curriculum depends very much on academically and professionally qualified head teachers. An analysis of their professional characteristics including academic, professional, experience, and specialized training was made, and the results have been summarized in *Tables 5.2, 5.2a, 5.3* and *5.3a*.

Academic education

How many years of academic education had school heads completed?

The results in *Table 5.2a* show that the majority of Standard 6 pupils (61.0 percent) were in schools with head teachers who had completed senior secondary level academic education. Relatively smaller percentages of pupils were in schools with head teachers who had attained advanced level education (15.1 percent), junior secondary education (23.1 percent) and primary education (0.8 percent).

Among the zones, there were striking disparities in the academic qualifications of head teachers. Eastern zone had the highest percentage of Standard 6 teachers who attained Advanced level of education (34.1 percent) followed by Southern Highlands and Southern zones with 27.8 percent and 27.7 percent respectively. By contrast Kagera and Kilimanjaro zones had no pupils whose head teachers who had attained the Advanced level. In the senior secondary education category, Western zone had the highest percentage, 90 percent of head teachers of who had reached senior secondary education level while Central and Southern Highlands zone had particularly low percentages of head teachers with senior secondary education, 37.4 percent and 37.8 percent. In

all the 11 zones, none of the Standard 6 pupils had head teachers who graduated from tertiary level of education. It is worrying that Kagera zone had, relative to other zones, a particularly high percentage of head teachers who had junior secondary education 44.1 percent followed by Central and Southern Highlands zones (36.2 percent and 34.4 percent respectively).

Table 5.2: Level of academic education of head teachers (2000)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	19.2	10.40	0.0	0.00	80.8	10.40	0.0	0.00	0.0	0.00
Eastern	0.0	0.00	0.0	0.00	73.3	12.00	26.7	12.00	0.0	0.00
Kagera	0.0	0.00	0.0	0.00	78.5	11.34	21.5	11.34	0.0	0.00
Kilimanjaro	0.0	0.00	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00
Mwanza	11.2	8.02	0.0	0.00	79.8	11.57	9.1	9.14	0.0	0.00
Northeast	10.0	8.46	0.0	0.00	83.4	10.34	6.6	6.61	0.0	0.00
Northern	8.4	5.92	0.0	0.00	91.6	5.92	0.0	0.00	0.0	0.00
S. Highlands	6.9	7.06	0.0	0.00	72.3	12.06	20.8	10.75	0.0	0.00
Southern	11.1	11.32	0.0	0.00	76.8	15.70	12.2	12.40	0.0	0.00
Southwest	15.9	10.81	0.0	0.00	84.1	10.81	0.0	0.00	0.0	0.00
Western	10.9	7.51	9.5	6.63	74.7	10.31	4.9	4.93	0.0	0.00
Tanzania	**8.6**	**2.31**	**1.0**	**0.70**	**81.0**	**3.32**	**9.4**	**2.49**	**0.0**	**0.00**

Table 5.2a: Level of academic education of head teachers (2007)

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	12.8	9.38	36.2	13.29	37.4	13.49	13.6	9.37	0.0	0.00
Eastern	0.0	0.00	10.0	7.39	56.0	13.12	34.0	12.70	0.0	0.00
Kagera	0.0	0.00	44.1	14.00	55.9	14.00	0.0	0.00	0.0	0.00
Kilimanjaro	0.0	0.00	29.8	13.63	70.2	13.63	0.0	0.00	0.0	0.00
Mwanza	0.0	0.00	29.2	12.59	62.3	13.67	8.5	6.23	0.0	0.00
Northeast	0.0	0.00	24.2	9.80	59.0	11.74	16.9	9.16	0.0	0.00
Northern	0.0	0.00	22.9	8.59	73.2	9.09	3.8	3.87	0.0	0.00
S. Highlands	0.0	0.00	34.4	12.28	37.8	11.54	27.8	10.42	0.0	0.00
Southern	0.0	0.00	11.8	8.59	60.4	16.60	27.7	17.54	0.0	0.00
Southwest	0.0	0.00	18.1	10.00	62.5	13.14	19.4	10.94	0.0	0.00
Western	0.0	0.00	5.1	5.14	90.0	6.94	4.9	4.91	0.0	0.00
Tanzania	**0.8**	**0.61**	**23.1**	**3.26**	**61.0**	**3.80**	**15.1**	**3.04**	**0.0**	**0.00**

When the results for 2007 are compared to those for 2000 a declining trend was registered for head teachers who reached senior secondary education level from 81.0 percent in 2000 down to 61.0 percent in 2007. On the other hand, encouragingly, the percentage of head teachers with Advanced level of education increased to 15.1 percent in 2007 from 9.4 percent who reached the same level in 2000. It is surprising that Kilimanjaro zone had consistently no head teachers who had Advanced secondary education. This result could probably be due to the absence of a motivating environment for head teachers to advance their academic education.

While the results reflect an overall decline in having head teachers who have met the ministry norm for qualifications, senior secondary education for primary school teachers including head teachers, it is particularly worrying that the number of head teachers who had reached only junior secondary education level had increased from 1.0 percent in 2000 to 23.1 percent in 2007. The probable explanation for the increase is a lack of clarity on or non adherence to the policy on appointing head teachers whose academic background is senior secondary education by the local appointing authorities. There should therefore be renewed and deliberate efforts by the Ministry and PMORALG to ensure that qualified personnel are being appointed to head primary schools.

Teaching experience

How many years of teaching experience had head teachers completed?

Ordinarily, it is expected that teaching experience is a prerequisite for an effective head teacher. The teaching experience of head teachers, including the number of years they had been head teachers, were analysed and the results have been presented in *Table 5.3* and *Table 5.3a*.

From *Table 5.3a* it can be seen that the average Standard 6 pupil in 2007 had a head teacher with a teaching experience of 17.4 years. There were significant variations in the teaching experience of head teachers ranging from a mean of 21.5 years in Eastern zone to a mean of 11.6 years in Southwest zone. There was an insignificant decrease in the years of teaching experience of head teachers from a mean of 17.6 years in 2000 to a mean of 17.4 years in 2007. Eastern zone maintained the highest mean of teaching experience of head teachers (21.5 years in 2007 and 22.6 years in 2000) while the Southern zone maintained the lowest mean (11.6 and 11.5 years) at the

two time points. It is apparent that the experience of head teachers remained largely the same over time.

Table 5.3: Means and sampling errors for the teaching experience and training of the school heads (2000)

	Experience (years)		Teacher training (years)		Specialised training (weeks)	
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
Central	16.3	1.56	2.0	0.10	3.2	0.89
Eastern	22.6	1.02	1.9	0.23	8.8	4.80
Kagera	16.6	2.23	2.2	0.15	3.7	0.90
Kilimanjaro	19.0	1.53	1.7	0.16	3.4	0.89
Mwanza	17.7	2.11	2.2	0.17	2.5	0.70
Northeast	16.8	1.23	1.8	0.17	3.7	0.89
Northern	19.9	1.60	1.8	0.10	4.4	0.82
S. Highlands	16.6	1.87	2.0	0.05	3.8	0.57
Southern	18.8	2.02	2.0	0.32	2.9	0.97
Southwest	11.5	1.70	2.3	0.18	5.9	4.10
Western	15.4	1.66	2.2	0.14	8.5	5.14
Tanzania	**17.6**	**0.53**	**2.0**	**0.05**	**4.8**	**0.81**

Table 5.3a: Means and sampling errors for the teaching experience and training of the school heads (2007)

	Experience (years)		Teacher training (years)		Specialised training (weeks)	
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
Central	15.3	2.38	2.0	0.14	0.9	0.37
Eastern	21.5	1.65	2.1	0.16	5.3	3.19
Kagera	20.3	1.81	2.0	0.07	5.2	1.95
Kilimanjaro	20.9	1.79	1.8	0.14	4.4	2.09
Mwanza	16.3	1.26	1.8	0.14	6.4	2.85
Northeast	18.5	1.74	1.9	0.09	2.2	1.16
Northern	19.4	1.47	2.0	0.07	3.3	1.58
S. Highlands	14.9	1.94	2.1	0.11	0.5	0.31
Southern	18.8	2.00	2.4	0.36	1.6	0.59
Southwest	11.6	2.25	2.0	0.11	0.8	0.53
Western	16.1	1.51	2.1	0.06	5.4	1.97
Tanzania	**17.4**	**0.58**	**2.0**	**0.05**	**3.1**	**0.52**

Professional training

How many years of teacher training had school heads completed?

Head teachers require some pre-service training as teachers because, first and foremost, they have to become professionally competent teachers in order to manage a school well. By virtue of their relatively complex leadership role which involves managing teachers and resources of various kinds: implementing the curriculum, and establishing as well as maintaining partnerships with the local community, the necessity of such training cannot be over-emphasised. In column 4 of *Table 5.3a* it can be seen that the average number of years of teacher training for head teachers was 2 years. There were slight disparities in the mean of the duration of teacher training among the zones. There was a not significant improvement in the mean number of years of teacher training for head teachers between 2000 and 2007.

Specialized training on school management

Have school heads received specialized training in school management?

Specialised training is important for head teachers since, as stated earlier, head teachers have to have specific skills and competencies in order to manage the curricula, school plans, human and financial resources, to enhance partnerships with other stakeholders and to promote the participation of the community in the running of the school. In Tanzania it is a policy that every newly appointed head teacher receives specialized training in school management. This specialized training is offered at local and national levels by the Agency for Development of Educational Management (ADEM). In this study head teachers were asked to indicate whether they had received any specialized training in management and the duration in weeks which the training lasted. Their responses have been presented in *Table 5.3* and *Table 5.3a*.

In *Table 5.3a* the summarised results show that the average Standard 6 pupil had a head teacher who received specialised training in management for a mean of 3.1 weeks in 2007. There were disparities among the zones in this regard. Mwanza zone had the highest mean of head teachers who received specialized training, 6.4 weeks, while Southern Highlands had the lowest mean of 0.5 weeks. However, the SE for Mwanza zone and other zones with relatively higher means were large; therefore caution should be exercised when interpreting the results. It can be seen that there has been a considerable decline in the mean number of weeks of specialized training 4.8 weeks in

2000 down to 3.1 weeks in 2007. This situation is worrying and requires action from the PMORALG.

Experiences as a school head

How many years of experience had school heads had as either a school head or an acting school head – in the current school and in total?

It is a matter of common sense that a head teacher with long experience is most likely to manage a school more effectively than one with little or no experience at all. Yet it can be of added advantage for a head teacher who has headed more than one school because his or her experience is broader since each school has unique features that offer new learning opportunities. A question was asked of head teachers to indicate the number of years they had been head teachers in their present school and in all schools, and the results have been presented in *Table 5.4* and *Table 5.4a*.

Table 5.4: Means and sampling errors of school heads' years of experience as a school head (2000)

	This school		Altogether	
	Mean	SE	Mean	SE
Central	2.7	0.60	5.6	1.01
Eastern	3.3	0.47	13.4	1.18
Kagera	3.0	0.65	6.6	1.58
Kilimanjaro	3.9	0.85	7.4	1.43
Mwanza	3.1	0.68	6.2	1.75
Northeast	4.2	1.46	5.6	1.47
Northern	5.1	1.58	10.5	1.53
Southern Highlands	3.3	0.95	9.2	2.53
Southern	4.0	1.08	7.4	2.09
Southwest	4.0	0.85	4.0	0.85
Western	2.9	0.45	5.9	1.40
Tanzania	**3.6**	**0.34**	**7.9**	**0.58**

Table 5.4a: Means and sampling errors of school heads' years of experience as a school head (2007)

	This school		Altogether	
	Mean	**SE**	**Mean**	**SE**
Central			5.3	1.34
Eastern			8.4	1.53
Kagera			8.4	1.89
Kilimanjaro			9.0	2.42
Mwanza			6.2	1.11
Northeast			8.4	1.64
Northern			8.0	0.95
Southern Highlands			6.7	1.53
Southern			7.0	1.68
Southwest			5.6	1.35
Western			6.8	1.25
Tanzania			**7.2**	**0.46**

Note: Experience in "this school" was not recorded in SACMEQ III

In *Table 5.4a* the data show that the average Standard 6 pupil had a head teacher whose total experience as a head teacher was 7.2 years. There are some variations across the zones in the years of experience as head teacher. The variations were considerable in the overall experience of head teachers ranging from a high mean of 9.0 years in Kiliminjaro zone to a low mean of 5.3 years in Central. The results indicate that head teachers were slightly less experienced in 2007 than in 2000, although the results were not statistically significant. The mean total experience as a head teacher was 7.9 years in 2000 while only 7.2 years in 2007.

5.4 School infrastructure and conditions of school buildings

General Policy Concern 5.3:

What were the school heads' viewpoints on general school infrastructure (for example, electrical and other equipment, water, and basic sanitation) and the condition of school buildings?

School buildings, equipment and other school supplies and amenities in acceptable quantity and quality are necessary for the creation of a learner-friendly environment. It is for this reason that the Ministry prescribes certain benchmarks and standards for their provision.

Condition of school buildings

What was the general condition of school buildings?

School buildings need to be built according to ministry norms and specifications in order to suit school purposes. They should be safe to use, must promote the health of pupils, and should offer security for all school property housed in them. Once buildings have been constructed and are in use, they should be well-maintained through regular repair if they have to continue serving the purposes they are meant for. The head teachers were asked to state the condition of their school buildings using a five-point scale with values as follows: '5' = in good condition; '4' = some minor repair; '3' = most minor repair; '2' = some major repair; and '1' = complete rebuilding. The buildings variable was recoded with categories '1' and '2' collapsed together to reflect the variable 'need repair' so that it was possible to figure out the percentage of Standard 6 pupils whose head teachers perceived that the schools needed repair. An analysis of their responses has been presented in *Table 5.5* and *Table5.5a*.

Table 5.5: General condition of buildings and toilet facilities (2000)

	Need repair		Toilet provision	
	%	SE	Mean	SE
Central	67.8	12.41	52.3	4.92
Eastern	37.6	14.06	131.2	20.07
Kagera	62.4	12.94	40.0	4.66
Kilimanjaro	39.7	13.48	40.0	5.82
Mwanza	94.6	5.42	140.4	73.69
Northeast	62.2	14.11	84.8	18.98
Northern	35.7	11.26	82.0	16.38
Southern Highlands	31.7	11.55	54.5	8.59
Southern	69.5	16.19	41.7	9.35
Southwest	47.3	14.75	57.3	13.73
Western	43.4	12.07	87.8	14.02
Tanzania	**50.5**	**4.07**	**76.6**	**7.02**

Table 5.5a: General condition of buildings (2007)

	Need repair		Toilet provision	
	%	SE	Mean	SE
Central	50.8	13.86	43.3	4.25
Eastern	43.0	13.01	131.5	20.10
Kagera	51.6	14.33	90.1	13.57
Kilimanjaro	47.2	15.99	42.4	3.93
Mwanza	52.9	15.25	92.8	13.56
Northeast	79.6	10.14	63.9	7.49
Northern	54.7	10.69	65.4	7.42
Southern Highlands	75.7	10.03	59.9	10.46
Southern	57.8	14.45	66.4	10.90
Southwest	67.4	12.68	75.1	17.86
Western	45.6	12.07	127.5	17.64
Tanzania	**58.6**	**3.86**	**79.3**	**3.95**

In 2007 58.6 percent of Standard 6 pupils in Tanzania were in schools with buildings that needed repair. There were considerable variations among the zones in the percentage of schools with buildings that needed repair ranging from a high of 79.6 percent in Northeast zone to a low of 43.0 percent in Eastern zone. All but three zones (Eastern, Kilimanjaro, and Western) had more than half of their pupils in schools whose buildings needed repair; that is they either needed major repair or complete rebuilding. This is a disturbing situation and deserves attention from PMORALG.

The state of school buildings worsened between 2000 and 2007 by around 8 percentage points, from 50.5 percent of school buildings requiring repair in 2000 to 58.6 percent in 2007. Only three zones out of eleven had less than half of their pupils in schools whose buildings needed repair during 2007 compared to 6 zones in 2000. In Northeast the situation worsened since the percentages of buildings requiring repair increased from 62.2 to 79.6 percent in 2007. Similarly in Southern Highlands zone 57.8 percent of school buildings required repair in 2007 compared to only 31.7 percent in 2000. The results for these zones deserves Ministry attention since during the period under review funds were sent to respective local governments for the building of new classrooms and schools under PEDP I and therefore the expectation would be that zones would

register a much lower percentages of school buildings requiring repair in 2007. It would be desirable therefore for PMORALG and the Ministry to examine the situation of school buildings in the three zones.

School toilets

What was the nature and provision of toilet facilities in schools?

The availability of toilet facilities in schools enhances school hygiene and sanitation, and this contributes to a learner-friendly environment. On the other hand, when toilet facilities are inadequate or absent, they can cause absenteeism, especially for those girls who have reached puberty. The Ministry norm for toilet facilities is 25 boys per toilet hole and 20 girls per toilet hole. Head teachers were asked to indicate the number of toilets that were available in their schools. This number was divided by the school's enrolment in order to obtain the ratio of pupils to a toilet. In cases where the school operated several shifts, the number of toilets was divided by the enrolment in the biggest shift. The school heads' responses have been presented in *Table 5.5* and *Table 5.5a*.

In *Table 5.5a*, column 4 the results show that Standard 6 pupils in Tanzania were in schools where around 79.3 pupils shared one toilet hole in 2007. In 2000 around 77 pupils shared one toilet hole which was well above the specified norm. This is to say that the availability of toilet facilities in schools has worsened from an already bad position. There were large variations in the means for toilet provision among the zones ranging from a high mean of 131.5 pupils per toilet in Easstern zone to a low mean of 42.4 pupils per toilet in Kilimanjaro zone. Of particular concern are Kagera and Southern zones which had relatively good toilet provision in 2000, 40.0 and 41.4 respectively, but whose pupil to toilet ratios were 90.1 and 66.4 in 2007. However, toilet provision in Mwanza and Northern zones had improved by 2007, their toilet provision means decreased to 92.8 and 65.42 respectively from 140.4 and 82.0 in 2000 respectively.

It can be inferred from the results that the level of toilet provision in the nation and in all zones is very bad, and that it worsened over time and was far from meeting the Ministry norm on toilet provision.

Policy Suggestion 5.3: *In addition to the ongoing construction of classroom buildings, toilets and teachers' quarters by the government under PEDP, the Ministry in collaboration with PMORALG and local communities should carry out a study of the current buildings, toilets, and other facilities in order to guide the on-going and any future school reconstruction plans.*

Policy Suggestion 5.4(a): *The ministry in collaboration with PMORALG should investigate why school buildings particularly in Northeast and Southern zones have shown increased signs of dilapidation despite the many newly constructed buildings (under PEDP during 2002-2006).*

Policy Suggestion 5.4(b): *PMORALG and local communities should establish sustainable school maintenance systems preferably at ward level to oversee school maintenance including buildings on a regular basis.*

5.5 School operations and school problems

General Policy Concern 5.4:

What were the school heads' viewpoints on (a) daily activities (for example, teaching, school-community relations, and monitoring pupil progress), (b) organizational policies (for example school magazine, open days, and formal debates), (c) inspections, (d) community input, (e) problems with pupils and staff (for example, pupil lateness, teacher absenteeism, and lost days of school)?

The role of the school head, being in overall charge of the day-to-day running of the school as administrator and manager, places him or her at the centre of the school's self assessment. It was considered important to get the views of the head teachers on a number of important areas that were relevant to the management of the school. The topics included (a) daily activities: e.g. teaching, school-community relations, and monitoring pupil progress), (b) organizational policies: e.g. magazine, open days, and formal debates, (c) inspections, (d) community input, (e) problems with pupils and staff: e.g. pupil lateness, teacher absenteeism, and lost days of school.

Community contribution

What was the contribution of the community in terms of time and resources for maintaining the school and for providing supplementary funding?

Community or parent participation in school activities is often a catalyst for school development. The engagement of a wide range of activities of community members and parents strengthens school management and school-community partnership. Schools can use community resources to enhance the teaching/learning process and the community can use the school as a facility for influencing curriculum and for improving their own knowledge. The head teachers were asked to describe their perceptions of the type of community contributions. The results of their responses have been presented in *Table 5.6* and *Table 5.6a*.

In *Table 5.6a* it can be seen that 91.3 percent of Standard 6 pupils were in schools with head teachers who rated building of school facilities as a form of contribution to the school made by the community. This was by far the most common type of contribution made. Maintenance of school facilities (65 percent) and construction/maintenance and repair of furniture/equipment (55.9 percent) were also quite common. On the other hand payment of an additional amount to the salaries of teachers was the least common contribution recognised by school heads. The results for the first 3 most common contributions and the 3 least common were also the same in 2000 although the top 3 appear to be slightly less common in 2007. A pattern is observed where parents and communities contributed less in 11 out of the 14 items.

The results reveal that parent/community contribution has been mainly in building of school facilities, maintenance of school facilities and construction/repair of school buildings, with a general declining trend between 2000 and 2007. Unfortunately it appears that the type of contributions where parents/community contributed most could be executed with the minimal level of participation of parent/community. Thus mechanisms to promote activities with wider school-community/parent partnership and participation should be developed at the local level.

Table 5.6: Parent/community contributions to the school (2000)

Type of contribution	Pupils in school with community contributing to	
	%	SE
Building of school facilities	91.4	2.04
Maintenance of school facilities	78.2	3.80
Construction/maintenance and repair of furniture/equipment	74.3	3.58
The purchase of textbooks	39.3	3.97
The purchase of stationery	54.8	4.09
The purchase of other school supplies	55.2	4.18
Payment of examination fees	70.1	4.04
Payment of the salaries of additional teachers	4.6	1.55
Payment of an additional amount to the salary of teachers	1.2	0.79
Payment of the salaries of non-teaching staff	31.2	3.61
Payment of an additional amount to the salary of non-teaching staff	10.7	3.21
Extra-curricular activities	27.3	4.02
Assisting teachers in teaching without pay	14.1	2.89
Provision of school meals	17.7	2.78

Table 5.6a: Parent/community contributions to the school (2007)

Type of contribution	Pupils in school with community contributing to	
	%	SE
Building of school facilities	91.3	1.96
Maintenance of school facilities	65.0	3.68
Construction/maintenance and repair of furniture/equipment	55.9	3.81
The purchase of textbooks	13.7	2.46
The purchase of stationery	18.5	2.91
The purchase of other school supplies	25.5	3.31
Payment of examination fees	9.0	2.10
Payment of the salaries of additional teachers	5.7	2.28
Payment of an additional amount to the salary of teachers	0.5	0.51
Payment of the salaries of non-teaching staff	24.0	3.37
Payment of an additional amount to the salary of non-teaching staff	6.0	1.71
Extra-curricular activities	37.1	3.81
Assisting teachers in teaching without pay	30.2	3.65
Provision of school meals	23.2	3.04

Pupil behavioural problems

What were the main behavioural problems of pupils?

There are many factors that influence the behaviour of pupils, some of which are in-school factors and some are out of school factors. The school, home, neighbourhood, peer group, and the media shape the behaviour of pupils and in turn personalities and general societal values. Head teachers were asked to indicate their perception of the frequency of both pupils' and teachers' selected behavioural problems. 18 behavioural problems for pupils and ten 10 for teachers were listed. The responses ranged from 'never', 'sometimes' and 'often'. In *Table 5.7* and *Table 5.7a* the responses of head teachers indicating pupil behavioural problems that *never* occurred have been presented.

Table 5.7: Pupil behavioural problems (2000)

Frequency of pupil behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late to school	1.8	0.93
Skipping classes	13.3	2.57
Dropping out of school	6.4	2.29
Classroom disturbance	12.5	2.75
Cheating	12.8	2.85
Use of abusive language	24.4	3.91
Vandalism	20.5	3.44
Theft	20.9	3.53
Intimidation of pupils	25.2	3.61
Intimidation of teachers/staff	56.2	4.08
Injure staff	87.4	2.68
Sexual harassment of pupils	49.8	4.21
Sexual harassment of teachers	78.4	3.37
Drug abuse	84.7	2.90
Alcohol abuse	85.7	2.92
Fights	20.8	3.79
Health problems	1.1	0.73

Table 5.7a: Pupil behavioural problems (2007)

Frequency of pupil behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late to school	8.8	2.64
Absenteeism	3.6	1.19
Skipping classes	20.9	3.35
Dropping out of school	12.7	2.75
Classroom disturbance	14.5	3.04
Cheating	19.8	3.27
Use of abusive language	25.8	3.51
Vandalism	26.9	3.48
Theft	23.1	3.41
Intimidation of pupils	30.1	3.62
Intimidation of teachers/staff	60.6	3.51
Injure Staff	76.8	3.26
Sexual Harassment of pupils	62.3	3.89
Sexual Harassment of teachers	80.2	3.09
Drug abuse	83.0	2.95
Alcohol abuse	80.5	3.15
Fights	24.3	3.62
Health problems	2.5	0.97

The results from *Table 5.7a* show that, the most common pupil behavioural problem in primary schools was health (2.5 percent never occurred), which means that 97.5 percent (100% - 2.5%) of Standard 6 pupils were in schools where the head teachers stated that health problems occurred. This problem was followed closely by absenteeism (3.6%), indicating that 96.4 percent of Standard 6 pupils were in schools where head teachers stated that absenteeism occurred. Arriving late to school (8.8 percent), dropping out (12.7 percent), classroom disturbance (14.5 percent), cheating (19.8 percent), skip classes (20.9 percent), theft (23.1 percent), fights (24.3 percent), use of abusive language (25.8 percent), vandalism (26.9 percent), bullying pupils (30.1 percent) were all indicated by more than 50 percent of pupils' head teachers. On the other hand the least common behavioural problems were drug abuse, alcohol abuse and sexual harassment of teachers

where 83.0 percent, 80.5 percent and 76.8 percent of pupils' head teachers respectively stated that the problems never occurred.

When these results are compared with those from 2000, several features emerge: the first is that a trend is noted where all the highly rated behavioural problems (those occurring more than 50 percent) in 2000 are the very same in 2007. Of these, the most common behavioural problem remained ill health. The second feature is that there has been some improvement over time, with the percentage for health problems never occurring increased from 1.1 percent to 2.5 percent, similarly the percentage of pupils in schools not reporting arriving late as a problem increased from 1.8 percent to 8.8 percent in 2007, which mirrors the improvement in skipping class never occurring, up to 20.9 percent in 2007 from 13.3 percent in 2000. The third feature is that 'alcohol abuse', and 'drug abuse' were the least common pupils' behavioural problems during 2000 and 2007 surveys. However the situation in both cases deteriorated slightly during 2007 with the percentages of pupils with head teachers who stated that 'alcohol abuse' and 'drug abuse' never occurred respectively decreasing by 5.2 and 1.7 percentage points respectively. This implies that more pupils fell prey of 'alcohol abuse' and 'drug abuse'.

It is obvious that ill health, the most common problem pupils experienced, would have a knock on effect on their coming late to school, absenteeism or dropping out completely from school. Pupils' behavioural problems were broad ranging from ill health, absenteeism, arriving late, and dropping out of school to vandalism, fights, and theft and bullying. Of course, it is not expected that schools would experience no problems with late arrivals, absenteeism, and other similar problems. Nevertheless, it is expected that these problems should be minimal. Further, although there are some problems that were cited to occur less frequently, such as vandalism and theft, there should be a cause for concern due to their damaging effect on pupils' characters. Comparative results portrayed a clear pattern where the pupil behavioural problems during 2007 were by and large a repeat of those from 2000. The results indicate that some efforts have been made to redress the pupil behavioural problems but it would appear that a much more concerted effort is required if the situation is to be improved further. The observations and suggestions made during 2000 are still valid in 2007.

The results presented, therefore, suggest three worrying messages to the education system and the community: Firstly, Standard 6 pupils were frequently affected by diseases. The Ministry should develop school health norms which include that every school should provide first-aid services through having a first-aid kit and or through the provision of a health centre near to the school. Given the results above it is highly unlikely that the potential of the existing practices was fully realised. Hence a re-examination of pupil heath service mechanisms with a view to improving pupils' health care and health monitoring systems is warranted. The second was the poor conduct of pupils which undermined the personalities and values of pupils while they were at school (including the higher levels of schooling) and after school. Behaviour such as theft, vandalism, fighting and bullying are potential threats to peace and security in addition to being a violation of human rights. Thirdly, sexual harassment could increase pupils' vulnerability to sexually transmitted infections, including HIV and AIDS. These results suggest a failure on the part of both the school system and the wider society/community in bringing up a young generation who meet national expectations, a generation that is honest, tolerant, healthy, civilized, and that takes responsibility for their own property and that of schools, families and the community. The results provide some evidence for the common public outcry that ethics and moral values in society have decayed and deserve due attention by relevant social organizations. School systems, for their part, should work out mechanisms for nurturing desirable values and behaviour among pupils.

Policy Suggestion 5.5: *The Ministry in collaboration with PMORALG should establish a health programme for each school where pupils are regularly examined and treated. The existing first-aid system in many schools should be integrated into the programme and strengthened by ensuring that each school has at least one male and one female teacher trained in providing first-aid services.*

Policy Suggestion 5.6(a): *The Ministry should ensure that primary, secondary and teacher education curricula facilitate the inculcation of values and attitudes that are cherished by the communities they serve, and by Tanzania as a nation.*

Policy Suggestion 5.6(b): *The Ministry should design and establish a school community/parent information system that tracks pupils' behaviour and uses the information for remedial action including counselling.*

Policy Suggestion 5.6(c): *The Ministry in collaboration with the Ministry of Health and Social Works should establish external referrals to provide probationary services to juvenile delinquents in extreme cases.*

5.5.3 What were the main behavioural problems of teachers?

Teachers are normally expected to observe certain ethics of the teaching profession as well as regulations set by the Ministry, in addition teachers' behaviour must be exemplary so that they can serve as role models. It is important, therefore, to know the extent to which teachers live up to these ideals. Head teachers were asked to indicate behavioural problems related to their teachers and their responses have been summarized in *Table 5.8* and *Table 5.8a*.

Table 5.8: Teacher behavioural problems (2000)

Frequency of teacher behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late to school	6.0	1.62
Absenteeism	39.8	4.19
Skipping classes	33.2	4.13
Intimidation or bullying of pupils	75.4	3.40
Sexual harassment of teachers	85.5	3.48
Sexual harassment of pupils	81.9	3.09
Use of abusive language	72.0	3.69
Drug abuse	95.6	1.49
Alcohol abuse	81.5	2.94
Health problems	17.3	3.03

Table 5.8a: Teacher behavioural problems (2007)

Frequency of teacher behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late to school	19.2	3.26
Absenteeism	37.1	3.94
Skipping classes	52.8	3.90
Intimidation or bullying of pupils	68.0	3.59
Sexual harassment of teachers	83.2	2.82
Sexual harassment of pupils	81.1	2.98
Use of abusive language	69.2	3.63
Drug abuse	85.3	2.79
Alcohol abuse	68.2	3.62
Health problems	12.0	2.37

It can be seen that in 2007 some 12.0 percent of Standard 6 pupils were in schools where head teachers stated that health problem for teachers at the school never occurred and 19.2 percent of them were in schools where head teachers stated that teachers arriving late to school never occurred. The results are comparable with those for 2000 except that the order was reversed in 2000 with arriving late to school (6.0 percent) being the most common behavioural problem followed by health problem (17.3 percent). This implies that teachers had more health problems in 2007 than in 2000. However, in 2007 fewer teachers arrived late at school (an increase of 13.2 percentage points for arriving late to school never occurring) than they did in 2000. The improvement of the stated punctuality of teachers is probably partly attributable to the construction of male teachers' quarters within school premises.

The least common teacher behavioural problems (that is the teacher behavioural problems with the highest percentage of never occurring) were: drug abuse (85.3 percent), sexual harassment of teachers (83.2 percent) and sexual harassment of pupils (81.1 percent). The results for this set of teacher problems reflect no change from 2000 except in drug abuse where relatively fewer pupils were in schools with teachers affected, 85.3 percent in 2007 compared to 95.6 percent in 2000). Taken together, the most common problems among teachers and pupils (as reported in the earlier section) were 'health' and 'arriving late to school' and the least common was 'drug abuse'. It is

unfortunate to note that both pupils and teachers were frequently afflicted by health problems. Health problems could, as stated earlier, arguably aggravate the second problem of arriving late to school. Arriving late to school reduces time on task for both pupils and teachers. If teachers are frequently sick they cannot carry out their teaching duties effectively and if pupils are frequently sick they cannot learn effectively and will have poor attendance at school.

The health of the school community (pupils and teachers) should receive sustainable attention on a routine basis because the government established the National Health Insurance Fund for civil servants which came into effect in 2002. In addition, other government initiatives care and provide support to the sick in work places under the auspices of (TACAIDS). They are instrumental in the support of teachers and pupils alike and need to be coordinated well to reach those most in need.

Policy Suggestion 5.7: *The Ministry in collaboration with PMORALG should ensure that the National Health Insurance fund for civil servants benefits all teachers so that teachers are assured of regular health checks and treatment. In addition the sector care and support initiative should be intensified in order to reach all those in need in schools.*

5.6 Conclusion

In this chapter the focus was on the examination of the head teachers' characteristics and their viewpoints on classroom facilities, teaching and behavioural problems with respect to pupils and teachers.

Research results revealed consistently wide gender disparities among head teachers between 2000 and 2007. Standard 6 pupils were in primary schools headed by predominantly male head teachers (only 18.0 percent were female). The highest percentage of male head teachers was in Southern zone (only 2.9 percent female). It was advised that the Ministry in collaboration with PMORALG should review the policy on appointing head teachers and should ensure that male and female head teachers are equitably appointed and deployed among primary schools.

In 2007, fewer Standard 6 pupils (61.0 percent) were in schools with head teachers whose academic level of education was senior secondary education compared to 81.0 percent in 2000. There was a decline in the amount of specialised training received by head teachers, down from 4.8 weeks in 2000 to 3.1 weeks in 2007. In addition, head teacher experience changed negligibly, while their average teacher training remained the same at 2.0 years.

The state of school buildings worsened by around nine percentage points, from 50.5 percent of school buildings that were perceived to require repair in 2000 to 58.6 percent in 2007. In addition the level of toilet provision nationally and in all zones was very low, and worsened over time. It was suggested that in addition to the ongoing construction of classroom buildings, toilets and teachers' quarters by the government under PEDP, the Ministry in collaboration with PMORALG and local communities should carry out a review of the buildings and toilet facilities that require major repair or compete rebuilding. The information obtained should be used to facilitate the on-going school buildings construction being implemented under PEDP and future building plans so that more schools have adequate buildings in accordance with the Ministry norms

The findings revealed that parent/community contributions were mainly in the building of school facilities, maintenance of school facilities and construction/repair of school buildings with a general declining trend between 2000 and 2007. The suggestion was made for the development of mechanisms at the local level to promote activities with wider school-community/parent partnerships.

The most common behavioural problems among pupils and teachers in 2007 was health (illness) followed closely by absenteeism and arriving late to school. The most common behavioural problems were the same ones found in the SACMEQ II study. However, some improvement was registered which was substantial in 12 of the behavioural problems among pupils. On the other hand, there was in an increase in the frequency of health problems for teachers between 2000 and 2007. The Ministry, relevant government sectors and the general community remain challenged in 2007 as they did in 2000 because the proportion of pupils with behavioural problems had not changed much. Several suggestions to the Ministry and relevant government sectors were made including: establishing a health programme for each school where pupils are regularly examined

and treated, ensuring that primary, secondary and teacher education curricula facilitate the inculcation of values and attitudes to pupils that are cherished by the communities they serve, and by Tanzania as a nation and establishing external referral services to provide probationary services to juvenile delinquents.

Chapter 6
School Resources

6.1 Introduction

Education systems strive at the onset to enrol children and retain them in school. Thereafter, the next struggle is to ensure that children enrolled learn what they are supposed to learn at school, and that all of them have an equal opportunity to do so. One way of doing this is to ensure that there is an equitable distribution of resources across the zones. Equitable allocation of resources can contribute to redressing the differences in achievement among schools and in turn differences in achievement among pupils. This chapter therefore examines the extent to which human and material resources among zones are equitably distributed. It focuses on the allocation of teachers and head teachers in terms of their experience and academic qualifications. Further focus is on how classrooms, teaching materials, and schools facilities are distributed.

Up to the year 2001 in Tanzania, the provision of learning resources in primary education had been the joint responsibility of local communities and the government. The local government authorities, local communities (including parents) shared the responsibility of providing pupils with classroom supplies such as textbooks and furniture, and the construction of classrooms and other school buildings. With the introduction of PEDP in 2002, the Government has assumed a greater part of the responsibility of providing resources to schools. Communities, however, continue to assist government efforts wherever they can and where it is necessary.

Before the introduction of PEDP, the level of provisions in primary schools was highly dependent on the wealth of the parents and communities surrounding the school as well as the extent of community awareness of the value of education. The PEDP priorities include equitably providing basic resources among schools to minimize the inherent differentials, expansion of enrolment, quality provision and institutional arrangements. However, the main focus during implementation was an enrolment expansion (PEDP, 2006). As a result the many challenges encountered included: the shortage of textbooks and teaching/learning materials and a shortage of teachers' quarters. PEDP II renewed its objectives which included

improving the availability of textbooks from a pupil to book ratio of 3:1 in 2005 to 1:1 in 2010.

In this chapter, areas where there are differences in the allocation of resources have been identified. Emphasis has been placed on the inequities in the distribution of resources and on the changes that took place between SACMEQ II (2000) and SACMEQ III (2007). Therefore, the results presented here should be related to previous chapters that dealt with human and material inputs.

6.2 Desirable human resources

General Policy Concern 6.1:
Have human resources (for example, qualified and experienced teachers and school heads) been allocated in an equitable fashion among regions?

Were the distributions of desirable human resources of Standard 6 teachers equitable among zones?

In *Table 6.1*, *Table 6.1a,* and *Table 6.1b* the distributions of desirable human resources by specific teacher characteristics are shown. In 2007, the spread of desirable characteristics of human resources ranged from a high of 88.5 for teacher class attendance to a low of 18 percent for female school heads. The percentages of only 5 out of 12 characteristics of human resources exceeded 50 percent: school heads who have reached senior secondary or more (76.1 percent), female Reading teachers (60.4 percent), teacher subject knowledge in Mathematics (65.6 percent) and pre-service training above two years for both Reading and Mathematics teachers (81.2 percent).

There were significant variations for each of the 12 characteristics among the zones. For some characteristics the minimum values were quite low e.g. female school heads in Southern Zone (2.9 per cent), Reading teachers subject knowledge (8.2 percent) in Western zone and special training HIV/AIDS course (11.2 percent) in Southwest zone. These results imply a seriously inequitable allocation/distribution of the desirable human resources among the zones.

Table 6.1: Percentages and sampling errors for the distribution of desirable human resources by zones (2000)

	DESIRABLE HUMAN RESOURCES																			
	Female School Heads		Sch. Head Educ. Senior Sec. or more		Sch. Head. Mngt. Course		Female Reading Teachers		In-service Trg. (Last 3yrs - Rd.Tch)		Pre-service Trg (>2yrs - Rd Tch)		Teacher Subject Knowledge (Read.)		Teacher Subject Knowledge (Math)		Acceptable Class Size (≤ 40)		Teacher Class Attendance	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	7.1	7.05	80.8	10.41	73.9	11.70	41.3	13.27	4.2	4.15	96.3	3.73	16.3	9.33	48.7	15.13	48.7	12.82	85.5	9.77
Eastern	49.3	13.76	100.0	0.00	100.0	0.00	81.7	10.08	26.6	9.83	100.0	0.00	17.8	8.11	55.1	14.37	15.2	8.62	87.6	8.58
Kagera	19.4	10.46	100.0	0.00	71.7	12.31	15.2	10.24	30.6	12.17	85.0	10.06	28.6	12.41	52.1	13.46	71.4	12.37	49.5	13.46
Kilimanjaro	39.0	13.73	100.0	0.00	100.0	0.00	70.3	12.85	37.2	12.90	100.0	0.00	21.2	11.52	58.0	13.81	64.1	12.48	93.6	6.43
Mwanza	23.5	12.42	88.8	8.02	58.9	14.31	62.4	14.35	25.0	12.04	90.3	9.47	7.0	7.03	41.7	14.68	42.9	13.60	60.6	14.14
Northeast	14.5	9.95	90.0	8.33	86.5	9.38	50.1	14.35	8.4	8.31	91.9	8.04	36.2	13.65	47.7	14.27	70.6	12.93	91.7	8.17
Northern	15.0	8.51	91.6	5.95	80.6	8.43	47.2	12.00	23.8	10.31	89.0	7.76	22.1	8.63	49.5	11.95	55.1	11.14	89.0	7.74
Southern Highlands	0.0	0.00	93.1	6.82	60.7	11.77	69.2	10.96	8.1	5.10	89.4	5.98	31.6	11.64	65.1	9.11	19.5	6.91	91.9	4.81
Southern	31.4	18.31	88.9	10.94	80.6	13.38	11.3	11.15	47.0	17.80	88.9	10.94	47.2	17.79	34.7	17.76	66.2	17.73	100.0	0.00
Southwest	8.1	8.08	84.1	10.70	44.0	15.10	46.0	14.60	10.3	8.15	100.0	0.00	21.6	11.01	44.4	15.56	57.8	11.45	97.4	2.70
Western	14.2	8.04	79.6	9.47	55.4	12.34	38.7	11.79	13.2	7.55	100.0	0.00	23.4	10.40	38.9	12.93	44.9	10.56	83.2	9.16
Tanzania	**18.4**	**3.17**	**90.4**	**2.39**	**74.1**	**3.45**	**51.9**	**4.09**	**19.5**	**3.10**	**93.5**	**2.03**	**24.9**	**3.56**	**49.9**	**4.21**	**46.4**	**3.75**	**86.4**	**2.60**

Table 6.1a: Percentages and sampling errors for the distribution of desirable human resources by zones (2007)

	DESIRABLE HUMAN RESOURCES															
	Female Reading Teachers		In-service Trg. (Last 3yrs - Rd.Tch)		Pre-service Trg (>2yrs - Rd Tch)		Spec. Training HIV/AIDS Course		Teacher Subject Knowledge (Read.)		Teacher Subject Knowledge (Math)		Acceptable Class Size (≤ 40)		Teacher Class Attendance	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	60.4	13.55	29.2	11.90	69.5	11.65	49.8	13.89	17.4	8.36	78.7	10.26	32.5	10.11	87.7	9.21
Eastern	77.7	8.83	19.5	7.74	86.8	6.75	41.0	12.87	26.4	10.15	74.1	11.62	13.0	9.03	74.9	11.49
Kagera	61.2	14.12	33.1	14.38	61.3	14.28	57.3	14.08	29.2	13.09	58.6	12.60	25.3	10.39	76.3	11.38
Kilimanjaro	73.2	14.04	46.3	15.68	75.1	11.32	51.4	15.92	37.6	14.76	45.6	12.46	18.3	10.30	100.0	0.00
Mwanza	30.1	13.12	58.5	14.25	55.6	14.59	61.5	16.20	30.2	12.97	47.7	16.02	61.1	11.00	90.1	7.25
Northeast	76.1	10.94	38.3	11.52	93.7	4.60	44.2	12.07	2.9	2.87	63.7	11.04	23.0	8.80	95.0	4.99
Northern	68.1	10.35	31.6	9.08	82.7	6.44	27.3	9.20	17.5	7.04	73.7	8.60	19.9	8.50	73.9	9.78
Southern Highlands	68.2	11.94	13.1	7.39	89.2	7.53	19.8	9.32	45.8	12.41	88.0	7.55	14.8	6.92	100.0	0.00
Southern	49.9	10.95	42.5	10.99	94.4	5.74	63.6	13.37	31.6	12.73	49.8	15.41	23.3	10.87	96.3	3.82
Southwest	38.3	13.56	42.0	13.48	94.2	5.81	11.2	8.32	28.4	12.81	75.6	11.70	39.5	11.83	85.5	9.41
Western	55.0	11.86	40.1	11.91	72.8	12.12	61.8	11.28	8.2	5.80	48.6	12.46	52.3	11.32	90.4	6.75
Tanzania	**60.4**	**3.72**	**34.2**	**3.52**	**81.2**	**2.92**	**42.4**	**3.78**	**24.5**	**3.33**	**65.6**	**3.75**	**29.1**	**3.09**	**88.5**	**2.31**

Table 6.1b: Percentages and sampling errors for the distribution of desirable human resources by zones (2007)

	DESIRABLE HUMAN RESOURCES							
	Female School Heads		Sch. Head Educ. Senior Sec. or more		Sch. Head. Mngt. Course		Sch. Head HIV/AIDS Course	
	%	SE	%	SE	%	SE	%	SE
Central	21.1	9.89	51.0	13.88	40.4	13.57	24.3	12.90
Eastern	34.2	12.32	90.0	7.39	46.3	13.09	70.7	11.72
Kagera	15.0	8.65	55.9	14.00	65.8	12.33	48.2	14.24
Kilimanjaro	27.7	16.26	70.2	13.63	63.4	14.48	69.2	13.14
Mwanza	8.7	6.36	70.8	12.59	38.0	15.71	60.7	13.64
Northeast	24.7	10.11	75.8	9.80	32.8	11.33	41.2	11.93
Northern	19.4	8.08	77.1	8.59	40.1	10.88	41.8	10.52
S. Highlands	10.3	7.14	65.6	12.28	19.4	9.18	35.5	11.46
Southern	2.9	3.03	88.2	8.59	45.7	14.95	58.1	14.28
Southwest	25.5	12.94	81.9	10.00	22.5	11.74	22.0	11.32
Western	18.4	10.38	94.9	5.14	46.6	12.22	43.9	12.11
Tanzania	**18.0**	**2.96**	**76.1**	**3.27**	**39.3**	**3.87**	**45.2**	**3.96**

Significant improvement was made nationally between 2000 and 2007 in four teacher characteristics: education, female Reading teacher (8.5 percentage point increases), in-service training years Reading teacher (14.7 percentage point increase) and teacher subject knowledge in Mathematics (15.7 percentage point increase). However the situation deteriorated significantly for school head management courses (14.9 percentage point increase), pre-service training 2 year (34.9 percentage point decrease) and school head education senior secondary or more (14.3 percentage point decrease). The distribution of characteristics remained largely the same: subject knowledge for Reading teachers (0.4 percentage point change), female school head (0.4 percentage point change) and pre-service training, 2 years or more for Reading teachers (7.7 percentage point decrease). The large decline in acceptable class size of ≤40 pupils (17.3 percent) is a result of enrolment expansion due to the on emphasis of Education For All (EFA) and MKUKUTA strategies.

At the zonal level impressive improvement was recorded in some zones that had faired very poorly in 2000 in some characteristics; for instance Southern Highlands for female school head (0.0 percent in 2000 to 10.3 percent in 2007), Central zone for in service training Reading teachers (from 4.2 percent in 2000 to 29.2 percent in 2007). In contrast considerable deterioration was also noted in some characteristics in zones that had performed well in 2000 e.g. in Southern zone female school head (from 31.4 percent in 2000 to 2.9 percent in 2007), in Northeast zone for teacher subject knowledge in Reading (from 36.2 percent in 2000 to 2.9 percent in 2007).

It is clear from the results that a mixed picture is given with regard distribution of characteristics; with large improvements in some characteristics and declines in several other characteristics. Female school head was consistently the lowest over time (18.4 percent in 2000 and 18.0 percent in 2007). This presents yet another challenge to the Ministry.

6.3 Essential physical resources

General Policy Concern 6.2:
Have essential physical resources (for example, classroom teaching materials and school facilities) been allocated in an equitable fashion among regions?

Were the essential classroom resources for Standard 6 teachers and school heads distributed equitably among zones?

Research evidence suggests that, instructional materials like teachers' guides, dictionaries, exercise books, textbooks and others are prerequisites for effective learning. Teachers may be very competent but without these resources their effect on learning can be limited. In this study it was considered important to establish the extent to which these were available. A well resourced classroom creates an environment that is conducive for learning with more motivated teachers and pupils.

In *Table 6.2* and *Table 6.2a* the variance in availability of essential classroom resources among zones has been reported. For convenience, the 12 essential classroom resources have been categorized into category A and category B. Category A encompasses the first six resources: teacher guide (Reading), teacher guide (Mathematics), dictionary, exercise book, own Reading and own Mathematics textbooks, and category B resources encompass: writing board, pupil sitting and writing place, teacher's table and chair, library, radio and water.

It can be seen that, nationally, the allocation of essential classroom resources was fair in 2007. The allocation of 7 out of the 12 essential resources was between a low of 61.6 percent for teacher table and chair and a high of 98.8 percent for pupil sitting and writing place. However, dismally low percentages of pupils had their own Reading and Mathematics textbooks (3.5 percent and 2.9 percent respectively).

Table 6.2: Percentages and sampling errors for provision of essential classroom resources by zones and in relation to each item (2000)

	Category A Resources											
	Teacher Guide (Reading)		Teacher Guide (Math)		Dictionary		Exercise Book & Pen/Pencil & Ruler		Own Reading Textbooks		Own Math Textbooks	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	79.6	10.86	76.2	12.46	81.1	10.24	60.1	6.25	3.7	1.19	5.2	1.83
Eastern	90.0	6.13	87.6	8.00	77.3	9.00	71.7	6.54	10.2	2.45	8.6	2.40
Kagera	80.4	10.58	71.1	12.47	73.3	11.88	66.7	6.84	6.3	2.30	7.9	2.07
Kilimanjaro	94.6	5.45	100.0	0.00	100.0	0.00	83.0	4.96	3.3	1.52	3.7	1.64
Mwanza	85.3	10.14	73.0	16.24	52.9	15.50	69.4	4.55	7.2	1.81	10.2	3.40
Northeast	85.8	11.79	87.5	11.77	80.1	12.98	74.1	4.28	4.7	1.36	3.7	1.62
Northern	79.2	8.66	81.9	10.30	81.1	8.18	81.0	4.16	9.0	2.05	11.0	1.90
Southern Highlands	80.9	8.04	96.5	2.76	69.8	10.20	76.7	5.70	3.8	1.44	4.7	2.05
Southern	98.6	1.51	86.5	11.92	98.6	1.51	75.2	7.94	4.8	2.56	4.2	3.21
Southwest	100.0	0.00	97.4	2.70	69.5	13.32	55.3	7.10	5.3	1.48	5.1	1.61
Western	80.4	8.55	90.8	6.59	59.1	10.66	60.8	5.29	6.1	1.36	8.1	1.57
Tanzania	**85.5**	**2.72**	**87.3**	**3.00**	**75.9**	**3.30**	**71.7**	**1.81**	**6.0**	**0.56**	**6.8**	**0.67**

	Category B Resources											
	Writing Board		Pupil Sitting & Writing Place		Teacher Table & Chair		Library (Class/School)		Radio		Water	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	100.0	0.00	95.8	1.49	27.4	12.07	39.4	13.06	21.2	11.19	34.6	12.88
Eastern	95.7	3.02	97.6	0.98	40.2	13.48	15.3	7.86	0.0	0.00	82.8	9.57
Kagera	86.8	9.02	96.5	1.64	37.7	12.93	81.3	10.36	14.9	10.03	58.5	13.34
Kilimanjaro	100.0	0.00	97.8	1.05	73.0	12.25	26.0	11.72	26.1	11.76	77.2	10.71
Mwanza	92.0	8.01	98.5	0.89	13.6	9.49	30.3	13.64	0.0	0.00	38.6	15.06
Northeast	98.3	1.83	93.1	4.38	50.3	14.35	12.7	8.81	0.0	0.00	65.3	13.38
Northern	100.0	0.00	96.1	1.10	31.4	11.43	26.9	10.15	31.5	12.26	72.1	10.39
Southern Highlands	95.0	3.68	96.4	1.06	32.2	11.68	29.6	13.82	14.1	7.11	68.8	10.75
Southern	100.0	0.00	89.2	4.27	19.4	12.68	21.1	13.36	6.2	6.48	56.3	17.17
Southwest	100.0	0.00	93.8	2.24	44.0	14.78	24.6	12.05	16.1	10.81	74.4	13.11
Western	94.0	5.55	86.1	4.80	6.7	6.60	17.0	9.27	23.2	11.64	65.8	11.24
Tanzania	**96.9**	**1.16**	**94.7**	**0.78**	**32.8**	**3.83**	**26.5**	**3.77**	**14.7**	**2.98**	**64.2**	**3.83**

Considerable variations existed across the zones in the supply of essential school resources. The first 6 columns of *Table 6.2a,* that is category A of essential classroom resources, show that with the exception of own Reading and Mathematics textbooks, the remaining essential resources were in reasonable supply; with percentages that ranged from a low of 77.6 percent for exercise book, pencil, and ruler in Northeast zone to a high of 100 percent for teacher

guide (Mathematics), teacher guide (Reading) and dictionary across several zones. With regard to pupils having their own textbooks for Reading and Mathematics, Mwanza had the highest percentages (5.4 percent and 4.8 percent respectively) while Northern and Northeast zones had the lowest percentages (1.7 percent).

Table 6.2a: Percentages and sampling errors for provision of essential classroom resources by zones and in relation to each item (2007)

	Category A Resources											
	Teacher Guide (Reading)		Teacher Guide (Math)		Dictionary		Exercise Book & Pen/Pencil & Ruler		Own Reading Textbooks		Own Math Textbooks	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	100.0	0.00	100.0	0.00	100.0	0.00	80.3	5.08	2.5	1.04	2.2	0.97
Eastern	96.4	3.62	81.1	8.95	91.2	6.18	88.6	2.65	2.1	0.75	2.1	0.94
Kagera	100.0	0.00	100.0	0.00	95.7	4.42	90.3	3.70	4.3	1.46	3.2	1.73
Kilimanjaro	100.0	0.00	100.0	0.00	100.0	0.00	85.4	4.83	3.9	1.70	2.8	1.18
Mwanza	100.0	0.00	92.4	5.67	100.0	0.00	82.4	6.05	5.4	1.71	4.8	1.75
Northeast	94.2	5.75	94.2	5.75	94.2	5.75	77.6	6.24	3.2	1.14	1.7	1.11
Northern	98.0	2.00	92.1	7.62	97.2	2.81	89.1	2.54	1.7	0.67	2.6	0.97
S. Highland	100.0	0.00	100.0	0.00	88.9	10.40	86.8	3.34	2.1	0.80	2.0	0.79
Southern	100.0	0.00	100.0	0.00	100.0	0.00	88.9	2.70	3.9	1.25	3.6	0.96
Southwest	86.1	9.41	93.1	6.92	100.0	0.00	87.5	2.99	3.9	1.12	4.4	1.58
Western	100.0	0.00	95.7	4.33	100.0	0.00	87.0	2.40	6.2	2.23	3.5	1.13
Tanzania	**97.8**	**1.02**	**95.3**	**1.62**	**96.5**	**1.82**	**86.0**	**1.19**	**3.5**	**0.41**	**2.9**	**0.36**

	Category B Resources											
	Writing Board		Pupil Sitting & Writing Place		Teacher Table & Chair		Library (Class/School)		Radio		Water	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	100.0	0.00	100.0	0.00	57.2	12.58	21.7	10.86	48.7	13.87	27.7	12.16
Eastern	95.3	3.73	99.4	0.44	41.9	12.57	38.4	11.88	59.7	13.03	71.2	11.69
Kagera	100.0	0.00	99.5	0.33	56.2	13.81	51.9	14.28	5.2	5.34	60.7	13.86
Kilimanjaro	88.5	11.01	99.5	0.32	93.4	4.34	27.5	13.34	51.5	15.93	64.4	14.33
Mwanza	100.0	0.00	97.1	0.80	67.1	13.02	42.6	14.65	42.7	14.66	29.6	12.02
Northeast	88.9	7.57	95.3	3.52	44.0	11.85	19.4	8.31	54.5	11.96	39.3	11.62
Northern	98.4	1.64	99.1	0.58	74.8	8.11	11.8	6.57	45.1	10.52	42.6	10.44
Southern Highlands	100.0	0.00	99.6	0.25	59.4	12.34	42.8	12.04	38.8	12.29	57.1	12.30
Southern	100.0	0.00	100.0	0.00	76.3	11.24	52.7	15.11	18.3	10.51	32.1	12.99
Southwest	92.2	7.70	98.8	0.66	42.3	13.66	39.8	13.28	33.2	12.84	51.3	13.73
Western	90.6	6.56	98.9	0.79	68.2	10.84	33.1	11.73	28.1	10.37	31.4	10.66
Tanzania	**96.0**	**1.44**	**98.8**	**0.40**	**61.6**	**3.73**	**34.0**	**3.74**	**38.7**	**3.78**	**45.1**	**3.87**

When these results are compared to similar results for the year 2000 it can be clearly seen that there was a decline in the allocation of Reading and Mathematics textbooks (a decrease of 2.5 and 3.9 percentage points respectively). In contrast an improvement was registered for the other category A resources: Reading teacher's guide up 12.3 percentage points, Mathematics teacher's guide up 8 percentage points, dictionary up 20.6 percentage points and exercise book up 14.3 percentage points. The decline in the supply of Reading and Mathematics textbooks is very disturbing and warrants an investigation from the Ministry and PMORALG. It is not easy to explain why there was a decline rather than a substantial improvement in the supply of textbooks as there was a regular annual allocation of funds, (capitation grants) through PEDP, to each school for the purchase of textbooks during the period 2002-2006. A possible explanation is that funds given by the Ministry for procuring textbooks were used for other purchases.

In 2007, variations in the allocation of category B essential classroom resources among the zones were split; being insignificant for writing board and pupil sitting and writing place. These ranged, among the zones, from a low of 88.5 percent for writing board in Kilimanjaro to a high of 100 percent for writing board and reading/writing place in Central zone. On the other hand there were considerable variations among the zones for the other category B resources ranging from a low of 11.8 percent for library to a high of 93.4 percent for teacher table and chair. A comparison of 2000 and 2007 results indicates an improvement in the allocation of category B resources except for writing board and water, where there was a decline. There were percentage point increases of 4.1, 28.8, 7.5, and 24 for pupil sitting and writing place, teacher's table and chair, library, and radio respectively. While there is general improvement in the allocation of resources, more needs to be done in the allocation of textbooks if adequate supply of textbooks within the zones is to be ensured.

Policy Suggestion 6.1(a): *The Ministry in collaboration with PMORALG should investigate why there was a decline in the percentage of pupils with their own Reading and Mathematics textbooks.*

Policy Suggestion 6.1(b): *The Ministry in collaboration with PMORALG should carry out an audit of the available essential classroom resources in schools with a focus on the zones where extreme inequities were noted. A formula for a more equitable form of resource allocation should be derived.*

6.4 Desirable physical resources

General Policy Concern 6.3:
Have desirable physical resources (for example, school head offices, staff rooms, meeting rooms, etc.) been allocated in an equitable fashion among regions?

Equality in the allocation of the desirable physical resources among zones was assessed and the results have been reported in *Table 6.3* and *Table 6.3a*.

Variables have been put into clusters to simplify the analysis of the data. Cluster A variables are in columns 1 – 6 which describe: the conditions of building in the school, school head's office, staff room, meeting hall, class cupboard and class bookshelf. Cluster B refers to sports/play ground and school fence while Cluster C is: electricity, television, photocopier and computer. It can be seen from the *Table 6.3a* that in Tanzania, generally three out of the 12 listed desirable resources were substantially allocated where 86 percent, 82.3 percent and 83.1 percent of Standard 6 pupils were in schools with a staffroom, a school head's office and a playground respectively. Meeting hall, television and photocopier had the lowest levels of provision: 0.5 percent, 1.8 percent, and 2.5 percent respectively. The availability of a school head's office and a staffroom improved by 3.4 percentage points and 5.7 percentage points, respectively, between 2000 and 2007. The supply of bookshelves and cupboards also improved significantly over that time period.

There were considerable variations in the allocation of cluster A resources among the zones. The variations ranged from a low of 0 percent for meeting halls in all zones except Northern Zone to 95.9 percent for school head's office. The figures for a meeting hall appear to suggest that authorities place little importance on the provision of meeting halls. In cluster B at the national level the availability of a sports/play ground was 83.1 percent while that of a school

fence was only 21.5 percent. The results indicate a decline in availability of the resources compared to year 2000. Pupils in schools with a sports ground decreased by 6.2 percentage points while the percentage in a school with a school fence decreased by 1.3 percentage points. Similar reasons given to explain for the decline in meeting hall may account for these results as well.

Table 6.3: Percentages and sampling errors for desirable physical resources by zones (2000)

	Physical Resources											
	Building Conditions		School Head Office		Staff Room		Meeting Hall		Class Cupboard		Class Bookshelf	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	32.2	12.41	72.5	12.09	86.3	9.32	6.1	6.13	7.1	7.05	7.1	7.05
Eastern	62.4	13.79	81.8	12.34	81.8	12.34	5.7	5.78	11.7	7.58	14.4	7.71
Kagera	37.6	12.93	72.9	11.98	79.1	11.07	13.2	9.02	22.2	11.57	14.1	9.55
Kilimanjaro	60.3	13.37	70.7	11.85	75.6	11.23	6.9	6.88	45.6	13.52	32.7	12.61
Mwanza	5.4	5.47	72.4	12.04	69.4	12.28	0.0	0.00	5.7	5.85	0.0	0.00
Northeast	37.8	13.89	62.7	13.62	70.6	12.58	14.7	10.01	28.5	12.71	29.4	12.97
Northern	64.3	11.16	68.3	11.42	87.7	7.04	0.0	0.00	23.9	11.06	14.5	8.35
Southern Highlands	68.3	10.99	95.8	3.42	79.3	10.98	4.9	4.88	10.8	7.33	0.0	0.00
Southern	30.5	15.51	88.2	11.56	100.0	0.00	0.0	0.00	21.4	17.30	32.8	18.11
Southwest	52.7	14.52	97.4	2.70	77.1	11.57	0.0	0.00	0.0	0.00	8.5	6.56
Western	56.6	11.89	81.0	9.09	75.6	10.07	0.0	0.00	6.7	6.60	10.3	7.42
Tanzania	**49.5**	**4.06**	**78.9**	**3.29**	**80.3**	**3.30**	**4.2**	**1.55**	**16.3**	**3.12**	**13.5**	**2.76**

	Physical Resources (Continued)											
	Sports/Play Ground		School Fence		Electricity		Television		Photocopier		Computer	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	100.0	0.00	58.9	13.25	13.8	9.39	0.0	0.00	0.0	0.00	0.0	0.00
Eastern	88.1	8.30	19.3	10.48	44.8	13.86	0.0	0.00	0.0	0.00	0.0	0.00
Kagera	79.6	10.89	25.8	11.78	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Kilimanjaro	82.4	9.75	36.4	13.34	6.9	6.88	0.0	0.00	0.0	0.00	0.0	0.00
Mwanza	86.8	9.14	22.3	11.26	5.4	5.47	0.0	0.00	0.0	0.00	5.4	5.47
Northeast	78.5	11.57	34.5	12.92	10.0	8.33	6.0	6.12	0.0	0.00	0.0	0.00
Northern	95.9	4.13	29.7	11.12	16.3	10.77	0.0	0.00	0.0	0.00	0.0	0.00
Southern Highlands	95.8	3.42	49.5	12.91	21.1	9.43	0.0	0.00	0.0	0.00	2.9	3.01
Southern	100.0	0.00	11.3	11.15	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Southwest	91.9	8.08	29.6	13.12	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Western	73.7	12.08	42.3	11.71	22.5	11.93	0.0	0.00	0.0	0.00	10.9	7.47
Tanzania	**89.3**	**2.42**	**34.5**	**4.01**	**15.5**	**3.19**	**0.6**	**0.56**	**0.0**	**0.00**	**2.1**	**1.04**

Table 6.3a: Percentages and sampling errors for desirable physical resources by zones (2007)

	Physical Resources											
	Building Conditions		School Head Office		Staff Room		Meeting Hall		Class Cupboard		Class Bookshelf	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	49.2	13.86	95.9	4.26	84.1	9.83	0.0	0.00	23.8	10.90	18.0	9.72
Eastern	57.0	13.01	73.5	11.76	79.0	11.04	0.0	0.00	48.1	11.99	7.0	4.74
Kagera	48.4	14.33	80.2	9.95	87.2	7.71	0.0	0.00	40.8	13.98	28.7	11.28
Kilimanjaro	52.8	15.99	73.8	16.56	89.5	8.17	0.0	0.00	55.5	16.38	10.4	8.12
Mwanza	47.1	15.25	67.4	13.90	77.1	16.16	0.0	0.00	8.4	6.30	3.1	3.24
Northeast	20.4	10.14	90.8	6.60	89.5	7.26	0.0	0.00	29.7	10.74	12.5	7.10
Northern	45.3	10.69	87.4	8.56	91.3	6.03	4.0	3.98	29.7	9.76	11.2	5.49
Southern Highlands	24.3	10.03	91.5	6.01	86.2	7.10	0.0	0.00	18.7	8.86	18.9	8.94
Southern	42.2	14.45	86.9	9.19	80.8	10.81	0.0	0.00	49.6	10.95	46.7	10.98
Southwest	32.6	12.68	57.9	13.71	92.2	7.70	0.0	0.00	27.2	11.99	0.0	0.00
Western	54.4	12.07	83.0	8.25	86.3	7.71	0.0	0.00	32.7	11.66	13.8	7.74
Tanzania	**41.4**	**3.86**	**82.3**	**2.95**	**86.0**	**2.78**	**0.5**	**0.51**	**31.4**	**3.42**	**15.7**	**2.51**

	Physical Resources (Continued)											
	Sports/Play Ground		School Fence		Electricity		Television		Photocopier		Computer	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	97.3	2.80	8.3	8.13	32.5	13.26	7.8	7.71	9.7	9.40	0.0	0.00
Eastern	47.0	13.14	32.3	12.36	40.3	13.03	6.7	6.64	6.7	6.64	14.0	9.41
Kagera	86.4	8.18	0.0	0.00	10.2	9.85	0.0	0.00	0.0	0.00	0.0	0.00
Kilimanjaro	43.4	15.46	34.9	16.74	18.0	12.06	0.0	0.00	0.0	0.00	0.0	0.00
Mwanza	87.0	7.77	19.2	9.75	11.8	7.18	0.0	0.00	0.0	0.00	4.2	4.33
Northeast	68.8	11.39	17.4	9.34	4.5	4.53	0.0	0.00	4.5	4.53	4.5	4.53
Northern	92.0	5.59	37.5	10.71	8.4	5.83	0.0	0.00	0.0	0.00	3.7	3.75
Southern Highlands	88.9	10.40	25.2	9.91	31.5	12.19	5.0	5.05	6.3	6.25	11.3	7.79
Southern	94.3	5.81	21.7	11.12	4.7	4.81	0.0	0.00	0.0	0.00	0.0	0.00
Southwest	84.5	9.93	0.0	0.00	7.5	7.45	0.0	0.00	0.0	0.00	0.0	0.00
Western	95.6	4.48	24.8	10.08	19.2	9.09	0.0	0.00	0.0	0.00	0.0	0.00
Tanzania	**83.1**	**2.82**	**21.5**	**3.20**	**17.2**	**3.02**	**1.8**	**1.03**	**2.5**	**1.31**	**4.0**	**1.55**

The results for cluster C resources (column 9 – 12) indicate that they were only modestly available and they ranged from a low of 1.8 percent (television) to a high of 17.2 percent for electricity which is worrying. One of main reason for the result is that many primary schools are located in rural areas where there is no electricity and hence the use of electronic equipment is not common. Nevertheless, modest improvement was recorded in 2007 for all the four facilities when compared with 2000 with 1.7, 1.2, 2.5, and 1.9 percentage point increases for electricity, television, photocopier and computer respectively.

There were significant variations among the zones with some zones lacking a resource completely. Variations ranged from a high of 40.3 percent for electricity in Eastern zone to a low of zero percent for Television in all but three zones. Given the rapid ongoing development of science and technology these resources are vital to schools if they have to keep some pace with the developments which can positively impact on pupils' learning. There is a need therefore, to increase the provision of these educational resources to schools through the ongoing government efforts so that they can be used to assist the traditional resources for learning.

6.4 Conclusion

This chapter examined the equity of the distribution of essential classroom resources, desirable physical resources and human resources. The results provided a mixed picture in the distribution of essential classroom resources across the zones between 2000 and 2007. Nationally, the allocation of essential classroom resources was fair in 2007. The allocation of 7 out of 12 essential resources was between a low of 61.6 percent for teacher table and chair, and a high of 98.8 percent for pupil sitting and writing place. However, the percentages of pupils that had their own Reading and Mathematics textbooks were dismally low and contrary to expectations. The distribution of nine out of 12 desirable physical resources was not impressive as their availability was below 50 percent.

Considerable variations existed across the zones in the distribution of essential classroom resources and desirable physical resources. Between 2000 and 2007, classroom resources across the zone registered an improvement in some of the resources and a decline is several others, including Reading and Mathematics textbooks. Improvement in desirable physical resources was

recorded for most of the resources even for the lowest scoring items: electricity, television, photocopier and computer.

Under the human resource inputs, the distribution of nine out of 12 desirable physical resources was available to more than 50 percent of Standard 6 pupils. Considerable variations existed across the zones in the provision of human resources and changes were registered between 2000 and 2007; which were significant in some cases. Significant improvement was made nationally between 2000 and 2007 in four teacher characteristics: education, female Reading teacher (8.5 percentage points), in-service training Reading teacher, teacher subject knowledge Mathematics. Impressive improvement was recorded in some zones that had faired very poorly in 2000 across some characteristics; for example Southern Highlands for female head teachers, from no head teachers in 2000 to 10.3 percent in 2007. However female school head was consistently the least common desirable human resource over the course of the two studies with 18.4 percent in 2000 and 18.0 percent in 2007.

The results imply there was a serious inequitable allocation/distribution of the desirable human resources among the zones which should be reviewed to ensure equity among zones. A suggestion was made for the Ministry, in collaboration with PMORALG, to investigate why there was a decline in the supply of Reading and Mathematics textbooks and to carry out an audit of the available essential classroom resources in schools with a focus on the zones where extreme inequities were noted and draw up a list of the resources which need to be supplied to the worst affected schools.

Chapter 7
Achievement in Reading and Mathematics

7.1 Introduction

The learning outcomes of Reading and Mathematics tests for Standard 6 pupils and their teachers have been presented in this chapter for 2000 and 2007. The SACMEQ Reading and Mathematics tests were developed from a careful analysis of the official school curricula, school syllabi, and textbooks used in both Tanzania mainland and other SACMEQ school systems. These tests made it possible to employ the Rasch model of the Modern Item Response Theory methods to undertake item analyses and test-scoring procedures. The test scores were transformed so that pupils and teachers from both the SACMEQ II and III projects were placed on a single scale with the pupil mean of 500 and a standard deviation of 100, which was established during SACMEQ II.

7.2 Two types of scores

The SACMEQ Reading and Mathematics tests were scored in two different ways for different reporting purposes:

(a) Scaled Scores: which were useful for reporting the average performance of learners at national and zone levels for both SACMEQ projects. These scores were scaled so that meaningful comparisons could be made across countries for each project, and across projects for each country.

(b) Competency (or Skill) Levels – which were useful for presenting a descriptive account of (i) the skills that pupils had acquired at eight levels of competence measured by the scaled scores, and (ii) the skills that must be acquired for pupils to move from one level of competence to the next. In other words, levels of competency or skills of Standard 6 pupils were aligned with the levels of test item difficulty on a single dimension to assess mastery of their skills or competencies. In this approach a pupil reaching one level would have an even chance of getting an item right in the level but would not have much chance of getting an item right in higher levels due to a lack of mastery of required skills or competencies. Details of

the levels of competency have been presented in Chapter 2. Analyses have been presented by gender, socio-economic status (SES) of both pupils and teachers, and the location of schools.

The results of learning achievement using the two different ways in assessing the pupils' achievement and teachers' competencies, will strengthen the scope of identifying pupils' learning difficulties in the Standard 6 programme as well as illustrate any changes which occurred between 2000 and 2007. Through the use of the Rasch approach, the results will provide a more precise and focused assessment of the state of the quality of primary education in 2007 by providing information on the actual skills that pupils and teachers have. In addition, the descriptions will be of great help to the Ministry in tracking changes in competence levels of pupils and teachers. This in turn, it is hoped, will facilitate specialists of Mathematics and Reading including teachers in guiding and reviewing classroom teaching strategies, designing pre- and in-service training programmes, and designing textbooks and teaching/learning materials.

7.3 Overall pupil and teacher scores and competency levels

General Policy Concern 7.1:
What were the levels (according to Rasch scores) descriptive levels of competence) and variations (among schools and zones) in the achievement levels of Standard 6 pupils and their teachers in Reading and Mathematics – for Tanzania?

As explained in Chapter 2, pupil achievement in both Reading and Mathematics has been presented in such a way that it provides a descriptive account of increasing levels of competence. The Rasch approach permits the performance of pupils to be aligned along a single dimension that can be broken into groups or levels with each being named according to the skills or competencies required to successfully complete the items within each group. The descriptive information reveals the tasks that pupils can manage and the knowledge and skills that they require if they are to move to the next level of competency. The approach is a shift from the traditional way of presenting pupil achievement which assigns scores based on the number of correct test items.

In both Reading and Mathematics there were 8 levels of competency. The first 3 competency levels in each subject were more mechanical and involved the most elementary competencies.

The competencies associated with each level have been presented in Chapter 2. In Reading they are summarized as follows: Level 1 = Pre Reading, Level 2 = Emergent Reading, Level 3 = Basic Reading, Level 4 = Independent Reading, Level 5 = Interpretive and Inferential Reading, Level 6 = Critical Reading, Level 7 = Analytical Reading, Level 8 = Insightful Reading.

In Mathematics they are summarized as follows: Level 1 = Pre Numeracy, Level 2 = Emergent Numeracy, Level 3 = Basic Numeracy, Level 4 = Beginning Numeracy, Level 5 = Competent Numeracy, Level 6 = Mathematically skilled, Level 7 = Problem Solving, Level 8 = Abstract Problem Solving. Details have been cited in the results whenever appropriate.

Overall pupil mean scores

What were the overall mean scores of pupils in Reading and Mathematics?

The results of the Reading and Mathematics test scores of pupils and teachers for 2000 and 2007 have been summarized in *Table 7.1* and *Table 7.1a*.

Table 7.1: Means and sampling errors for the Reading and Mathematics test scores of pupils and teachers by zones (2000)

	PUPILS				TEACHERS			
	Reading		Mathematics		Reading		Mathematics	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	538.2	11.75	512.4	12.06	714.9	9.15	806.6	17.77
Eastern	569.2	12.28	529.9	8.39	699.6	9.13	787.1	22.80
Kagera	539.9	9.88	513.8	7.97	725.9	9.89	800.6	16.79
Kilimanjaro	556.4	9.29	541.8	8.62	697.2	17.16	811.8	15.46
Mwanza	531.7	17.40	504.8	13.31	698.8	10.01	766.6	40.73
North East	551.1	12.71	516.5	9.23	708.6	13.98	804.1	24.84
Northern	557.8	15.30	549.2	14.10	707.2	8.62	789.3	18.36
S. Highlands	564.8	15.38	530.9	12.16	709.6	8.14	823.1	14.23
Southern	495.8	13.28	486.9	8.43	712.0	17.81	746.5	23.55
Southwest	527.9	13.45	510.2	14.68	701.8	11.56	799.7	22.45
Western	530.3	17.28	513.3	15.98	704.8	7.63	785.2	29.80
Tanzania	**545.9**	**5.00**	**522.4**	**4.17**	**706.7**	**3.37**	**794.3**	**7.51**

Note: The pooled SACMEQ II Reading and Mathematics test scores for all countries were transformed to a mean of 500 and a standard deviation of 100.

Table 7.1a: Means for the Reading and Mathematics test scores of pupils and teachers by zones (2007)

	PUPILS				TEACHERS			
	Reading		Mathematics		Reading		Mathematics	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Central	588.1	9.23	549.0	12.82	720.0	10.99	847.8	19.85
Eastern	605.9	11.41	564.7	9.32	731.8	10.86	821.6	19.00
Kagera	593.5	9.28	562.5	6.89	737.6	14.93	799.8	15.65
Kilimanjaro	564.1	9.64	534.1	6.69	716.1	19.47	806.5	23.06
Mwanza	570.0	12.57	550.8	11.97	697.4	30.56	817.3	22.02
North East	563.5	12.28	550.9	11.39	701.5	8.77	832.9	21.21
Northern	565.4	9.41	538.3	7.83	702.9	10.09	837.0	20.70
Southern Highland	595.5	11.45	578.3	14.50	747.4	8.99	844.8	10.33
Southern	567.0	8.23	528.6	6.89	737.6	8.70	812.2	15.87
Southwest	585.1	9.63	565.9	10.41	736.1	8.05	861.7	18.73
Western	564.2	10.27	546.5	9.57	709.5	10.39	791.5	17.19
Tanzania	**577.8**	**3.40**	**552.7**	**3.51**	**721.6**	**4.17**	**825.8**	**5.71**

It can be seen in column 2 of *Table 7.1a* that, nationally, the Reading mean score was 577.8. There were considerable variations across the zones ranging from a high mean score of 605.9 in Eastern zone to a low of 563.5 in North East zone. The achievement levels in Reading were significantly higher, 31.9 score points, in 2007 as compared to the achievement levels in 2000. Interestingly there were achievement gains in all zones from 2000 to 2007. In column 4 of *Table 7.1a* the national Mathematics mean score for Standard 6 pupils was 552.7. Among the zones, there were notable variations in the achievement level ranging from a high mean score of 578.3 in Southern Highlands to a low of 528.6 in Southern zone. The results for 2007 show an increase of 30.3 score points from 2000. Improvements were registered in all but 2 zones; in Northern and Kilimanjaro where there was slight decline in student Mathematics achievement when compared to 2000.

It is striking to note that despite the fact that Standard 6 pupils in the Southern zone achieved lowest in Reading relative to pupils in other zones during 2000, their gain in performance was highest (71.2 score points). This gain placed the zone fifth among all zones in Reading performance. The performance of pupils at national level as well as among the zones in both Reading and Mathematics was higher than the SACMEQ II mean of 500, with the Reading results in particular well above the mean of other countries in SACMEQ II and the mean recorded in Tanzania in 2000. This is commendable.

Overall teacher mean scores

What were the overall mean scores of teachers in Reading and Mathematics?

In column 6 of *Table 7.1a*, it can be seen that Standard 6 pupils were taught by teachers whose mean Reading and Mathematics scores were 721.6 and 825.8 respectively. These results were significantly higher than those attained in 2000 (mean score of 706.7 and 794.3 respectively). In other words teachers improved their performance in 2007 by 14.9 scores points in Reading and by 31.5 points in Mathematics.

There were variations among the zones where Reading teachers in Southern Highlands zone had the highest mean score of 747.4 and those in Mwanza zone had the lowest mean score of 697.4. In Mathematics the highest mean score was 861.7 in South West zone and the lowest was in the Western zone (mean 791.5). A pattern emerged where the performance of Reading teachers improved from 2000 across all zones except Mwanza, Northern and North East where there was a decline. The performance of Mathematics teachers improved in all but two zones: Kagera and Kilimanjaro.

Overall pupil competency levels in reading

In *Table 7.2* and *Table 7.2a* the results for the Reading competence levels by zones have been presented for 2000 and 2007 respectively.

From *Table 7.2a* it can be seen that mode of Reading achievement was competence level 6 where 28.0 percent of pupils operated in 2007. This is a gain of one Reading competence level, compared to the Reading modal class in 2000. However, another feature is that in 2007 more pupils (61 percent) reached higher competence levels (6, 7 and 8) compared to 2000 when only 42 percent reached the same levels; an increase of 19 percent points. The converse was true in the least complex levels (1, 2 and 3) which only accounted for 10.1 percent of Standard 6 students in 2007 compared to 17.7 percent in 2000. Thus a significant achievement gain was recorded in 2007.

There were variations in the percentages of pupils reaching the different Reading competence levels among the zones. For example Eastern zone had the largest percentage (12.8 percent) of pupils who operated at competence level 8 in 2007 while only 6.5 percent of them operated at that level in 2000. Likewise approximately 3 percent of Standard 6 pupils operated at level

8 in Southern zone in 2007 while no pupil (0.0 percent) operated at the level in 2000. However, it was noted that there was s light increase in the percentage of pupils operating at level 1 in both Kilimanjaro and Mwanza zone.

Table 7.2: Percentage of pupils operating at various Reading competence levels by zones (2000)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	2.3	1.18	5.3	1.96	12.9	3.22	17.3	2.89	24.2	2.76	21.7	3.27	14.6	3.06	1.8	0.87
Eastern	0.9	0.63	3.7	1.45	3.9	1.41	16.6	3.78	25.7	3.70	19.4	3.39	23.3	4.94	6.5	2.45
Kagera	2.3	1.37	5.0	2.20	9.3	2.01	22.6	2.59	22.4	2.94	19.5	2.99	17.6	2.59	1.3	0.68
Kilimanjaro	0.0	0.00	2.5	0.85	6.2	2.13	23.0	3.16	24.4	2.76	24.8	2.88	15.5	3.58	3.5	1.20
Mwanza	2.1	0.87	5.6	2.93	11.6	3.55	26.5	2.97	20.1	3.06	18.8	4.15	13.9	3.94	1.6	1.37
North East	1.9	1.52	5.2	2.96	6.8	2.04	18.0	3.18	21.7	3.58	23.9	3.57	22.0	4.22	0.5	0.46
Northern	2.2	1.06	4.8	1.36	10.5	2.67	15.6	2.73	19.0	2.17	20.9	3.33	23.3	5.35	3.6	1.53
S. Highlands	1.7	0.67	3.8	1.56	7.4	2.81	13.5	2.96	22.1	2.78	23.8	2.98	24.5	5.78	3.1	1.26
Southern	8.0	2.32	9.6	2.03	16.1	4.52	30.5	5.89	15.5	1.67	11.0	4.51	9.4	3.83	0.0	0.00
Southwest	3.8	1.52	8.2	2.81	11.3	3.06	19.6	3.20	24.9	3.21	15.1	2.52	14.7	3.93	2.3	1.26
Western	7.2	1.99	8.7	2.72	10.1	2.92	17.2	2.85	17.8	3.17	20.5	3.40	15.3	3.42	3.2	1.66
Tanzania	**2.8**	**0.41**	**5.5**	**0.66**	**9.4**	**0.93**	**18.9**	**1.13**	**21.4**	**0.94**	**20.6**	**1.13**	**18.8**	**1.61**	**2.7**	**0.46**

Table 7.2a: Percentage of pupils operating at various Reading competence levels by zones (2007)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.5	0.40	1.9	0.87	3.4	1.03	10.2	2.38	19.3	2.76	21.7	3.27	14.6	3.06	1.8	0.87
Eastern	0.0	0.00	1.1	0.64	5.9	2.50	8.5	3.82	13.8	3.70	19.4	3.39	23.3	4.94	6.5	2.45
Kagera	0.6	0.47	0.8	0.60	4.5	1.66	11.5	2.48	17.3	2.94	19.5	2.99	17.6	2.59	1.3	0.68
Kilimanjaro	0.8	0.68	1.2	0.67	8.3	1.79	17.6	2.14	18.1	2.76	24.8	2.88	15.5	3.58	3.5	1.20
Mwanza	2.3	0.81	2.2	0.85	11.2	2.18	14.1	2.65	11.2	3.06	18.8	4.15	13.9	3.94	1.6	1.37
North East	1.4	0.68	4.5	1.37	9.7	3.89	12.4	2.27	15.1	3.58	23.9	3.57	22.0	4.22	0.5	0.46
Northern	1.9	0.94	3.5	2.20	8.4	2.16	11.0	1.41	19.1	2.17	20.9	3.33	23.3	5.35	3.6	1.53
S. Highlands	0.7	0.46	0.6	0.42	3.7	1.13	8.8	1.98	17.6	2.78	23.8	2.98	24.5	5.78	3.1	1.26
Southern	1.6	1.20	1.3	0.60	8.0	1.58	16.5	3.44	16.9	1.67	11.0	4.51	9.4	3.83	0.0	0.00
Southwest	1.2	1.24	1.1	0.82	3.8	0.97	10.8	2.76	18.9	3.21	15.1	2.52	14.7	3.93	2.3	1.26
Western	3.1	1.55	3.1	1.28	6.2	1.33	13.6	2.63	17.9	3.17	20.5	3.40	15.3	3.42	3.2	1.66
Tanzania	**1.4**	**0.30**	**2.1**	**0.39**	**6.6**	**0.65**	**12.0**	**0.82**	**16.9**	**0.94**	**20.6**	**1.13**	**18.8**	**1.61**	**2.7**	**0.46**

It is disturbing to note that in all zones except one (Eastern zone) there were still small proportions of pupils reaching only competence level 1 (the least complex level). This pattern was also observed in 2000 but then it was Kilimanjaro zone which had no pupils operating at this level. The figures for 2007 although smaller compared to those in 2000 deserve attention

since substantial numbers of pupils operated at these levels involving mastery of only the more mechanical (less complex) mental processes.

If competence levels 6, 7 and 8 of the more complex competency levels are considered as the desirable competency levels, impressive proportions of pupils operated at the levels with between 5 and 7 pupils out of 10 operating at these levels in 2007 across the zones compared to between 2 and 5 pupils out of 10 in 2000. The largest percentage of Standard 6 pupils who operated at the desired levels was in Eastern zone (70.6 percent) followed closely by Southern Highlands (68.8 percent) and Kagera zone (65.3 percent).

Overall pupil competency levels in mathematics

The results of the analyses of pupils reaching various Mathematics competence levels for 2000 and 2007 have been presented in *Table 7.3* and *Table 7.3a*.

The results in *Table 7.3a* indicate that in Mathematics, like in Reading, the achievement levels of pupils were spread across all 8 competence levels in 2007. However, unlike Reading, the modal competence level for Mathematics was level 3 which 29.8 percent of pupils reached. In 2000 the modal competence level was also level 3 but more pupils (35.0 percent) reached the level. Nationally, a trend is observed where desirably smaller proportions operated at the less complex levels and larger proportions operated at the more complex levels when compared to 2000. Altogether, around 43.1 percent of Standard 6 pupils operated at the first 3 levels (1, 2, and 3) compared to 60.5 percent in 2000. Likewise, it is equally desirable that more Standard 6 pupils (12.2 percent) operated at the more complex competence levels 6 to 8 in 2007 compared to approximately 8 percent in 2000. This is a 4.0 percentage point increase in the percentage of pupils who operated at the more complex competence levels and a clear indication of improvement. However more effort is warranted for even greater improvement as approximately 6 out of 10 pupils still operated at the less complex levels.

Among the zones, there were notable variations in the percentage of pupils reaching the various Mathematics competence levels. A pattern is noted, where, compared to the results for 2000 smaller percentages of pupils reached the lowest competence level across the zones except in Eastern and Kilimanjaro zones (where the proportions increased slightly in 2007). Encouragingly, each of the 11 zones had some pupils who reached level 8 compared to only 6 zones in 2000. Southern Highlands had the highest percentage (19.9 percent) of students

operating at the desirable level (6, 7, or 8), followed by Southwest zone (16.4 percent). On the other hand, Southern and Kilimanjaro zones had the lowest percentages of pupils who operated at the desirable level (4.7 percent and 7.2 percent respectively). Altogether, larger proportions of pupils operated at these levels in 2007 for most of the zones except in Northern, Kilimanjaro and Southern zones where decreases were registered. The decreases were slight in Kilimanjaro and Southern zone but were considerable in Northern zone (from 15.0 percent in 2000 to 7.6 percent in 2007).

Table 7.3: Percentage of pupils operating at various Mathematics competence levels by zones (2000)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	4.1	1.94	23.9	4.36	32.3	3.23	26.4	3.90	7.9	1.90	4.0	1.69	1.4	1.00	0.0	0.00
Eastern	0.3	0.31	17.1	2.98	38.3	4.87	25.1	2.67	12.1	3.29	6.3	2.34	0.7	0.49	0.0	0.00
Kagera	2.7	1.39	21.9	2.50	43.8	2.60	19.0	3.36	7.5	1.92	3.5	1.68	1.1	0.61	0.5	0.50
Kilimanjaro	0.5	0.52	15.9	4.05	31.8	3.81	30.3	2.30	12.9	3.59	7.1	2.28	0.9	0.62	0.5	0.52
Mwanza	5.0	1.78	26.8	3.70	37.9	5.17	15.9	3.42	8.4	3.28	4.5	1.58	1.5	0.82	0.0	0.00
North East	2.2	1.57	27.6	3.74	32.8	4.19	22.1	2.85	9.2	2.29	4.3	1.57	1.2	0.66	0.5	0.46
Northern	1.4	0.72	17.3	4.08	29.7	4.40	24.1	3.03	12.4	2.61	10.8	3.76	3.0	1.56	1.2	0.60
S. Highlands	1.7	0.68	17.9	3.05	40.6	3.53	19.7	2.60	11.0	2.81	6.7	1.92	2.3	1.43	0.0	0.00
Southern	4.4	1.01	37.1	4.30	35.7	6.28	13.1	3.24	4.5	1.94	4.8	2.96	0.4	0.44	0.0	0.00
Southwest	4.8	2.15	23.9	5.29	37.5	3.31	20.1	4.43	7.6	2.89	5.1	2.04	0.8	0.58	0.2	0.22
Western	5.7	2.25	28.3	5.14	29.6	3.84	17.8	3.77	10.0	2.35	5.7	1.71	2.0	1.14	0.9	0.62
Tanzania	**2.8**	**0.43**	**22.7**	**1.32**	**35.0**	**1.35**	**21.4**	**1.04**	**9.9**	**0.90**	**6.2**	**0.79**	**1.6**	**0.39**	**0.4**	**0.12**

Table 7.3a: Percentage of pupils operating at various Mathematics competence levels by zones (2007)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.8	0.60	13.9	2.90	32.2	3.89	21.4	1.77	20.2	3.16	8.1	2.03	2.8	1.47	0.6	0.38
Eastern	0.5	0.55	6.3	1.73	31.8	3.53	24.1	2.90	23.4	2.70	8.9	1.96	3.3	1.46	1.6	0.80
Kagera	0.4	0.27	9.8	2.20	24.4	2.10	30.5	2.82	23.1	2.34	9.6	1.36	1.6	0.71	0.6	0.44
Kilimanjaro	0.7	0.43	15.5	2.70	35.2	2.93	29.2	3.74	11.2	1.59	6.5	1.99	1.0	0.57	0.7	0.65
Mwanza	0.9	0.67	18.5	3.96	22.4	2.92	22.7	3.44	23.4	3.84	10.0	2.60	1.8	0.91	0.3	0.33
North East	0.3	0.27	12.7	4.23	27.2	3.67	31.6	2.93	18.2	2.93	8.5	2.92	1.0	0.52	0.5	0.37
Northern	1.0	0.51	15.4	3.33	34.0	3.31	24.2	2.70	17.8	1.88	5.4	1.56	1.8	0.56	0.4	0.31
S. Highlands	0.5	0.33	8.1	2.00	24.5	3.64	24.4	2.92	22.7	2.95	11.8	2.00	5.7	2.40	2.4	1.84
Southern	1.0	0.62	17.0	3.85	33.2	2.89	30.3	2.67	13.8	1.79	3.9	1.72	0.6	0.52	0.2	0.19
Southwest	0.4	0.35	8.4	2.89	29.9	3.74	24.3	2.59	20.7	3.68	11.1	3.00	4.2	2.15	1.1	0.58
Western	0.7	0.52	14.1	3.17	33.7	2.99	21.5	2.33	16.3	2.25	10.5	1.54	1.9	0.81	1.3	0.55
Tanzania	**0.7**	**0.15**	**12.6**	**1.03**	**29.8**	**1.06**	**25.5**	**0.89**	**19.3**	**0.86**	**8.7**	**0.67**	**2.5**	**0.45**	**1.0**	**0.30**

Overall, the results appear to suggest that there has been considerable improvement in both the Reading and Mathematics competency levels of Standard 6 pupils between 2000 and 2007. Greater improvement appears to have been made in Reading than in Mathematics with more pupils (61.0 percent) operating at the more complex levels of 6, 7 and 8 in Reading in 2007 compared to 12.2 percent of pupils operating at the more complex levels in Mathematics.

Teacher competency levels in reading and mathematics

What were the Reading and Mathematics competence levels of teachers?

Teachers are supposed to be well ahead of their pupils in terms of their subject matter knowledge of the taught curriculum because, among other things, their academic levels are higher than the levels of their pupils. It is expected, therefore, that teachers will largely be located in the highest competence levels (Levels 7 and 8) as these are the levels where one has to have mastery of complex literacy and Mathematics skills in order to get test items correct. The percentages of teachers reaching the different competence levels of literacy and numeracy have been presented in *Table 7.4*, *Table 7.4a*, *Table 7.5* and *Table 7.5a*.

In *Table 7.4a* it can be seen that in 2007 the achievement levels of Reading teachers ranged from level 5 to 8 with the majority of pupils' (65 percent) teachers being located, as expected, in level 8. In 2000 Reading teachers were located in levels 4, 6, 7 and 8 with only 46.1 percent of pupils having a teacher at the highest competence level. None of the teachers were located in level 5. The lowest competence level reached by teachers in 2007 was competence level 5 with 1.5 percent compared to the lowest competence level of 4 (0.2 percent) in 2000. This is one competence level higher than was the case in 2000 and hence suggests an improvement in the competence levels of teachers during 2007. There were disparities across the zones in teachers reaching various Reading competence levels and in some zones the disparities were statistically significant. Southern Highland zone had the highest percentage (91.3 percent) of pupils with Reading teachers reaching the most complex level while North East zone had the lowest percentage of 39.4 percent. Other zones with low percentages of pupils with teachers reaching the most complex were Northern zone (43.2 percent) and Western zone (48.3 percent).

It is disturbing that in four zones: Kilimanjaro, Western, Northern and Eastern there were significant located in level 6 and in Mwanza zone about 20 percent of pupils had teachers who

only reached level 5. A similar pattern was observed in 2000 when teachers' Reading competence levels were located in level 6 with Kilimanjaro and Northern zones being consistently located in the level in 2000 and 2007. It appears therefore that, overtime, there has been a consistent proportion of teachers who are low achievers and who have to be targeted for remedial training.

Table 7.4: Percentages and sampling errors of teachers operating at the various Reading competence levels by zones (2000)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	45.9	12.91	54.1	12.91
Eastern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	69.8	9.59	30.2	9.59
Kagera	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	40.4	13.22	59.6	13.22
Kilimanjaro	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	12.7	8.76	42.8	13.61	44.4	13.50
Mwanza	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	6.7	6.74	44.8	15.00	48.5	15.46
North East	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	63.8	13.65	36.2	13.65
Northern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	4.7	4.72	47.5	10.94	47.8	10.99
S.Highlands	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	2.9	2.95	46.0	13.26	51.1	13.09
Southern	0.0	0.00	0.0	0.00	0.0	0.00	2.6	2.76	0.0	0.00	0.0	0.00	44.5	17.34	53.0	17.46
Southwest	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	59.8	13.85	40.2	13.85
Western	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	54.4	11.99	45.6	11.99
Tanzania	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**0.2**	**0.18**	**0.0**	**0.00**	**2.6**	**1.18**	**51.1**	**4.13**	**46.1**	**4.13**

Table 7.4a: Percentages and sampling errors of teachers operating at the various Reading competence levels by zones (2007)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	24.5	12.33	75.5	12.33
Eastern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	1.0	0.99	31.9	11.14	67.2	11.32
Kagera	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	24.7	10.06	75.3	10.06
Kilimanjaro	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	9.7	8.50	22.7	9.53	67.6	16.06
Mwanza	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	19.7	17.03	0.0	0.00	19.2	9.98	61.1	16.24
North East	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	60.6	12.14	39.4	12.14
Northern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	6.4	4.63	50.4	10.00	43.2	9.56
S. Highlands	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	8.7	6.09	91.3	6.09
Southern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	21.6	11.05	78.4	11.05
Southwest	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	21.3	10.45	78.7	10.45
Western	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	6.8	5.08	44.8	11.78	48.3	11.81
Tanzania	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**1.5**	**1.46**	**2.3**	**1.00**	**31.3**	**3.36**	**65.0**	**3.53**

Table 7.5: Percentages and sampling errors of teachers operating at various Mathematics competence levels by zones (2000)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	66.6	14.69	33.4	14.69
Eastern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	8.3	8.21	17.0	9.34	28.0	12.07	46.8	14.46
Kagera	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	6.5	6.53	41.3	13.31	52.1	13.46
Kilimanjaro	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	7.6	7.59	34.4	13.16	58.0	13.81
Mwanza	0.0	0.00	0.0	0.00	0.0	0.00	17.3	15.48	0.0	0.00	6.5	6.63	46.3	15.10	29.9	13.30
Northeast	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	16.2	10.37	36.1	14.25	47.7	14.27
Northern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	7.1	5.23	15.5	9.47	31.9	10.83	45.4	11.89
S. Highlands	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	3.5	3.61	32.9	8.88	63.6	9.18
Southern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	11.5	11.36	1.8	1.99	80.9	12.74	5.8	6.11
Southwest	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	15.0	13.99	45.9	15.61	39.1	15.26
Western	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	45.2	12.73	15.9	8.85	38.9	12.93
Tanzania	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**1.5**	**1.51**	**2.7**	**1.37**	**13.2**	**2.73**	**38.8**	**3.88**	**43.9**	**4.07**

Table 7.5a: Percentages and sampling errors of teachers operating at various Mathematics competence levels by zones (2007)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	26.8	11.06	73.2	11.06
Eastern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	5.8	5.87	0.0	0.00	29.4	11.39	64.8	11.91
Kagera	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	8.3	6.25	38.5	12.56	53.2	12.74
Kilimanjaro	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	7.0	7.04	58.9	14.94	34.2	14.02
Mwanza	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	62.6	14.70	37.4	14.70
North East	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	22.3	10.16	14.0	6.77	63.7	11.04
Northern	0.0	0.00	0.0	0.00	0.0	0.00	2.1	2.08	0.0	0.00	5.5	4.10	30.9	9.02	61.6	9.45
S. Highlands	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	22.3	9.87	77.7	9.87
Southern	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	65.4	13.34	34.6	13.34
Southwest	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	24.4	11.70	75.6	11.70
Western	0.0	0.00	0.0	0.00	0.0	0.00	5.4	5.42	0.0	0.00	0.0	0.00	46.0	12.42	48.6	12.46
Tanzania	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**1.0**	**0.74**	**0.4**	**0.42**	**3.7**	**1.21**	**36.6**	**3.78**	**58.3**	**3.85**

It can be seen in *Table 7.5a* that nationally in 2007, the competence levels of Mathematics teachers were spread from level 4 to 8 with 1 percent of them located in level 4 which is one level lower than was reached by Reading teachers. The majority of pupils (58.3 percent) had teachers who were located in level 8. There were notable variations in the competence levels of the teachers among the zones. For instance, considering level 8, it can be seen that 77.7 percent of Standard 6 pupils in Southern Highlands were taught by teachers who operated at competence level 8. About 34 percent and 35 percent (lowest percentages) of Standard 6

pupils in Southern and Kilimanjaro zones respectively were taught by Mathematics teachers whose competence was competence level 8. This implies that approximately 7 out 10 pupils in Southern and Kilimanjaro were disadvantaged by not being taught by teachers with the highest competencies.

In 4 zones: North East, Kagera, Kilimanjaro and Northern there were some teachers who were obtained the rather low competence level of 6 with Kilimanjaro having relatively the largest percentage of 22.3 percent pupils with teachers at this level. While there were a few cases of teachers in 2007 reaching level 4 e.g. in Western zone (5.4 percent) and Northern zone (2.1 percent), in 2000 it was only in Mwanza zone where 17.3 percent of pupils had teachers at this level. The overall percentages reaching the level in 2007 was 0.5 percentage points less tahn in 2000. The figure suggests that the situation continues to exist and strategies to eliminate the cases for all zones in the undesirable levels 4 up to 6 should be considered. Attention must be drawn to the relatively high SE associated with these very small percentages.

Overall the results suggest that teachers continued to outperform pupils with some improvement made in the competence levels of Mathematics teachers. However, more efforts are required to improve competence levels of teachers in the low achieving zones.

7.4 Scores and competency levels by important sub-groups

General Policy Concern 7.2:

What were the Reading and Mathematics achievement levels of important sub-groups of Grade 6 pupils and their teachers (for example, pupils and teachers of different genders, socio-economic levels, and locations)?

Mean scores by subgroups

What were the gender, location and SES based differences in Reading and Mathematics achievement for pupils?

The results of the analysis of the Reading and Mathematics scores of pupils by sub groups have been presented in *Table 7.6* and Table *7.6a*

The results in rows 1 and 2 of *Table 7.6a* show that boys performed significantly higher than girls in both Reading and Mathematics in 2007. Despite the increase in girls' performance since 2000 the gender gap in achievement as remained approximately the same due to the boys' improved levels of achievement. With regards to school location (rows 3 and 4 of *Table 7.2a*) urban pupils achieved significantly higher than pupils in the rural setting both in Reading and in Mathematics (difference of 43.7 score points in Reading and 33.6 score points in Mathematics). Under socio economic level (rows 5 and 6) it can be seen that pupils with high SES (top 25 percent) achieved higher than those with low SES (bottom 25 percent) in both Reading and Mathematics with a difference of 56.1 score points in Reading and 39.0 score points in Mathematics.

Table 7.6: Means for the Reading and Mathematics test scores of pupils by subgroups (2000)

	Reading		Mathematics	
	Mean	**SE**	**Mean**	**SE**
Pupil gender				
Boys	554.3	5.68	539.6	5.61
Girls	538.2	5.30	506.7	3.96
School location				
Rural	525.1	4.40	508.7	3.72
Urban	597.9	6.17	556.7	6.91
Socioeconomic level				
Low SES (Bottom 25%)	500.1	7.12	488.5	5.34
High SES (Top 25%)	589.7	5.77	552.1	6.68
Tanzania	**545.9**	**5.00**	**522.4**	**4.17**

Note: The pooled SACMEQ II Reading and Mathematics test scores for all countries were transformed to a mean of 500 and a standard deviation of 100.

Table 7.6a: Means for the Reading and Mathematics test scores of pupils by subgroups (2007)

	Reading		Mathematics	
	Mean	**SE**	**Mean**	**SE**
Pupil gender				
Boys	586.1	3.77	568.5	4.05
Girls	569.7	3.79	537.5	3.71
School location				
Rural	563.9	3.77	542.1	3.54
Urban	607.6	4.95	575.7	6.34
Socioeconomic level				
Low SES (Bottom 25%)	557.7	5.15	540.4	4.59
High SES (Top 25%)	613.8	4.02	579.4	6.25
Tanzania	**577.8**	**3.40**	**552.7**	**3.51**

On further analysis the achievement gaps between rural and urban pupils and between pupils with low SES and high SES have narrowed considerably when compared to the differences in

year 2000. The gap in Reading scores between rural and urban pupils was reduced by 29.1 point, down from 72.8 in 2000 to 43.7 in 2007. In Mathematics the gap in mean scores was reduced by 14.4 points. Similarly with regards to SES the achievement gap was reduced by 33.5 points in Reading, from 89.6 points in 2000 to 56.1 points in 2007 and in Mathematics by 24.6 points, from 63.6 points in 2000 to 39.0 points in 2007. It is noteworthy that there has been improvement in the achievement of pupils in all 3 subgroups for both Reading and Mathematics compared to the results for year 2000. However, boys have continued to perform significantly higher in both Reading and Mathematics in 2007. Put differently, girls have continued to under-achieve in both subjects, lagging behind boys with a consistent gap difference of approximately 16 score points in 2000 and 2007. It would seem that no meaningful change has taken place to reduce the disparity. Furthermore, despite reduced gaps rural pupils as well as those with low SES have continued to underperform when compared to those from urban and high SES backgrounds. More work is therefore required in alleviating the disparities. It would seem that there is a need for a critical review of the Ministry's gender strategies so that priorities and plans focus on improving achievement levels of girls.

Reading competency levels by subgroups

What were the gender, location and SES based differences in the Reading competence levels of pupils?

It can be seen from *Table 7.7a* that in 2007 in Tanzania the modal competence level in Reading was 6 for girls and 7 for boys; that is the levels where the largest group of girls (27.3 percent) and of boys (29.2 percent) was located. In 2000 the modal competence levels were level 5 for girls and level 7 for boys; with 22.5 percent of girls and 21.8 percent of boys being located in the levels respectively. This implies that, girls have improved substantially in Reading although they still underperformed compared to boys. The percentages of boys operating at the higher levels (6,7 and 8) also increased over the time period. Examining across the levels reveals that boys outperformed girls in Reading with 7.4 percent of them reaching the most complex level compared to 5.0 percent of girls. A similar trend was observed in the other more complex levels 6 and 7. However, the difference in performance was not statistically significant. The performance of boys was also higher than that of girls in 2000 but was again not statistically significant.

Table 7.7: Percentage and sampling errors of pupils operating at various Reading competence levels by subgroups (2000)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Pupil gender																
Boys	2.2	0.55	5.4	0.91	8.8	1.11	17.6	1.31	20.1	1.19	20.7	1.30	21.8	1.81	3.5	0.65
Girls	3.5	0.63	5.6	0.78	9.9	1.13	20.0	1.45	22.5	1.40	20.5	1.44	16.0	1.85	2.1	0.52
School location																
Rural	3.8	0.54	7.3	0.82	12.3	1.10	22.5	1.15	21.7	1.02	17.6	1.16	13.7	1.25	1.1	0.25
Urban	0.4	0.23	1.0	0.40	2.0	0.56	9.8	1.70	20.6	2.00	27.9	1.93	31.4	3.44	6.8	1.27
SES																
Low SES (Bottom 25%)	7.0	1.20	10.9	1.49	18.1	2.07	22.4	1.92	17.5	1.70	13.6	1.82	10.0	1.67	0.5	0.28
High SES (Top 25%)	0.5	0.29	1.0	0.37	2.7	0.61	11.5	1.55	22.6	2.01	27.9	1.95	28.3	2.94	5.5	1.07
Tanzania	**2.8**	**0.41**	**5.5**	**0.66**	**9.4**	**0.93**	**18.9**	**1.13**	**21.4**	**0.94**	**20.6**	**1.13**	**18.8**	**1.61**	**2.7**	**0.46**

Table 7.7a: Percentage and sampling errors of pupils operating at various Reading competence levels by subgroups (2007)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Pupil gender																
Boys	1.2	0.31	2.0	0.58	5.6	0.77	9.8	0.88	16.1	1.04	28.7	1.13	29.2	1.31	7.4	0.79
Girls	1.6	0.44	2.2	0.36	7.5	0.77	14.1	1.14	17.7	1.05	27.3	1.17	24.6	1.33	5.0	0.64
School location																
Rural	1.9	0.42	2.7	0.55	8.2	0.88	14.1	0.92	18.4	0.91	27.5	1.00	22.8	1.13	4.5	0.44
Urban	0.3	0.17	0.9	0.32	3.3	0.57	7.4	1.55	13.7	1.13	29.1	1.54	35.5	1.92	9.9	1.52
SES																
Low SES (Bottom 25%)	1.6	0.43	3.8	1.02	8.9	1.33	15.5	1.47	18.2	1.24	26.6	1.38	21.5	1.53	3.9	0.61
High SES (Top 25%)	0.4	0.23	0.8	0.35	2.9	0.73	6.6	0.98	11.5	1.38	29.7	1.54	36.4	1.90	11.7	1.65
Tanzania	**1.4**	**0.30**	**2.1**	**0.39**	**6.6**	**0.65**	**12.0**	**0.82**	**16.9**	**0.78**	**28.0**	**0.84**	**26.8**	**1.08**	**6.2**	**0.61**

It is striking to note that a higher percentage of boys than girls operated at the more complex levels (6, 7 and 8) in 2007 than in 2000. The percentages of boys and girls who operated at competence level 8 more than doubled in 2007 compared to the percentages that operated at the level in 2000.

Standard 6 pupils in the urban setting outperformed those in the rural setting with level 7 (35.5 percent) being their modal competence level compared to level 6 (27.5 percent) for rural pupils. In 2000 the modal competence level for pupils in the rural setting was level 4 (22.5 percent) and level 7 for pupils in the urban setting (31.4 percent). Therefore by 2007 a large number of rural pupils improved substantially. The disparity narrowed between rural and urban pupils from a gap of three levels in 2000 (modal level 4 for rural and 7 for urban pupils) to a gap of one level (modal level 6 for rural and 7 for urban pupils) in 2007.

In addition, in 2007 significantly larger percentages of Standard 6 pupils in the urban setting operated at each of the more complex levels (6, 7 and 8) than did pupils from the rural setting.

This trend was also observed in 2000 but in 2007 the proportions operating at the levels were larger. The gap between the percentages of urban and rural pupils operating at each of the 3 levels tended to narrow by 2007**.** The levels and their percentage differences in brackets are: level 6 (1.6 percent), level 7 (12.7 percent) and level 8 (4.4 percent) in 2007 compared to level 6 (10.3 percent), level 7 (17.7 percent) and level 8 (5.7 percent) in 2000. Despite the dramatic improvement rural pupils continued to underperform compared to those in the urban setting. The Ministry should be concerned by this if equitable learning opportunities are to be observed for all pupils.

In relation to SES, the modal level for low SES pupils was competence level 6 (26.6 percent) and level 7 for high SES pupils (36.4 percent). In 2000 pupils with low SES had modal level 4 where as the mode for those with high SES was competence level 7. That is to say low SES pupils improved by two levels higher, from modal competence level 4 to 6, between 2000 and 2007. In addition the disparity between pupils with low SES and with high SES narrowed by 2007. Standard 6 pupils with high SES tended to operate at the more complex levels (6, 7 and 8) with smaller percentages at the less complex Reading levels (1 through 5). Some 29.7 percent and 36.4 percent of them operated at levels 6 and 7 respectively compared to 26.6 percent and 21.5 percent for low SES pupils. It is interesting to note the considerable reduction in the gap between the percentages of high SES and low SES pupils operating at competence level 6 from 2000 to 2007. The gap was 14.3 percent in 2000 compared to 3.1 percent in 2007 which is a reduction of 11.2 percentage points. A similar but smaller gap was observed at level 7. However, the trend reversed in level 8 where the gap increased by 2.8 percentage points in favour of pupils with high SES.

Clearly, as for the school location subgroup, there has been improvements in lessening the disparities in competence levels between Standard 6 pupils from low SES backgrounds and high SES backgrounds, but more efforts are required to narrow the gap further.

Mathematics competency levels by subgroups

What were the gender, location and SES based differences in the Mathematics competence levels of pupils?

Considering the gender subgroup, in 2007, the modal competence level in Mathematics was level 3 for girls and level 4 for boys; where 34.2 percent of girls and 25.2 percent of boys 25.2 were located. In 2000 the modal competence level for both girls (37.6 percent) and boys (32.1

percent) was competence level 3. This is a positive sign for boys' achievement with the modal level one higher in 2007. There have been increases in the percentages of boys and girls operating at each of the higher competence levels. Considering the more complex competence levels (6, 7 and 8) it can be seen that in 2007, 10.8, 3.7, and 1.7 percent of Standard 6 boys and 6.7, 1.4 and 0.3 percent of Standard 6 girls operated at the levels respectively. The figures for 2000 were 8.8, 3.1 and 0.7 percent for boys and 3.8, 0.3 and 0.1 percent for girls in 2000. Another feature is that the difference in the percentages reaching levels 6, 7 and 8 between boys and girls was reduced in 2007 compared to 2000. The percentage differences ranged between 5.0 percent in level 6 to 2.8 percentage in level 7 in favour of boys in 2000 but the same ranged between 4.1 percent in level 6 and 2.8 percents in level 7 in 2007, again in favour of boys. Strangely in level 8 the trend reversed and the gap between boys and girls increased from 0.6 percent in 2000 to 1.4 percent in 2007.

Table 7.8: Percentage and sampling errors of pupils operating at various Mathematics competence levels by subgroups in (2000)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Pupil gender																
Boys	2.2	0.47	18.2	1.54	32.1	1.70	22.8	1.55	12.1	1.15	8.8	1.25	3.1	0.74	0.7	0.25
Girls	3.3	0.57	26.8	1.72	37.6	1.71	20.1	1.35	8.0	1.10	3.8	0.84	0.3	0.16	0.1	0.07
School location																
Rural	3.8	0.55	26.4	1.54	36.7	1.42	19.8	1.18	7.5	0.80	4.6	0.83	0.9	0.23	0.3	0.13
Urban	0.3	0.20	13.4	1.53	30.7	2.81	25.4	1.95	16.0	1.89	10.1	1.47	3.6	1.11	0.5	0.29
SES																
Low SES (Bottom 25%)	5.9	1.06	33.7	2.15	36.8	2.14	15.0	1.88	5.3	0.97	2.2	0.57	0.8	0.33	0.2	0.18
High SES (Top 25%)	0.3	0.17	14.7	1.62	30.8	2.73	27.2	1.73	14.2	2.02	8.6	1.30	3.5	1.02	0.6	0.28
Tanzania	**2.8**	**0.43**	**22.7**	**1.32**	**35.0**	**1.35**	**21.4**	**1.04**	**9.9**	**0.90**	**6.2**	**0.79**	**1.6**	**0.39**	**0.4**	**0.12**

Table 7.8a: Percentage and sampling errors of pupils operating at various Mathematics competence levels by subgroups (2007)

	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Pupil gender																
Boys	0.7	0.22	9.6	0.99	25.2	1.26	25.2	1.16	23.1	1.10	10.8	0.88	3.7	0.66	1.7	0.45
Girls	0.6	0.18	15.4	1.41	34.2	1.40	25.8	1.24	15.6	1.14	6.7	0.79	1.4	0.36	0.3	0.19
School location																
Rural	0.8	0.20	15.3	1.27	32.3	1.18	24.1	1.02	17.7	0.99	7.8	0.81	1.4	0.33	0.5	0.15
Urban	0.3	0.18	6.7	1.61	24.3	1.65	28.5	1.63	22.6	1.53	10.6	1.10	5.0	1.09	2.0	0.87
SES																
Low SES (Bottom 25%)	0.9	0.29	17.0	1.84	30.8	1.44	24.8	1.34	16.9	1.39	6.8	0.91	2.0	0.48	0.8	0.27
High SES (Top 25%)	0.4	0.18	5.2	0.82	25.9	2.29	26.5	1.92	22.6	1.70	12.3	1.21	5.2	1.41	1.8	0.77
Tanzania	**0.7**	**0.15**	**12.6**	**1.03**	**29.8**	**1.06**	**25.5**	**0.89**	**19.3**	**0.86**	**8.7**	**0.67**	**2.5**	**0.45**	**1.0**	**0.30**

In terms of rural and urban subgroups it is the pupils in the urban setting who consistently reached the more complex levels in larger percentages compared to those from the rural setting. The modal competence level was 3 for rural pupils (32.3 percent) and 4 (28.5 percent) for urban pupils. In 2000 the modal level for both subgroups was competence level 3 with 36.7 percent of rural pupils and 30.7 percent of urban pupils located in the level. This implies

that there has been a general shift among urban pupils towards higher levels of competency. Level 3 was obtained by 24.3 percent of urban pupils and 32.3 percent of rural pupils. Desirably much smaller percentages of pupils were located in the least complex levels (1, and 2) and surprisingly smaller proportions of pupils reached the more complex levels of 6 through to 8. More pupils in the urban setting (10.6 percent) were located in levels 6 compared to those in the rural setting (7.8 percent). 2.0 percent of urban pupils reached level 8 compared to only 0.5 percent of rural pupils. This trend is similar to the one observed for Reading. Between 2000 and 2007 a pattern emerged where the gap between urban and rural pupils tended to narrow for levels 1 to 6 but widened in levels 7 and 8. In 2007 the difference in the percentages of pupils reaching the levels were 3.6 in level 7 and 0.2 percent in level 8 compared to the 2.7 and 1.5 percent respectively in 2007. However, gaps in the percentage differences between rural and urban were not big. The results clearly show that some improvement has been registered but urban pupils continue to outperform rural pupils and so more improvement is needed if more pupils are to be located in the more complex levels.

In terms of SES it can be seen that the modal class was level 3 low SES pupils (30.8 percent) and level 4 for the high SES pupils (26.5 percent). The modal level in 2000 for both subgroups was level 3. This implies that there has been general improvement for high SES pupils. The results indicate a trend where the percentages, of both low SES and high SES pupils, decreased in the least complex levels (1, 2 and 3) and increased in the subsequent levels between 2000 and 2007. The difference (gap) in the percentages reaching each of the more complex levels suggested no particular pattern between the low SES and high SES pupils. The gap decreased in levels 5 and 6 and increased slightly in levels 7 and 8 between 2000 and 2007. Although pupils from both low SES and high SES achieved at higher levels in 2007, pupils with high SES dominated the more complex levels; a situation that needs to be addressed in the search for equity.

The analysis of the competency levels in Reading and Mathematics could provide new possibilities for providing feedback for teachers and curriculum developers. This may require carrying out an item analysis to identify the various areas and types of weaknesses manifested by pupils in general and by subgroups after answering the items. The process can be repeated for teachers. In turn, this could provide a basis for re-examining teaching materials provided for teaching, their suitability and the abilities of teachers to teach the skills and competencies

in question especially in the zones where relatively large proportions of pupils did not reach Level 3, especially in Mathematics. Further examination could be made in the area of teacher training to establish whether the pre-service programmes adequately prepared teachers in the competencies in question. At the in-service level, teachers' programmess will need to be designed in order to address the areas of weakness. The use of education cluster centres could be the most effective and sustainable mechanism to reach all targeted teachers nationwide.

Policy Suggestion 7.1: *The Tanzania Institute of Education in collaboration with the Inspectorate and the National Examination Council of Tanzania, should investigate why girls' mastery of higher competency levels in Reading and Mathematics was lower than that of boys and determine the extent to which curriculum content, school organization and pedagogical practice are sensitive to the learning needs of girls, and thereafter take appropriate steps to ensure the equality of girls' and boys' opportunities to learn in Reading and Mathematics.*

Policy Suggestion 7.2: *The Institute of Education in collaboration with the Inspectorate Department should investigate the strategies employed in the teaching and learning of Reading and Mathematics, especially in the lowest performing zones.*

Policy Suggestion 7.3: *The Teacher Training Department should review its pre-service and in-service programmes, including its general teacher training curriculum, in order to ensure that the content of the assessment techniques includes item response theory. This will enable trainees to broaden their diagnostic techniques to the school curriculum. School inspectors will also need to be re-oriented in the areas in question so that they monitor and support teachers' classroom teaching with emphasis on the item response theory and skills in question.*

Policy Suggestion 7.4: *The Inspectorate Department should organize training for inspectors in assessment techniques using the item response theory so that they can effectively support and improve teachers' skills in assessing learners in key competencies and their capacity in modern theory technique particularly at this point in time when the Tanzanian education system has adopted competence based curricula.*

Pupils and teachers reaching reading level 4 and above

In *Table 7.9* it can be seen that overall 89.9 percent of Standard 6 pupils reached at least level 4 in Reading in 2007 while 82.3 percent of them reached the level in 2000. For pupils this is a gain of 7.6 percentage points between 2000 and 2007.

Table 7.9: Percentages and sampling errors of pupils and teachers operating at level 4 or higher in Reading skills by zones for 2000 and 2007

	PUPILS				TEACHERS			
	2000		2007		2000		2007	
	%	SE	%	SE	%	SE	%	SE
Central	79.5	5.41	94.1	1.31	100.0	0.00	100.0	0.00
Eastern	91.5	2.83	92.9	2.72	100.0	0.00	100.0	0.00
Kagera	83.3	3.74	94.0	2.37	100.0	0.00	100.0	0.00
Kilimanjaro	91.2	2.27	89.8	2.77	100.0	0.00	100.0	0.00
Mwanza	80.8	6.86	84.2	3.43	100.0	0.00	100.0	0.00
North East	86.1	5.84	84.5	5.32	100.0	0.00	100.0	0.00
Northern	82.5	4.37	86.3	4.23	100.0	0.00	100.0	0.00
Southern Highland	87.1	4.22	95.0	1.78	100.0	0.00	100.0	0.00
Southern	66.3	5.67	89.1	2.57	100.0	0.00	100.0	0.00
Southwest	76.6	5.90	93.9	2.33	100.0	0.00	100.0	0.00
Western	74.1	7.12	87.6	3.06	100.0	0.00	100.0	0.00
Tanzania	**82.3**	**1.68**	**89.9**	**1.05**	**100.0**	**0.00**	**100.0**	**0.00**

Across the zones, in all but two, Kilimanjaro and North East, the percentages of pupils reaching at least level 4 in Reading were higher in 2007 than they were in 2000. In Kilimanjaro and Northeast there were percentage decreases (to 89.8 percent from 91.2 percent and to 84.5 percent from 86.1 percent respectively). In row one column three of *Table 7.*9 it is encouraging to note that all teachers (100 percent) reached at least level 4 in Reading in 2007 as they did in 2000.

Overall, the percentages of pupils reaching at least level 4 in 2007 were higher (for boys and girls; rural, and for low and high SES sub groups) than they were in 2000. The exception was the urban pupils, who experienced a very slight decrease, from 96.6 to 95.5. The results for both pupils and teachers suggest an improvement in Reading skills between 2000 and 2007, which complements the earlier results in pupils' and teachers' achievement levels.

The improvement made on the achievement levels of pupils and teachers may be largely explained by the heavy investment made through PEDP I (2002 – 2006) in terms of school inputs: new classroom and teachers' houses and increased teaching and learning resources including classroom supplies. In addition, primary school teachers who had lower academic qualifications (mainly 7 years of primary education) underwent intensive upgrading programmes equivalent to Form 4 academic education.

Table 7.10: Percentages and sampling errors of pupils reaching at least level 4 Reading skills by subgroups for 2000 and 2007

	2000		2007	
	%	SE	%	SE
Pupil gender				
Boys	83.7	1.89	91.1	1.20
Girls	81.1	1.93	88.7	1.14
School location				
Rural	76.6	1.95	87.3	1.43
Urban	96.6	0.93	95.5	0.75
SES				
Low SES (Bottom 25%)	64.0	3.41	85.7	2.04
High SES (Top 25%)	95.8	0.86	95.9	0.85
Tanzania	**82.3**	**1.68**	**89.9**	**1.05**

With these results it is obvious that the ongoing heavy investment by the government in primary education under PEDP I and PEDP II have impacted positively on the quality of learning and the academic achievement of pupils and teachers. The achievements attained should desirably be sustained. The Ministry therefore should continue to perform SACMEQ research for monitoring progress including tracking changes at different time points in Reading, Mathematics and Health knowledge in the primary education system.

Policy Suggestion 7.5(a): *The Ministry (Teacher education Department and School Inspectorate Department) should establish a taskforce consisting of curriculum developers, and experienced teachers and tutors to establish the skills areas which need to be strengthened among teachers and design intervention that will ensure the achievement of key curriculum objectives.*

Policy Suggestion 7.5(b): *The ministry (School Inspectorate Department) in collaboration with TIE should re-examine teaching materials provided for teaching, their suitability and adequacy and the teaching strategies of teachers especially in the zones where relatively large proportions of pupils and teachers did not reach the cut off literacy and numeracy competence levels.*

Policy Suggestion 7.6: *The Ministry (Primary Education Department) in collaboration with the National Examination Council of Tanzania should use SACMEQ study results for monitoring changes in the competence levels of pupils in primary schools in addition to using local analyses on the same. Consideration of the various subcategories of pupils which include school location, zone or region, gender, and socio-economic status should be taken into account.*

7.5 Conclusion

In this chapter the achievement levels of pupils and their teachers were examined using two different techniques: the transformed mean scores and competence levels. It was observed that, in Tanzania, Standard 6 pupils' performance was above the SACMEQ II mean of 500 in 2007 as well as in 2000 in both Reading and Mathematics. Rural, low SES, and female pupils continued to underperform although in general the associated differences in achievement tended to reduce between 2000 and 2007. It was also observed that teachers' mean scores in Reading and Mathematics were substantially higher than pupils' mean scores; which was expected. More than 80 percent of Standard 6 pupils reached at least level 4 in Reading, while all teachers (100 percent) reached the level.

The results for both Reading and Mathematics tests showed that, overall, competencies of Standard 6 pupils in Reading were much higher in 2007 than in 2000. In Reading the modal pupil competence level was one level higher (level 6) than in 2000 (level 5). In Mathematics the modal competence level continued to be level 3 but the percentage of pupils at this level decreased by around 10 percent in favor of more complex levels. There were also considerable disparities in achievement between boys and girls in Mathematics and pupils among different zones, between rural and urban pupils and between low and high SES pupils. The gap in the disparities in achievement levels narrowed substantially except for the gender subgroup.

As expected, teachers generally achieved higher than their pupils and their performance was substantially higher in 2007 than in 2000 for the two subjects. Small proportions of teachers in some zones were under achieving in the two subjects. The results provided evidence of the effects of inequality in educational opportunity among pupils from different contexts which Chapters 3 to 6 addressed. The results reflect improvement over time but also continue to challenge the entire education system, particularly the National Examination Council, the inspectorate, teacher trainers, curriculum developers and teachers. The essence of the challenge continues to centre on reforming the primary school curriculum and its implementation. This involves reviewing pedagogical practice, assessment, teacher training and teaching/learning materials. In addition it means conducting further studies on the gaps in teacher knowledge. It is important for the Ministry to continue to monitor changes in the competence levels of pupils and teachers regularly overtime in order to ensure that such reforms are producing positive results.

Chapter 8
Knowledge about HIV and AIDS

8.1 Introduction

HIV and AIDS continue to be among the major threats to human life worldwide. They undermine the social and economic development by weakening the workforce through ill health and deaths. The joint United Nations Progamme on HIV/AIDS (UNAIDS) estimated that in sub-Saharan Africa about 20 million people were living with HIV out of which about 10 percent of them were below the age of 15 years (UNAIDS in Dolata and Ross, 2010). Since the pandemic continues to have no cure it is of vital importance that pupils are equipped with relevant knowledge and skills that can help them make informed decisions about actions which may jeopardize their lives.

This chapter aims to present information on the basic knowledge required by Standard 6 pupils and their teachers to promoting and protect their health. The information is generated by covering five main areas namely: definitions and terminology, transmission mechanisms, avoidance behaviours, diagnosis and treatment, and myths and misconceptions. It is hoped that the results will provide useful indicators on the functioning of HIV and AIDS initiatives and in turn guide the discussions on their effectiveness.

8.2 Attitudes towards HIV and AIDS

General Policy Concern 8.1:

What are the attitudes of pupils, teachers and school heads towards people living with HIV?

People often fear contracting HIV and AIDS when in close relations or in contact with people infected with the disease. They may shun away from (stigmatize them) or discriminate against. Such behavior is often the result of ignorance on how the disease is contracted and how to treat those that are affected with HIV and AIDS. Pupils and teachers were asked to express their views on whether a pupil infected with HIV should be allowed to continue to attend school. The results of their responses have been summarized in *Table 8.1*, *Table 8.2* and *Table 8.3*.

Table 8.1: Percentages and sampling errors of pupils, Reading teachers and school heads expressing fear of casual contact with a pupil infected with HIV *(stigma)*

	Responses on the possibility of a pupil infected with HIV continuing to attend school																	
	Pupils						Reading Teachers						Head Teachers					
	No		Not Sure		Yes		No		Not Sure		Yes		No		Not Sure		Yes	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	39.4	6.02	11.3	2.25	49.3	6.88	9.0	5.56	17.9	12.10	73.1	12.53	8.9	8.96	8.3	8.30	82.8	11.51
Eastern	23.6	4.04	8.2	2.51	68.3	5.91	3.2	3.25	0.0	0.00	96.8	3.25	0.0	0.00	0.0	0.00	100.0	0.00
Kagera	35.9	4.71	11.6	4.19	52.5	4.06	17.8	13.51	5.2	5.30	77.0	13.83	11.2	11.24	22.0	12.29	66.8	14.51
Kilimanjaro	28.0	6.65	16.1	3.22	55.8	8.31	0.0	0.00	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00	100.0	0.00
Mwanza	38.3	4.44	14.2	2.15	47.5	5.88	0.0	0.00	18.8	18.69	81.2	18.69	10.7	7.69	8.6	8.79	80.7	11.29
Northeast	35.1	5.68	10.8	2.12	54.0	6.88	0.0	0.00	0.0	0.00	100.0	0.00	0.0	0.00	0.0	0.00	100.0	0.00
Northern	27.9	3.65	14.0	2.45	58.1	4.52	13.9	8.38	0.0	0.00	86.1	8.38	6.0	5.98	7.9	7.92	86.1	9.40
Southern Highlands	28.5	5.25	9.3	2.24	62.2	6.43	6.9	6.93	0.0	0.00	93.1	6.93	4.4	4.41	0.0	0.00	95.6	4.41
Southern	24.7	5.28	20.4	6.43	54.9	5.62	12.8	7.81	0.0	0.00	87.2	7.81	0.0	0.00	5.6	5.76	94.4	5.76
Southwest	34.7	5.38	11.8	2.93	53.5	6.00	0.0	0.00	0.0	0.00	100.0	0.00	3.4	3.41	21.4	11.48	75.2	11.76
Western	43.1	4.83	12.8	1.71	44.1	5.35	18.1	8.67	0.0	0.00	81.9	8.67	2.4	2.39	0.0	0.00	97.6	2.39
Tanzania	**32.6**	**1.60**	**12.6**	**0.96**	**54.8**	**1.89**	**8.2**	**2.15**	**2.9**	**1.66**	**88.9**	**2.64**	**4.1**	**1.51**	**5.8**	**1.84**	**90.2**	**2.29**

Stigma

In *Table 8.1* pupils, teachers and school heads were asked to respond to the possibility of a pupil infected with HIV to attend school. In columns 1 to 3, it can be seen that as expected in Tanzania the modal response was yes (54.8 percent) suggesting that pupils agreed with the possibility that an infected pupil would continue to attend school. Those not agreeing with the possibility constituted 32.6 percent and those not sure of the possibility constituted 12.6 percent. Among the zones there were notable variations in the proportions agreeing with the possibility of an infected pupil continuing to attend school with Eastern zone registering the highest percentage of pupils (68.3 percent) closely followed by Southern Highlands zone (62.2 percent). The lowest percentage of pupils (44.1 percent) was in the Western zone. In column 2 the highest percentage (43.1 percent) of pupils rejecting the possibility of an infected pupil continuing to attend school was in Western zone followed closely by Central (39.4 percent) and Mwanza (38.3 percent). In the "not sure" category the results for Southern (20.4 percent) and Kilimanjaro (16.1 percent) were particularly high relative to the results of other zones. The results for the "no" and "not sure" categories appear to reflect that more work is needed in educating pupils in Western, Mwanza and Kilimanjaro relative to other zones.

The responses of Reading teachers to the same question were summarized in columns 4 to 6 indicating that overall 88.9 percent of Standard 6 pupils were taught by teachers who agreed with the possibility of an infected pupil continuing to attend school. Those who disagreed with the stated possibility and those who were not sure with the possibility of an infected pupil continuing to attend school were 8.2 percent and 2.9 percent respectively. Variations were noted among the zones in the percentages of teachers who responded to the three categories of responses. The majority of pupils were taught by teachers (between 73.1 percent and 100 percent) who agreed with the possibility of an infected pupil continuing to attend school. Interestingly, in Kilimanjaro, Northeast and Southwest zones all teachers (100 percent) agreed with the possibility of an infected pupil to continuing attending school. Fewer teachers (between 0.0 percent and 18.1 percent) rejected the stated possibility, with Western zone recording the highest percentage (18.1 percent) of those rejecting the possibility. Only small percentages of pupils (between 0.0 percent and 18.8 percent) had teachers who indicated that they were not sure with Mwanza registering the highest percentage (18.8 percent) of the three non-zero zones.

In columns 7 to 9, it can be seen that 90.2 percent of Standard 6 pupils had head teachers who agreed with the possibility of an infected pupil continuing to attend school. Those who disagreed with the stated possibility and those who were not sure, accounted for 4.1 percent and 5.8 percent respectively. Among the zones, variations in the "no" category were noted and were relatively high in Kagera (11.2 percent) and in Mwanza (10.7 percent). In the "not sure "category, variations ranged from a low of 0 percent in five zones to a high of 22.0 percent in Kagera zone.. In the "yes" category the range was from 100 percent in Kilimanjaro, Eastern, and Northeast zones to a low of 66.8 percent in Kagera zone.

The results for pupils reflect a mixed picture with around 5 out of every 10 pupils in agreement with the possibility of an infected pupil continuing to attend school, between 3 and 5 pupils were in disagreement or not sure with the said possibility which implies that stigmatized attitudes were prevalent among pupils. In addition stigmatized attitudes were particularly high in Western, Central, Mwanza, and Kagera zones. On the part of teachers and head teachers nationally, about 89 out of 100 teachers and 90 out of 100 head teachers agreed with the possibility of an infected pupil to continuing to attend school; which was expected. This implies that most teachers and head teachers attached no stigma towards infected pupils except in Western, Kagera, Northern, and Southern zones for teachers and in Kagera, Mwanza and Southwest zone for head teachers where noticeable levels of stigma.

A pattern emerged where relatively large percentages of both pupils and teachers in Western and Kagera zones displayed stigmatized attitudes. Furthermore, Kagera zone had the highest proportion of head teachers and among the most teachers who either stated 'no' or were not sure whether an infected pupil should continue to attend school. It would seem therefore that interventions are required targeting these affected zones if stigma is to be minimized or eliminated among pupils and teachers. The interventions should preferably start with Western and Mwanza where stigmatized attitudes are relatively more prevalent among both teachers and pupils.

Discrimination

Pupils were asked to express their views on whether they would avoid a friend infected with HIV/AIDS and if they would care for relatives with AIDS. Their responses were clustered in three categories and the results of their responses are reflected in *Table 8.2*.

Table 8.2: Percentages and sampling errors for pupils refusing contact with a person living with HIV or AIDS (Discrimination) 2007

	Pupil behaviour with a friend infected with						Pupil willing to care for a relative ill with AIDS					
	Avoid/ shun		Not sure		Positive attitude		No		Not sure		Yes	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	18.5	5.13	18.8	3.10	62.7	5.64	16.5	5.34	7.5	1.90	76.0	5.96
Eastern	8.7	2.38	12.6	2.39	78.7	3.48	3.2	1.16	6.8	1.63	90.0	1.88
Kagera	21.4	4.01	16.6	2.90	62.0	5.04	15.8	3.80	2.8	1.02	81.4	4.15
Kilimanjaro	25.7	6.29	24.9	3.39	49.5	5.15	11.5	2.99	12.4	1.85	76.1	4.06
Mwanza	18.3	3.93	22.7	6.10	59.0	8.37	14.3	2.99	4.2	0.71	81.5	3.41
Northeast	23.9	4.63	16.7	3.59	59.4	5.96	13.1	4.30	6.8	1.67	80.1	4.80
Northern	16.6	2.99	17.4	2.50	66.0	3.72	16.2	2.54	8.0	1.50	75.8	2.85
S. Highlands	16.0	3.99	20.5	5.27	63.5	7.72	12.2	2.94	5.0	1.48	82.8	3.95
Southern	18.5	4.36	22.3	4.19	59.2	7.71	5.5	1.36	7.9	2.02	86.6	2.60
Southwest	23.9	4.19	19.6	4.12	56.6	6.04	18.5	3.42	6.3	1.46	75.2	4.00
Western	15.8	2.91	22.3	3.58	61.9	4.92	13.3	3.21	4.8	1.37	81.9	4.07
Tanzania	**18.3**	**1.21**	**19.5**	**1.27**	**62.3**	**1.90**	**12.8**	**1.00**	**6.4**	**0.49**	**80.9**	**1.21**

From *Table 8.2* it can be seen that 18.3 percent of Standard 6 pupils said they would avoid a friend infected with HIV and 19.5 percent of them were not sure whether they would avoid a friend infected with HIV. On the other hand, 62.3 percent of pupils responded that they would have a positive attitude towards a friend infected with HIV. Among the zones there were variations in the three categories of responses. The variations in the category of those avoiding a friend infected with HIV ranged from a high of 25.7 percent in Kilimanjaro zone followed closely by Northeast and Southwest, each with 23.9 percent, to a low of 8.7 percent in the Eastern zone. In the "not sure" category variations ranged from 24.9 percent in Kilimanjaro zone to 12.6 percent in Eastern zone and in the "positive attitude" the range was from a high of 78.7 in the Eastern zone to a low of 49.5 percent in Kilimanjaro zone. Kilimanjaro zone had the largest proportions of pupils that would or were not sure whether they would avoid a friend infected with HIV and therefore the lowest proportion of pupils that would have a positive attitude. In contrast the Eastern zone had the smallest proportions of pupils that would or were not sure whether they would avoid a friend infected with HIV and therefore the highest proportion of pupils that would have a positive attitude.

The results for Eastern zone were expected since the zone (Dar es Salaam and Pwani regions) includes the largest city, Dar es Salaam, where the concentration of agencies and NGOs conducting education interventions on HIV and AIDS awareness in schools is relatively higher. Schools in the zone therefore, were likely to have a comparative advantage over others in terms of additional support from these institutions. The results for Kilimanjaro are very worrying and no immediate explanation can be offered.

In *Table 8.2* discriminatory attitudes were again assessed by asking pupils whether they would be willing to care for a relative who was ill with AIDS. In Tanzania 80.9 percent of Standard 6 pupils were willing to care for a person who was ill with AIDS, 12.8 percent would not and 6.4 percent were not sure. The variation among the zones was notable. In the "no" category the range was from a high of 18.5 percent in Southwest zone to a low of 3.2 percent in Eastern zone. In the "not sure" category the range was from 12.4 percent in Kilimanjaro zone to 2.8 percents Kagera zone and "yes" responses ranged from 90.0 percent in Eastern zone to 75.2 percent in Southwest zone. As was the case for the responses of staying in contact with a friend infected with HIV, Kilimanjaro zone tended to have the largest proportions displaying discriminatory attitudes while Eastern zone continued to have the lowest.

It can be concluded from these results that a large majority of Standard 6 pupils in Tanzania did not discriminate against their fellow pupils infected with HIV. However, given that approximately 38 percent of pupils indicated that they would or were not sure whether they would avoid friends infected with HIV, further attention is warranted to minimize and eliminate these attitudes. Special attention is required in Kilimanjaro and other zones with relatively larger proportions of pupils with displaying discriminatory attitudes.

Policy Suggestion 8.1: *The Ministry (HIV and AIDS) section in collaboration with PMORALG should investigate the prevalence of stigma across the zones with particular attention given to Kilimanjaro zone, and ensure that HIV and AIDS plans include interventions that aim to minimize discriminatory habits and attitudes among pupils.*

Risk Perception of HIV and AIDS

Reading teachers and school heads were asked to express their views on whether they felt at risk if they associated with a person infected with HIV/AIDS. In *Table 8.3* the results of their views have been presented.

Table 8.3: Percentages and sampling errors for self risk assessment of being infected with HIV by Reading teachers and school heads (2007)

	Self HIV Risk Assessment											
	Reading Teachers						School Heads					
	No/ Low Risk		Medium Risk		High/ Very High Risk		No/ Low Risk		Medium Risk		High/Very High Risk	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central	47.5	13.74	27.9	12.81	24.6	11.17	36.2	13.82	5.5	5.59	58.3	14.02
Eastern	66.5	10.37	14.5	8.19	19.0	9.16	55.5	13.05	6.7	6.68	37.9	12.57
Kagera	56.8	14.67	22.8	11.32	20.4	13.50	38.6	13.88	4.3	4.35	57.1	14.19
Kilimanjaro	66.4	12.17	6.2	6.35	27.4	11.78	65.6	14.93	5.2	4.00	29.2	14.40
Mwanza	90.1	7.23	4.1	4.20	5.8	5.87	29.4	13.86	4.1	4.19	66.5	14.30
Northeast	76.5	9.67	12.5	7.08	11.0	7.60	44.3	12.09	16.6	9.12	39.1	11.92
Northern	48.5	9.64	17.6	7.96	33.9	9.20	22.4	8.44	7.7	5.39	69.9	9.44
S. Highlands	45.8	12.21	24.7	12.16	29.5	11.01	59.3	11.96	0.0	0.00	40.7	11.96
Southern	37.8	14.86	6.1	4.60	56.1	15.88	14.3	8.88	10.0	7.32	75.7	11.61
Southwest	72.3	12.22	0.7	0.73	27.0	12.20	45.4	13.88	8.2	8.27	46.4	13.83
Western	49.5	12.28	22.0	9.32	28.4	11.57	16.8	8.33	10.5	7.24	72.8	10.34
Tanzania	**57.9**	**3.78**	**15.5**	**2.85**	**26.7**	**3.53**	**37.4**	**3.70**	**7.3**	**1.91**	**55.3**	**3.86**

It can be seen that 57.9 percent of Standard 6 pupils had Reading teachers who felt to be at no/low risk of being infected if in contact with a person infected with HIV while 26.7 percent of teachers felt to be at high/very high risk and 15.5 percent of them felt at medium risk. The variations among the zones were notable in the percentages of teachers in the three assessment categories. Responses in the no/low risk category ranged from 90.1 percent in Mwanza zone to 37.8 percent in Southern zone. In the medium risk category the range was from 27.9 percent in central zone to 0.7 percent in Southwest zone. In the high/very risk category the range was from 56.1 percent in the Southern zone to 5.8 percent in Mwanza. The medium risk and high/very high risk categories taken together constitute a disturbing result of 42.2 percent of the teachers who would feel at risk of being infected with HIV if in contact with a person with HIV; this warrants further attention.

The results for Mwanza zone, in the no/low risk category are extremely high but not surprising given the relatively many interventions by agencies and NGO's on HIV/AIDS education in the zone. However, rather surprising is the relatively low figure for Eastern zone, a zone equally urban as Mwanza and where as many organizations and NGOs focusing on HIV/AIDS operate. It would

be expected that the figures for Eastern and Mwanza would be comparable as both have comparative advantages over most other zones. The impressive results for Mwanza may be explained, in part, by the application of more appropriate and effective strategies. In addition, it is most likely that Mwanza zone had a teaching force that had the opportunity of having more in-service training on HIV and AIDS than teachers in other zones, including Eastern. These disparities should send strong signals, especially to agencies and NGOs, on the appropriateness of their approaches. The success in Mwanza could be explored and lessons adapted for use in Eastern and elsewhere.

The results for school heads indicate that, nationally, 37.4 percents of Standard 6 pupils had head teachers who expressed being at low risk of being infected if in contact with a person infected with HIV. Approximately 7 percent of head teachers felt at medium risk and more than half (55.3 percent) of them expressed feeling at high risk. Southern zone had the highest percentage of head teachers of 75.7 who felt at high risk of being infected. The lowest percent was 29.2 in Kilimanjaro zone. In the no/low risk category Kilimanjaro zone had the highest percentage, 65.6 percent, whereas Southern zone had the lowest percentage of 14.3 percent of school heads who felt at no/low risk of being infected. In the medium risk category the range was from a high of 16.6 percent in the Northeast zone to 0 percent in Southern Highlands zone. There was no particular trend between the responses of teachers and head teachers except for Southern zone which had the highest percentages of teachers and head teachers who responded that they would feel at a high risk of being infected if in contact with a person with HIV.

There was a significant difference, overall, in the extent of awareness between teachers and head teachers. 20.5 percentage points more pupils had teachers, rather than head teachers in the no/low risk category, and in the high risk category the results for head teachers were 28.6 percentage points higher. This was expected and may be explained by the possibility that teachers, who regularly taught in classrooms, had greater opportunities to attend seminars and trainings on HIV/AIDS more often than head teachers who remained focused on their administrative tasks. It would be desirable to reduce this significant gap in awareness among head teachers.

Policy Suggestion 8.2*: The Ministry (HIV and AIDS) section in collaboration with PMORALG and other agencies dealing with HIV and AIDS related issues should strengthen HIV and AIDS education programmes for teachers and head teachers.*

8.3 Pupils' sources of information about HIV/AIDS

Pupils were asked to explain whether or not they received information about HIV and AIDS from 23 listed information sources. Their responses were analysed and the results have been presented in *Table 8.4*.

In Tanzania about 93 percent of pupils responded that they received information on HIV/AIDS through the radio. More than 50 percent of Standard 6 pupils responded that they received information from twelve of other sources: books (82.1 percent), poster/billboard (70.7 percent), newspaper (70.5 percent), drama (50 percent), classroom (89.8 percent), hospital/clinic (70.1 percent), teachers (85.6 percent), counsellors (58.7 percent), doctors (65.9 percent), community health workers (64 percent) and relatives (63.4 percent). The least common sources of information were: computer (8.5 percent) and internet (11.2 percent).

Variations were noted among the zones across the different sources of information. Radio continued to be the predominant source of information on HIV/AIDS for pupils. More than 90 percent of pupils in all but three zones: Mwanza (88.8 percent), Southern (87.1 percent), and Western (86.0 percent) received information through radio. Other sources of information that were rated relatively highly were classroom lesson, teachers, and books. In each of these, the highest rating was Southern Highlands zone (rating more than 90 percent of pupils for each). In contrast, but in keeping with national figures, the lowest rated were computer followed closely by internet across all the zones.

Table 8.4: Sources of information on HIV and AIDS for pupils (2007)

	Radio	TV	Video	Internet	Computer	Poster/ Billboard	Books	Magazines/ Newspapers	Drama/Play	School Club	Cinema	Recreation Actvts	Classroom Lesson	Hospital /Clinic	Teachers	Friends	Counselors	Peer Educator	Doctor	Community Hlth Worker	Religious Person	Person HIV+	Relatives
Central	91.5	25.9	22.2	8.1	4.1	73.1	83.7	70.1	52.6	17.8	20.0	36.3	92.2	71.5	86.7	58.9	51.9	35.4	65.6	61.5	55.9	19.2	58.5
Eastern	97.5	70.7	43.0	13.0	8.4	85.8	88.9	83.6	81.8	22.9	55.9	50.5	88.0	75.9	85.8	74.6	67.0	31.8	75.5	69.8	53.3	29.3	74.1
Kagera	92.3	51.4	36.7	3.1	5.8	75.2	86.1	72.9	67.2	36.0	38.2	43.6	90.3	78.3	86.0	71.0	69.1	60.6	74.9	73.4	55.8	38.0	67.4
Kilimanjaro	90.9	54.3	25.8	12.1	7.1	71.2	83.9	67.7	59.8	21.1	21.7	27.1	96.0	79.9	88.4	62.8	52.3	42.2	73.4	68.3	46.7	31.2	58.8
Mwanza	88.8	41.1	37.7	16.6	11.3	56.1	73.2	55.9	45.3	27.1	30.8	26.6	86.0	63.1	74.4	52.0	48.9	47.0	56.7	54.2	38.8	29.3	53.8
Northeast	94.9	56.3	34.3	13.5	11.9	73.5	84.8	75.1	66.0	31.6	37.7	44.1	92.3	72.6	86.3	68.3	62.1	56.0	66.9	62.3	56.4	32.6	71.1
Northern	94.8	54.0	29.8	11.2	11.4	78.3	86.0	74.8	62.6	26.9	37.2	38.7	78.3	72.6	83.8	67.8	68.3	48.1	73.0	68.9	56.7	31.3	66.4
S. Highlands	96.7	50.1	37.1	11.3	9.2	81.4	90.2	83.0	66.2	28.6	39.7	40.6	97.1	75.7	91.8	74.5	67.6	58.5	70.8	73.7	56.1	33.0	70.0
Southern	87.1	44.4	33.2	7.4	5.8	65.4	79.0	61.7	52.5	20.5	36.7	46.3	92.4	70.5	85.6	55.1	51.7	44.9	66.3	61.2	33.9	29.1	63.8
Southwest	94.8	50.3	31.6	17.6	7.3	62.6	78.4	63.2	45.0	17.4	28.0	31.6	86.6	61.1	79.9	60.5	49.7	43.6	53.4	54.6	49.4	23.5	62.3
Western	86.0	38.3	34.1	8.9	7.4	53.0	69.1	59.3	40.3	19.3	29.5	33.3	91.3	57.0	87.9	51.7	47.8	41.1	52.5	54.5	40.9	20.5	48.3
Tanzania	**92.5**	**48.9**	**33.7**	**11.2**	**8.5**	**70.7**	**82.1**	**70.5**	**58.0**	**24.8**	**35.1**	**38.6**	**89.8**	**70.1**	**85.6**	**63.8**	**58.7**	**47.2**	**65.9**	**64.0**	**49.7**	**28.8**	**63.4**

8.4 Teachers and HIV testing

Table 8.5: Percentages and sampling errors of Reading teachers for availability of HIV/AIDS tests.

	Percentage of Reading teachers for availability of HIV/AIDS test									
	Teacher willing to take HIV test if free		Willing to take HIV test if has to pay		Teacher has taken HIV test		Allowing HIV pupil to school		Place within walking distance for HIV test	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	100.0	0.00	90.0	6.35	58.9	13.74	73.1	12.23	93.8	4.69
Eastern	92.9	4.92	69.3	10.26	65.9	9.05	96.8	3.35	69.3	10.82
Kagera	100.0	0.00	72.6	11.90	71.8	12.08	77.0	13.11	71.7	13.48
Kilimanjaro	81.9	12.07	58.6	12.66	59.3	12.45	100.0	0.00	100.0	0.00
Mwanza	90.3	6.99	66.7	12.58	43.1	14.49	81.2	16.33	59.8	15.52
Northeast	94.2	5.75	68.6	10.91	51.0	12.08	100.0	0.00	79.5	9.57
Northern	96.7	2.36	61.4	9.84	52.5	9.62	86.1	8.15	73.1	9.91
Southern Highlands	88.4	7.94	69.3	10.83	50.3	12.21	93.1	6.79	62.7	12.12
Southern	100.0	0.00	49.2	10.92	61.9	13.97	87.2	7.72	84.3	9.19
Southwest	100.0	0.00	76.0	12.51	75.7	11.95	100.0	0.00	72.0	12.69
Western	100.0	0.00	59.3	12.34	51.1	12.10	81.9	8.66	88.4	6.78
Tanzania	**95.1**	**1.60**	**66.5**	**3.57**	**56.8**	**3.85**	**88.9**	**2.63**	**76.3**	**3.43**

Table 8.5a: Percentages and sampling errors of Mathematics teachers for availability of HIV/AIDS tests.

	Percentage of Mathematics teachers for availability of HIV/AIDS test									
	Teacher willing to take HIV test if free		Willing to take HIV test if has to pay		Teacher has taken HIV test		Allowing HIV pupil to school		Place within walking distance for HIV test	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	92.6	5.40	62.3	12.28	39.4	12.67	94.2	5.88	81.6	10.53
Eastern	84.8	8.51	56.4	12.68	56.9	11.54	75.4	11.41	76.6	10.15
Kagera	93.9	5.78	72.9	10.28	69.3	9.73	78.8	10.85	87.2	7.71
Kilimanjaro	100.0	0.00	65.0	15.63	64.8	15.62	100.0	0.00	85.3	8.68
Mwanza	90.2	7.07	70.1	12.11	61.0	13.58	88.8	7.95	76.1	11.74
Northeast	91.5	6.19	62.0	11.63	35.3	10.95	93.4	6.17	83.0	9.16
Northern	94.3	4.13	69.7	9.28	49.3	9.63	89.1	5.61	69.9	9.43
Southern Highlands	96.8	3.28	46.6	12.10	60.9	12.10	100.0	0.00	58.5	12.24
Southern	97.6	2.52	36.2	13.05	67.9	12.69	95.5	4.62	84.3	9.19
Southwest	99.2	0.81	74.1	13.04	69.6	13.55	87.8	8.55	52.2	14.17
Western	100.0	0.00	81.9	8.93	72.6	10.46	85.5	8.09	83.6	8.23
Tanzania	**94.8**	**1.41**	**62.7**	**3.80**	**58.5**	**3.74**	**90.3**	**2.08**	**74.8**	**3.38**

Table 8.5b: Percentages and sampling errors of Health teachers for availability of HIV/AIDS tests.

	Percentage of Health teachers for availability of HIV/AIDS test									
	Teacher willing to take HIV test if free		Willing to take HIV test if has to pay		Teacher has taken HIV test		Allowing HIV pupil to school		Place within walking distance for HIV test	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central	96.6	3.55	63.5	13.21	66.1	12.78	94.5	5.62	67.5	12.45
Eastern	100.0	0.00	65.9	11.63	85.9	7.08	93.1	4.83	88.9	8.29
Kagera	100.0	0.00	88.2	7.21	73.2	9.96	94.8	5.34	78.2	9.47
Kilimanjaro	100.0	0.00	84.6	8.98	82.0	8.58	100.0	0.00	84.8	8.74
Mwanza	100.0	0.00	70.1	12.11	59.0	13.94	96.0	4.17	68.8	12.67
Northeast	90.1	6.95	45.4	11.94	52.1	12.00	90.8	6.51	87.8	8.00
Northern	96.8	2.35	76.0	8.07	52.6	9.88	82.0	8.57	80.4	7.65
Southern Highlands	100.0	0.00	55.2	12.42	65.1	11.83	100.0	0.00	66.8	11.99
Southern	100.0	0.00	43.1	15.18	68.9	13.00	88.5	8.35	89.9	7.38
Southwest	100.0	0.00	64.0	13.48	48.5	13.69	95.1	4.98	53.2	13.69
Western	100.0	0.00	69.9	11.29	54.2	11.75	93.2	5.08	52.5	11.90
Tanzania	**98.3**	**0.81**	**64.4**	**3.87**	**62.3**	**3.71**	**92.9**	**1.83**	**73.3**	**3.44**

From *Table 8.5* it can seen that 95.1 percent of Standard 6 pupils were taught by Reading teachers who responded that they would be willing to take HIV/AIDS test if given for free. In contrast in column 3 of the table only 66.5 percent of Standard 6 pupils were taught by Reading teachers who would be willing to take HIV/AIDS test if they had to pay for it. The variations among the zones in the percentages of Reading teachers who would be willing to take HIV/AIDS were not large except for a few zones. In the "willing to take HIV and AIDS test if given free" it was Kilimanjaro that had a particularly low percentage of 81.9 percent while five zones had 100 percent. In the "willing to take HIV and AIDS test if they were to pay for it" category Southern Zone had a particularly low percentage of 49.2 percent while Central zone had a particularly high percentage of 90.0 percent.

In column 4 of the table the results show that 56.8 percent of Standard 6 pupils were taught by Reading teachers who had taken a HIV and AIDS test. Southwest had the largest percentage of teachers who had taken the test (75.7 percent) while Mwanza zone had the lowest percentage (43.1 percent) of teachers who had taken the test. 96.9 percent of Standard 6 pupils were taught by Reading teachers who would allow a HIV infected pupil to school. Variations among zones

ranged between 100 percent in Kagera and Southern zones and 76.8 percent in Eastern zone. It can be seen that about 76 percent of Standard 6 pupils were taught by Reading teachers who stated that a place for HIV testing was within walking distance. Among the zones the variations in the "place for HIV test was within walking distance" were wide, ranging from 100 percent in Kilimanjaro zone to 59.8 percent in Mwanza zone. Similar patterns are evident in the results for Mathematics and Health teachers, *Table 8.5a* and *Table 8.5b* respectively, with Health teachers being slightly more willing and active when it comes to HIV/AIDS testing.

Overall, it can be inferred from the results that Standard 6 pupils were taught by teachers who were much more willing to take the HIV/AIDS test if it was given free.

8.5 What kind of activity was best on HIV/AIDS courses?

Teachers were asked to indicate from a given list which activity they considered to be the best when attending training courses. In *Table 8.6* and *Table 8.6a* the analyses of their responses have been presented for Reading and Mathematics teachers.

It can be seen in *Table 8.6* that the modal best activity during HIV/AIDS courses was group discussions, with 24 percent of Standard 6 pupils taught by Reading teachers who indicated that it was the best activity. Other popular activities, nationally, were watching video (15.3 percent), a person living with HIV/AIDS giving a talk (12.8 percent), asking questions (11.8 percent) and being given reading material (10.4 percent). The least appreciated activities were visiting a hospital and completing a questionnaire (1.3 percent each). Among the zones substantial percentages of Reading teachers chose other activities as being the best e.g. watching video and participating in a role play in Kagera (35.4 percent and 27.8 percent respectively), and asking questions in Southern Highlands (34.9 percent).

In *Table 8.6a*, it can be seen that the modal best activity during HIV/AIDS, for Mathematic teachers, causes was "group discussions" with 28 percent of Standard 6 pupils taught by Mathematics teachers who cited that the best activity was group discussions. The least popular activity was "completing a questionnaire" (0.0 percent) closely followed by "learning how to respond to pupil questions on HIV and AIDS" and "being given a female/male condom" (1.0

percent each). As was the case for Reading teachers, watching a video, a person living with HIV/AIDS giving a talk and listening to radio were also popular activities. Among the zones variations in the popularity of group discussions ranged from a high of 49 percent in Kagera to a low of 11 percent in Eastern zone. Further analysis across the listed activities reveal that a substantial percentage of pupils had teachers who chose other activities as best: watching a video in Southwest (46 percent) and Eastern zone (32 percent), visiting a hospital in Mwanza (32 percent) and being given Reading materials in Kilimanjaro (31 percent).

Table 8.6: Percentages of best activity during HIV/AIDS courses by Reading teacher

	Reading teacher : best activity during HIV/AIDS courses												
	Being given reading materials	Lecture	Watching video	Listening to radio	Asking questions	A person living with HIV giving a talk	Group discussions	Visiting a hospital	Completing a questionnaire	Participation in role play	Learning how to respond to pupils' HIV/AIDS questions	Being given practical demonstration on condom usage	Being given male/female condoms
Central	15.9		14.6		9.9	18.5	38.4		2.6				
Eastern	11.4	11.4	9.4	9.4	2.0	18.8	16.1	4.0			9.4		8.1
Kagera			35.4	13.9			22.8			27.8			
Kilimanjaro	10.6		28.2		17.6	10.6	7.0			16.2	9.9		
Mwanza	10.3	10.3	23.8		22.2		33.3						
Northeast			21.6	17.8		8.9	28.4		9.3	5.5			8.5
Northern	22.7	4.7	10.7	3.4	5.2	14.2	22.7					16.3	
Southern Highlands	8.9		3.6	22.2	34.9	7.8	15.8			6.9			
Southern			16.7	6.4	6.7	29.8	40.4						
Southwest	21.0	12.6	28.0	9.8			15.4		.9		12.1		
Western	13.4				15.1	21.8	22.3	12.8			14.5		
Tanzania	**10.4**	**3.2**	**15.3**	**9.0**	**11.8**	**12.8**	**24.0**	**1.3**	**1.3**	**3.9**	**3.7**	**1.8**	**1.5**

Table 8.6a: Percentages of best activity during HIV/AIDS courses by Mathematics teacher

	Mathematics teacher: best activity during HIV/AIDS courses												
	Being given Reading materials	Lecture	Watching video	Listening to radio	Asking questions	A person living with HIV giving a talk	Group discussions	Visiting a hospital	Completing a questionnaire	Participation on role play	Learning how to respond to pupil questions on HIV/AIDS	Being given practical demonstration on condom usage	Being given male/female condoms
Central	8	10	8	16	19		39						
Eastern		15	32		13	9	11					21	
Kagera		10	23		9		49				9		
Kilimanjaro	31		14		3	29	12		2		9		
Mwanza	15		16				29	32		7			
Northeast	8		9	12		18	24	11		13		5	
Northern	25	14	20			4	21			14		2	
Southern Highlands			37	20	10		15			19			
Southern	5			5	11	8	72						
Southwest			46	12	13	13						16	
Western			16	16		22	33			6			7
Tanzania	**8**	**4**	**20**	**8**	**6**	**9**	**28**	**4**	**0**	**7**	**1**	**3**	**1**

From the results, it is clear that Standard 6 pupils were taught by Reading and Mathematics teachers who indicated that the best activity was group discussions. Other popular activities for both sets of teachers were watching a video, visiting a hospital, being given reading materials and participating in role play. It is noticeable that Reading teachers in 10 out of 11 zones, did not name "being given practical demonstration on condom usage" as best and that Mathematics teachers in 10 out of 11 zones did not name "being given male/female condoms" as best. A possible explanation for this could be that it is not customary in Tanzania for adults to openly discuss issues related to sex. It is therefore not surprising that teachers did not appreciate these activities. However, the two activities (being given practical demonstration on condom usage and being given male/female condoms) are widely known means of protection against HIV/AIDS and a reluctance to engage with such topics make increase the teachers' vulnerability to the disease. In turn, this state could have a spillover effect for pupils who need to be guided by informed teachers. PMORALG and agencies including NGOs dealing with HIV/ AIDS education should examine the possibility of intensifying interventions that popularize these activities.

Policy Suggestion 8.3: *The Ministry (HIV and AIDS section) in collaboration with PMORALG and other agencies including NGOs should examine the possibility of intensifying interventions that popularize condom usage among teachers.*

8.6 Sources of information about HIV/AIDS for teachers

Teachers were asked to explain from where they received information about HIV and AIDS and their responses have been summarized in *Table 8.7*, *Table 8.7a*, and *Table 8.7b*.

Table 8.7: Sources of information about HIV/AIDS for Reading teachers (2007)

	Central	Eastern	Kagera	Kilimanjaro	Mwanza	Northeast	Northern	Southern Highlands	Southern	Southwest	Western
Radio	6.5	7.5	6.2	4.8	7.7	9.7	13.1	14.7	9.1	7.9	12.7
TV	6.5	8.3	6.5	5.4	8.1	9.6	13.1	12.0	9.7	7.7	13.1
Video player	5.0	8.6	7.0	5.3	6.3	8.8	13.8	12.9	9.5	6.6	16.1
Internet	3.9	5.8	6.0	3.5	10.2	13.6	14.9	16.6	12.8	0.9	11.7
Computer	4.1	10.8	4.9	0.6	10.0	5.5	20.3	15.9	15.6	2.8	9.4
Poster/ Billboard	6.2	7.8	6.5	5.0	8.0	10.1	13.0	13.5	9.5	7.9	12.6
Book	6.5	7.5	6.2	4.8	7.7	9.8	12.9	14.7	9.2	7.9	12.7
Magazine/ Newspaper	6.6	7.7	6.4	4.9	7.6	10.0	13.3	15.0	8.8	7.7	12.1
Drama	5.6	8.1	5.9	4.6	8.1	10.6	13.9	13.2	9.2	7.5	13.3
Cinema	4.5	8.5	6.5	4.3	5.7	9.4	14.0	16.3	9.3	6.5	15.0
School Club	4.5	8.0	7.7	1.6	10.8	11.1	10.8	17.7	8.9	6.0	12.7
Recreational Actvts	5.0	7.7	6.9	4.9	7.4	8.9	11.8	15.1	8.3	8.3	15.8
Pre-service training	4.4	8.2	7.6	2.8	9.2	10.1	14.6	16.9	10.3	7.9	8.0
In-service training	6.0	7.5	6.3	4.8	7.8	9.8	13.1	14.8	9.2	8.0	12.8
Hospital	5.6	7.1	6.8	4.3	7.8	10.2	12.9	14.3	9.8	7.4	13.8
Teacher/ School Head	4.4	7.5	5.8	4.7	8.6	10.8	12.5	16.0	11.6	5.8	12.3
Friend	5.5	7.6	6.6	4.6	7.0	9.0	13.7	14.3	9.7	8.4	13.5
Counselor	5.0	7.1	6.2	5.5	8.5	10.6	13.7	13.8	10.6	9.2	9.8
Peer educator	5.7	6.7	6.2	5.3	5.0	11.3	14.5	17.2	11.0	6.5	10.5
Doctor	5.3	7.8	6.4	4.5	6.1	10.7	12.2	16.1	10.2	8.3	12.5
Health worker	5.4	7.8	5.8	4.6	4.6	10.1	14.4	16.2	10.2	8.4	12.5
Religious Person	6.4	8.3	5.5	5.5	5.3	10.0	14.0	14.1	9.0	8.9	13.0
HIV+ Person	7.5	7.4	5.2	5.4	7.8	7.1	16.9	14.1	9.6	5.7	13.4
Family/ Relatives	5.0	8.0	6.1	4.8	8.5	9.8	13.4	14.6	10.2	6.8	12.8

It can be seen in *Table 8.7* that a broad spectrum of sources of information were cited by Reading teachers. Interestingly of the 24 sources of information, 19 were predominant in Southern Highlands with between 13.5 and 17.7 percent of Reading teachers reporting that they received information from them. The remaining five sources of information which were predominant

among the zones were: HIV infected person in Northern zone (16.9 percent), Video Player (16.1 percent), recreational activities (15.8 percent), Drama (13.9 percent), TV in Northern and Western zones (13.1 percent each). The 24 sources of information were less commonly used by the teachers in five zones (Central, Eastern, Kagera, Kilimanjaro and Southwest) where no more than 10 percent of the teachers reported that they used them. The figures for Southern Highlands were expected since, over the years, a lot of attention has been directed by the Government and agencies on the zone to control the prevalence of HIV and AIDS which has reached alarming proportions (Iringa and Mbeya regions).

Table 8.7a: Sources of information about HIV/AIDS for Mathematics teachers (2007)

	Central	Eastern	Kagera	Kilimanjaro	Mwanza	Northeast	Northern	Southern Highlands	Southern	Southwest	Western
Radio	6.6	7.0	6.4	4.9	7.2	10.0	13.4	15.1	9.3	7.7	12.4
TV	6.5	8.0	6.8	4.7	7.7	11.0	13.0	13.1	10.0	6.5	12.8
Video player	5.1	8.1	6.4	5.4	8.4	10.3	12.7	14.4	7.6	7.2	14.5
Internet	2.7	8.9	6.6	3.5	5.9	17.1	13.8	14.5	4.1	6.8	16.1
Computer	8.7	11.1	1.5	2.8	7.8	9.0	12.3	11.4	8.5	4.0	22.8
Poster/ Billboard	6.6	7.2	6.5	5.0	7.7	10.2	13.7	14.8	9.6	6.6	12.1
Book	6.7	7.1	6.2	4.9	7.6	10.0	13.3	15.2	9.4	7.2	12.5
Magazine/ Newspaper	6.8	7.2	6.5	5.0	7.3	10.1	12.6	15.3	9.5	7.3	12.3
Drama	6.6	7.0	6.5	5.2	7.9	9.7	11.3	15.7	10.0	6.5	13.5
Cinema	7.4	7.2	5.6	3.1	8.7	11.1	12.2	14.2	10.7	5.4	14.5
School Club	6.5	8.9	6.9	4.2	9.5	11.8	11.4	11.9	6.8	7.6	14.6
Recreational Activities	9.7	7.1	4.3	3.9	9.2	10.6	12.5	17.2	8.7	4.5	12.3
Pre-service training	5.1	5.7	6.3	4.0	7.0	12.0	12.1	16.4	7.7	6.9	16.7
In-service training	6.6	7.0	6.4	4.9	7.2	10.0	13.4	15.1	9.3	7.7	12.4
Hospital	7.4	7.2	6.4	5.3	7.5	9.3	12.4	15.3	9.7	5.6	13.9
Teacher/ School Head	6.9	6.6	6.1	5.5	6.5	10.3	13.2	16.2	10.8	5.5	12.3
Friend	6.9	6.7	6.6	4.9	7.0	9.9	13.3	15.6	9.7	6.7	12.8
Counsellor	6.1	7.4	5.3	5.8	6.4	11.3	14.8	15.1	9.9	3.8	14.1
Peer educator	7.1	6.6	5.7	6.0	7.9	10.3	14.2	13.2	10.1	3.9	15.0
Doctor	6.5	7.2	4.7	6.3	7.1	9.9	13.5	14.6	10.9	5.8	13.4
Health worker	6.6	7.2	5.4	5.9	6.0	9.1	14.5	15.7	10.3	6.0	13.3
Religious Person	7.0	7.2	5.9	6.1	7.9	10.0	14.6	14.6	8.1	5.9	12.8
HIV+ Person	4.5	8.5	5.1	7.4	7.2	10.6	17.6	14.1	7.5	2.9	14.8
Family/ Relatives	6.7	6.2	5.6	5.4	7.0	9.0	13.8	16.0	10.5	6.9	12.8

In *Table 8.7a* a broad spectrum of information sources were cited by Mathematics teachers as was the case for Reading teachers. A pattern was repeated where out of the 24 sources of information, 19 were common in Southern Highlands with between 13.1 and 17.2 percent of pupils with Mathematics teachers reporting that they received information from them. The other

sources of information which were common for Mathematics teachers among the zones were: computer (22.8 percent), pre-service training (16.7 percent), Internet (16.1 percent), person infected with HIV (17.6 percent) all in Western zone and school clubs (14.6 percent) in Northern zone.

Table 8.7b: Sources of information about HIV/AIDS for Health teachers (2007)

	Central	Eastern	Kagera	Kilimanjaro	Mwanza	Northeast	Northern	Southern Highlands	Southern	Southwest	Western
Radio	6.5	7.8	6.3	4.8	7.8	9.8	13.0	14.8	8.6	7.9	12.8
TV	5.5	8.7	6.1	4.6	7.2	10.3	14.3	14.6	8.6	7.9	12.2
Video player	8.0	7.6	8.4	5.6	6.3	10.8	14.0	14.0	7.1	9.5	8.8
Internet	4.7	11.4	8.7	5.5	9.2	11.0	18.0	12.2	5.9	3.9	9.7
Computer	9.4	13.8	6.1	5.6	7.8	15.0	19.7	9.0	3.1	6.8	3.7
Poster/ Billboard	6.4	8.0	6.4	4.9	7.6	10.0	13.4	14.0	8.8	8.1	12.5
Book	6.5	7.9	6.3	4.8	7.4	9.8	12.9	14.8	8.7	8.0	12.8
Magazine/ Newspaper	6.6	7.9	6.3	4.9	7.1	9.9	13.3	15.0	8.8	8.1	12.1
Drama	6.5	8.5	5.9	5.0	7.6	10.6	13.9	13.5	9.4	7.2	11.9
Cinema	6.1	8.9	5.8	4.8	6.4	10.8	16.0	11.8	8.9	7.5	13.0
Info-School Club	4.4	10.1	8.1	5.4	11.0	12.7	15.6	11.0	7.1	5.5	9.0
Recreational Actvts	7.0	7.1	6.3	2.8	10.2	12.7	14.3	13.0	6.8	8.5	11.3
Pre-service training	8.2	6.5	7.6	2.5	7.5	11.6	13.0	14.7	7.8	10.9	9.7
In-service training	6.5	7.8	6.2	4.8	7.7	9.8	13.1	14.8	8.6	7.9	12.7
Hospital	7.0	7.9	6.5	5.2	7.5	9.9	13.8	12.8	9.7	7.4	12.3
Teacher/ School Head	6.7	9.0	6.3	4.6	7.8	9.4	12.5	16.0	10.1	6.1	11.5
Friend	6.8	7.6	5.8	4.8	7.4	9.8	13.5	15.1	8.5	7.8	12.7
Counsellor	7.4	8.4	5.0	5.5	7.3	10.0	13.9	14.3	9.6	7.8	10.8
Peer educator	6.2	7.7	3.7	4.8	8.4	10.1	14.4	15.1	9.1	8.5	12.1
Doctor	7.4	9.2	4.6	5.9	8.2	11.7	14.0	11.8	10.0	6.5	10.4
Health worker	7.4	8.9	6.0	5.3	7.8	9.3	13.5	12.7	9.5	8.3	11.4
Religious Person	6.7	8.3	5.5	5.0	7.8	9.6	13.9	14.9	7.3	6.5	14.5
HIV+ Person	3.3	10.3	5.3	7.5	5.8	8.9	17.2	16.2	9.7	7.7	8.3
Family/ Relatives	6.5	8.6	5.9	4.8	7.6	9.3	13.9	15.6	9.0	8.5	10.3

In *Table 8.7b*, as was the case for Mathematics and Reading teachers, Health teachers cited a broad range of information sources that they used to get information on HIV/AIDS. Interestingly all 24 sources of information were cited by over 10 percent of all pupils' teachers in Northern zone. The predominant sources for Health teachers based among zones included: Internet, and computer particularly high in Northern zone (19.7 percent, 18.0 percent respectively), HIV+ person particularly high in Northern zone (17.6 percent), recreational activities particularly high in Southern Highlands (17.2 percent), pre-service training and Internet particularly high in

Western zone (16.7 percent and 16.1 percent), cinema and school club particularly high in Northern zone (16.0 percent, 15.4 percent respectively). Other common sources were magazine/newspaper, religious person, radio and TV.

A pattern is observed in the results presented in *Table 8.7, Table 8.7a,* and *Table 8.7b* that Standard 6 pupils had Reading, Mathematics and Health teachers who tended to use most of the 24 listed sources of information on HIV/AIDS. However, the levels of usage were in general quite low, with no information source in any zone, for any teacher type being used by more than 20 percent. Usage was relatively high in Southern Highlands, Northern, and Western zones but the remaining 8 zones only modestly used the listed information sources. Another feature is that the extent of use amongst teachers across the zones varied considerably. For instance, the use of a HIV+ person as a source of information ranged from 17.2 percent in Northern zone to a low of 3.3 percent in Central zone for Health teachers. This is a situation that can undermine their knowledge on HIV/ AIDS and in turn their ability to facilitate effective learning in school.

Overall, it can be concluded that majority of Standard 6 pupils had Reading, Mathematics and Health teachers who did not make adequate use of a multiple of information sources and that the most used sources included Internet, computer, recreational activities, school club, radio and TV.

8.7 Levels of HIV/AIDS knowledge among teachers and their pupils

Policy Concern 8.2:

What do Standard 6 pupils and their teachers know about HIV-AIDS?

The results of the HIV/AIDS knowledge test (HAKT) of Standard 6 pupils and teachers have been presented in this chapter. They have firstly been presented by mean score and then by desirable and minimum levels. A pupil is considered to have reached the minimum score if they have scored 50 percent and to have reached the desirable level if they scored 75 percent. The results have been disaggregated by gender, SES and school location. Secondly, perceptions in different contexts with regards infected persons have been summarized.

Performance of pupils and teachers in HIV and AIDS test

In *Table 8.8* and *Table 8.8a* the overall performance of pupils, Reading, Mathematics, and Health teachers has been summarized.

Table 8.8: Means, percentages and sampling errors for the HAKT of pupils and teachers overall scores and of pupils and Reading teachers reaching the minimum and desirable levels (2007)

	Pupils						Reading Teachers					
	Transformed score		Reaching minimum level		Reaching desirable level		Transformed score		Reaching minimum level		Reaching desirable level	
	Mean	SE	%	SE	%	SE	Mean	SE	%	SE	%	SE
Central	570.6	16.27	66.8	5.76	22.3	5.06	715.1	28.12	92.5	7.49	71.3	12.32
Eastern	602.0	9.33	79.0	3.55	29.2	3.08	711.9	12.49	96.3	3.71	81.7	6.96
Kagera	596.9	9.54	76.5	3.42	27.6	3.34	716.7	22.65	100.0	0.00	94.3	5.39
Kilimanjaro	548.1	11.92	60.6	7.70	12.8	3.95	738.9	21.48	100.0	0.00	90.3	8.50
Mwanza	558.2	13.53	65.7	4.37	19.9	4.05	716.3	31.56	100.0	0.00	76.4	16.19
Northeast	604.4	18.27	79.5	4.55	34.0	6.23	741.6	35.60	100.0	0.00	81.0	8.93
Northern	557.5	8.51	64.8	3.60	16.5	2.36	716.3	16.13	100.0	0.00	85.2	6.05
S. Highlands	573.6	13.53	69.5	4.93	21.8	5.29	737.5	17.82	100.0	0.00	79.7	9.01
Southern	593.8	14.11	73.5	5.18	34.7	5.02	723.1	28.96	100.0	0.00	84.7	9.02
Southwest	593.9	10.22	80.2	3.69	28.1	4.11	749.9	30.46	100.0	0.00	87.8	8.43
Western	545.7	15.34	61.5	5.58	19.6	3.16	699.9	18.48	94.9	5.14	76.1	9.85
Tanzania	**575.6**	**4.30**	**70.4**	**1.52**	**24.1**	**1.41**	**723.7**	**7.47**	**98.6**	**0.87**	**81.9**	**2.94**

Table 8.8a: Means, percentages and sampling errors for the HAKT of pupils and teachers overall scores and of Mathematics and Health teachers reaching the minimum and desirable levels (2007)

	Mathematics teachers						Health teachers					
	Transformed score		Reaching minimum level		Reaching desirable level		Transformed score		Reaching minimum level		Reaching desirable level	
	Mean	SE	%	SE	%	SE	Mean	SE	%	SE	%	SE
Central	755.1	25.77	100.0	0.00	84.1	10.99	755.1	20.82	100.0	0.00	80.5	12.38
Eastern	747.6	17.60	100.0	0.00	90.1	5.54	717.0	16.56	100.0	0.00	78.9	9.13
Kagera	719.5	23.08	100.0	0.00	79.0	12.27	753.0	17.44	100.0	0.00	81.7	10.29
Kilimanjaro	749.7	31.34	100.0	0.00	89.3	7.83	798.3	19.80	100.0	0.00	100.0	0.00
Mwanza	759.2	33.16	100.0	0.00	87.9	8.61	728.4	26.43	100.0	0.00	81.2	16.33
Northeast	775.8	25.67	100.0	0.00	90.4	6.56	767.5	17.96	100.0	0.00	99.6	0.45
Northern	715.4	17.30	100.0	0.00	82.1	9.56	751.2	14.87	100.0	0.00	97.5	1.76
S. Highlands	733.8	14.62	100.0	0.00	95.5	4.52	716.1	16.50	100.0	0.00	81.6	8.95
Southern	688.4	13.99	100.0	0.00	67.3	12.59	712.3	17.37	100.0	0.00	84.9	8.99
Southwest	729.9	24.29	94.6	5.46	86.0	9.27	742.4	16.83	100.0	0.00	95.8	4.31
Western	727.4	15.00	100.0	0.00	87.2	7.27	737.1	25.00	100.0	0.00	80.8	8.22
Tanzania	**734.4**	**6.47**	**99.6**	**0.42**	**85.8**	**2.61**	**737.8**	**6.18**	**100.0**	**0.00**	**87.3**	**2.64**

It can be seen from *Table 8.8* that the national transformed mean score of Standard 6 pupils in Tanzania was 575.6, well above the SACMEQ II mean of 500. Variations were noted among the zones in pupils' scores with Northeast zone having the highest mean of 604.4 and pupils in

Western zone the lowest mean score of 545.7. In five zones: Northeast, Eastern, Kagera, Southwest and Southern the mean scores were higher than the national mean implying that the situation was comparably better. The overall proportion of Standard 6 pupils who reached the minimum level was 70.4 percent while 24.4 percent of them reached the desirable level. Among the zones there were variations in both pupils reaching the minimum and desirable levels. Variations ranged from Southwest zone which had the highest percentage (80.2 percent) of pupils who reached the minimum level while Kilimanjaro zone had the lowest (60.6 percent). The Southern zone had the highest percentage (34.4 percent) of pupils reaching the desirable level while Kilimanjaro zone had the lowest (12.8 percent). Results for Kilimanjaro zone were worrying as it had the lowest percentage of pupils reaching the minimum and desirable levels as well as the lowest mean score. The results suggest that the overall knowledge level of Standard 6 pupils on HIV and AIDS was quite high. Nevertheless, targeted intervention by the Ministry in Kilimanjaro zone is required to bring it into line with other zones.

Standard 6 pupils were taught by Reading teachers whose mean performance was 723.4, Mathematics teachers with 734.4 and Health teachers with 737.8 which are, as expected, well above the SACMEQ II pupil mean of 500. Variations in Reading teacher performance were noted among the zones with Southwest zone having the highest mean of 749.5 and Western zone the lowest mean of 699.5. Overall 98.6 percent and 81.9 percent of Standard 6 pupils had Reading teachers who reached the minimum and desirable levels respectively. All Reading teachers (100 percent) in all zones except 3 (Central, Western and Eastern) reached the minimum level, but variations were notable in the percentages of Reading teachers reaching the desirable level, with Central zone having lowest percentage of (71.3 percent) and Kagera zone the highest (94.3 percent). The performance of teachers was even more impressive amongst Mathematics and Health teachers with 99.6 and 85.8 percent of Mathematics teachers reaching the minimum and desirable levels respectively. For Health teachers 100 percent reached the minimum level and 87.3 percent reached the desirable level.

It can be concluded that overall the majority of teachers had sound basic knowledge of HIV and AIDS in all zones. All teachers were expected to reach the minimum level in HIV/AIDS particularly because it is through this knowledge that the teacher and in turn their pupils can protect themselves against risky behaviors which can lead to HIV infection. However, the

Ministry should be concerned with improving teachers' knowledge on HIV and AIDS so that more reach the desirable level.

Differences in pupil performance by gender, SES and location

Table 8.9: Mean Performance and sampling errors for the HAKT scores of pupils by gender (2007)

	Pupils											
	Transformed score				Reaching minimum level				Reaching desirable level			
	Boys		Girls		Boys		Girls		Boys		Girls	
	Mean	SE	Mean	SE	%	SE	%	SE	%	SE	%	SE
Central	588.9	15.70	550.9	18.06	73.2	3.71	60.0	8.30	27.1	5.55	17.1	5.18
Eastern	607.2	14.96	597.1	8.11	78.9	4.65	79.1	3.93	32.7	5.07	25.9	3.29
Kagera	599.5	11.09	594.6	9.62	78.8	4.23	74.4	3.63	29.1	2.92	26.3	4.71
Kilimanjaro	551.6	13.05	545.2	12.26	62.2	8.48	59.2	7.34	14.2	3.93	11.6	4.38
Mwanza	559.2	12.20	557.2	17.80	69.8	3.41	61.3	6.29	19.3	4.08	20.6	4.67
Northeast	606.1	21.59	602.7	17.15	77.5	5.36	81.4	4.65	33.3	6.60	34.8	6.85
Northern	556.2	9.83	558.9	9.27	63.0	3.84	66.8	4.30	15.6	2.84	17.3	2.96
S. Highlands	575.7	14.31	571.5	14.33	71.8	5.32	67.2	5.88	22.1	4.99	21.5	5.88
Southern	607.4	14.16	580.9	17.39	78.4	5.57	68.8	6.58	39.1	6.40	30.6	5.60
Southwest	598.3	10.04	589.8	12.77	81.4	4.25	79.0	3.93	27.9	4.97	28.3	4.96
Western	556.7	17.76	536.9	15.44	64.7	6.54	58.9	5.52	23.7	4.44	16.4	3.19
TANZANIA	**580.9**	**4.72**	**570.6**	**4.59**	**72.2**	**1.61**	**68.7**	**1.75**	**25.5**	**1.59**	**22.8**	**1.55**

In Tanzania the mean performance of Standard 6 boys was 580.9 which was notably higher than the mean for girls which was 570.6. Variations among the zones ranged from a high mean of 607.4 in the Southern zone to a low mean of 551.6 in Kilimanjaro zone for boys and from a high of 602.7 in Northeast to a low of 536.9 in Western zone for girls. It is noted that, nationally, 72.2 percent of boys reached the minimum level while 68.7 percent of girls reached the same level. On the other hand, 25.5 percent of boys reached the desirable level while 22.8 percent of girls reached the level.

There were variations among the zones in the proportions of both boys and girls who reached the minimum and desirable levels, with a high of 81.4 percent of boys in the Southwest zone who reached the minimum level to a low level of 62.2 percent of boys in Kilimanjaro zone. Northeast had the highest percentage of girls (81.4 percent) who reached the minimum level while Western zone recorded the lowest percentage (58.9 percent) of girls who reached the minimum level. Southern zone emerged with the highest percentage of boys (39.1 percent) who reached the

desirable level which is surprising and Kilimanjaro zone had the lowest percentage (14.2 percent) of boys who reached the desirable level. The highest percentage of girls reaching the desirable level was in 34.8 percent in Northeast zone and the lowest was 11.6 percent in Kilimanjaro zone. The figures for Kilimanjaro are disturbing and unexpected given the fact that its inhabitants are traditionally among the most affluent nationally. The most probable explanation is the fact that over the years the zone was not targeted for additional support especially by agencies like UNICEF, UNESCO, WFP because it was assumed that the zone had made a lot of progress compared to others. This state began to emerge during 2000 when the zone did not perform as expected in Reading and Mathematics; a situation which worsened by 2007. It is time the Ministry directed special attention to the zone in order to remedy the failing situation.

Table 8.10: Mean Performance and sampling errors for the HAKT of pupils by SES (2007)

	Pupils											
	Transformed scores				Reaching minimum level				Reaching desirable level			
	Low SES		High SES		Low SES		High SES		Low SES		High SES	
	Mean	SE	Mean	SE	%	SE	%	SE	%	SE	%	SE
Central	551.1	9.78	623.1	45.00	59.3	5.04	89.4	7.43	18.5	3.55	27.5	13.54
Eastern	597.6	18.79	614.9	10.83	81.7	10.82	81.7	3.46	25.6	5.05	33.7	4.46
Kagera	591.7	13.42	624.4	11.10	74.0	4.33	87.7	3.47	30.8	5.63	33.7	4.99
Kilimanjaro	535.2	19.76	566.4	20.73	53.6	7.81	66.5	10.27	9.7	7.70	19.2	8.14
Mwanza	551.5	24.74	591.5	14.07	61.9	8.24	86.4	3.63	26.1	5.38	21.8	4.58
Northeast	576.7	26.06	637.0	8.17	70.5	6.97	94.4	2.05	27.1	9.53	41.8	4.33
Northern	541.7	9.73	586.1	13.27	60.7	4.48	74.1	4.40	10.8	2.64	23.6	6.24
S. Highlands	553.8	10.06	612.6	24.63	65.5	5.47	76.9	9.49	10.4	3.21	37.2	12.29
Southern	589.1	16.89	603.0	21.34	70.2	7.99	81.4	7.85	29.7	5.08	32.3	9.63
Southwest	596.6	8.72	615.5	14.35	83.7	3.64	87.5	3.40	21.9	4.97	34.6	9.25
Western	533.2	21.71	597.0	11.72	53.1	8.09	83.6	3.98	19.5	3.82	22.9	8.89
Tanzania	**561.5**	**5.71**	**607.0**	**5.18**	**65.2**	**2.14**	**81.9**	**1.79**	**20.5**	**1.67**	**30.8**	**2.49**

From *Table 8.10*, the mean score of pupils with low SES was 561.5 while it was 607.0 for those with high SES. There were notable variations among the zones. In the low SES category, Eastern zone had the highest mean of 597.6 followed closely by Southwest with a mean of 596.6 whereas Western zone had the lowest mean of 533.2. Among high SES pupils, Northeastern zone had the highest mean of 637.0 where as Kilimanjaro zone had the lowest mean of 566.4. Overall, 65.2 percent of pupils with low SES reached the minimum level of mastery. Variations among the zones were considerable, ranging from a maximum of 83.7 percent reaching the minimum level in Southwest zone, followed closely by Eastern zone with 81.7 percent to a low of 53.1 percent in Western zone. 81.9 percent of high SES pupils reached the minimum level, and the percentages reaching this level ranged from a high of 94.4 in Northeast zone to a low of 66.5 percent in

Kilimanjaro. In Tanzania 20.5 percent of pupils in the low SES reached the desirable level of mastery. Variations among the zones were notable ranging from a high of 30.8 percent in Kagera zone, to a low of 9.7 percent in Kilimanjaro zone. Two other zones with relatively low proportions of pupils reaching the desirable level were Southern Highlands (10.4 percent) and Northern zone (10.8 percent). In the high SES category 30.8 percent of Standard 6 pupils reached the desirable level. Again there were notable variations among the zones with 37.2 percent in Southern Highlands reaching the desirable level compared to only 19.2 percent in Kilimanjaro. A trend emerged where Standards 6 pupils in Kilimanjaro zone tended to perform lower than in other zones, which echoes previous findings above.

These results appear to suggest that as expected Standard 6 pupils from the high SES backgrounds performed substantially better than those from low SES backgrounds. Girls tended to perform less well than boys but the difference in performance was not highly significant.

***Policy Suggestion 8.4**: The Ministry should (a) investigate the reasons for knowledge level differences, and (b) find out why knowledge levels were lower in Kilimanjaro and Western zones.*

***Policy Suggestion 8.5**: The Ministry should investigate why well-informed teachers were not able to transmit this important knowledge to a considerable proportion of their pupils.*

Table 8.11: Mean performance and sampling errors for the HAKT of pupils by school location

	Pupils											
	Transformed scores				Reaching minimum level				Reaching desirable level			
	Rural		Urban		Rural		Urban		Rural		Urban	
	Mean	SE	Mean	SE	%	SE	%	SE	%	SE	%	SE
Central	551.1	10.90	683.9	35.23	61.6	5.48	97.6	2.99	16.6	3.90	55.2	9.98
Eastern	599.3	25.24	603.0	10.40	82.5	11.01	77.7	3.34	29.3	4.98	29.2	4.05
Kagera	588.7	11.28	630.6	17.97	73.6	4.06	88.3	4.98	24.4	3.44	40.8	10.68
Kilimanjaro	540.8	10.10	621.9	44.52	57.7	7.73	89.1	13.84	9.7	2.44	44.1	31.14
Mwanza	543.4	14.04	620.3	5.39	60.8	4.52	85.9	4.72	15.7	3.88	37.9	6.01
Northeast	606.8	25.09	598.2	19.30	77.7	5.97	84.0	7.20	36.1	8.38	28.8	7.32
Northern	551.1	10.67	576.3	12.40	61.0	4.38	75.9	4.64	16.4	3.08	16.7	3.01
S. Highlands	555.2	11.92	627.7	39.40	63.8	5.35	86.3	12.50	14.5	3.51	43.2	17.91
Southern	558.0	28.80	615.8	10.43	61.4	11.62	80.9	4.99	22.7	7.88	42.1	4.39
Southwest	585.1	11.26	622.8	16.87	78.5	4.63	85.7	5.93	24.7	4.52	39.2	6.98
Western	514.1	17.17	598.6	18.73	49.8	6.19	81.0	7.04	13.6	3.12	29.7	4.80
Tanzania	**559.7**	**5.10**	**610.0**	**6.13**	**64.9**	**1.87**	**82.2**	**2.00**	**19.5**	**1.48**	**34.3**	**2.59**

The mean performance of pupils in the rural area was 559.7 while the mean performance of pupils in the urban area was 610.0. The urban mean surpassed the rural mean by 50.3 score points which is a significant difference. The variations among the zones in the mean performance of Standard 6 pupils were notable. For pupils in the rural area the highest mean scored was 606.8 (in Northeast zone) and the lowest was 514.1 (in Western zone) with a clear gap difference of 51.7 score points. For pupils in the urban area the variations ranged from a high mean of 683.9 surprisingly in Central zone to a low of 576.3 in Northern zone; a difference of 107.6 points. Further analysis indicated that the gap between the highest mean in urban and the highest mean in the rural was 77.8 score points. Nationally, 64.9 percent of Standard 6 pupils in the rural area reached the minimum level of mastery and 82.2 percent of those in the urban area reached the level. The disparities among the zones were eminent. Eastern zone had the highest percentage of pupils of (82.5 percent) reaching the minimum level and Western Zone had the lowest (49.8 percent). On the other hand the highest percentage of pupils in the urban reaching the level was 97.6 percent in Central Zone while the lowest was 75.5 percent in Northern zone. 19.5 percent of rural pupils reached the desirable level whereas 34.3 percent of urban pupils reached the level. In terms of rural pupils Northeast had the highest percentage (36.1 percent) of pupils reaching the desirable level compared to 9.7 percent in Kilimanjaro. In Central over 50 percent of urban students reached the desirable level but only 16.7 percent reached it in Northern zone.

A rather surprising pattern emerged where pupils in the urban settings of Central zone tended to perform higher than those from the urban and rural settings in the rest of the country. In contrast, pupils in the urban settings of the Northern zone tended to perform lower than pupils from the urban and rural settings in the other zones. No immediate explanation could be offered to explain the figures for the urban settings in Central and Northern zones. There were significant differences in the knowledge about HIV and AIDS between groups of Tanzania's Standard 6 pupils defined by SES and location. The Ministry should expand and intensify the delivery of HIV and AIDS prevention education programmes in poor communities and non-urban schools.

Policy Suggestion 8.6: *The Ministry (School Inspectorate Department) should explore (a) the strategies used in Central zone and apply the best practices to improve performance in other zones (b) why performance in Northern zone was relatively lower than in the rest of the zones.*

Differences in teachers' performance by gender

In *Table 8.12* it is seen that in Tanzania pupils were taught by Reading teachers whose mean score in the test was 720.6 for male teachers and 725.1 for female teachers, in *Table 8.12a* that Mathematics teachers' mean scores were 734.4 for males and 734.6 for females, and in *Table 8.12b* that Health teachers' mean scores were 737.9 for males and 737.7 for females. Examining Reading teachers more closely among the zones, Northeast had the highest mean of 893.5 for male teachers followed by Kilimanjaro with a mean of 756.8. The results for Northeast zone need to be interpreted with caution given the abnormally high SE. The lowest mean was 687.5 in the Mwanza zone. On the other hand the highest mean for female teachers was 818.0 in the Southwest zone and the lowest was 688.1 in the Western zone. It can also be seen that overall, as expected, nearly all teachers (98.0 percent male and 98.9 percent female teachers) reached the minimum level of mastery. All zones performed well at this level (100 percent each) except Eastern zone (83.5 percent) and Central zone (81.2 percent); for male teachers and Western zone (90.7 percent) for female teachers. From the table it can also be seen that, as expected, the majority of teachers (81.2 percent male and 82.4 percent female) reached the desirable level of mastery, with females again performing slightly better. Among the zones, variations ranged from a high mean of 100 percent each in Kagera, Kilimanjaro and Northern zones to low of 65.0 percent in Southern Highlands zone for male teachers and 67.6 in Central zone for female teachers. Interesting results emerge where the difference in the transformed mean scores between male and female teachers was quite pronounced in Northeast and Mwanza zones and quite small in Central zone. In the former case there is need for investigation in order to bridge the knowledge gap and attain balanced knowledge among both male and female teachers in HIV and AIDS.

For Mathematics teachers there was a very large gender gap in Eastern zone with male teachers scoring 781.2 compared to only 698.3 for female teachers, there were also very large gender gaps in Kilimanjaro and Mwanza but in these zones the direction was reversed i.e. female Mathematics teachers performed much better. Health teachers, as was expected, performed the best even when separated by gender. There was general gender equality in performance across the zones with the notable exception of Southern zone where female Health teachers scored 805.9 compared to 694.4 of male Health teachers. This is a worryingly large discrepancy.

Table 8.12: Mean performance and sampling errors for the HAKT of Reading teachers by gender

	Reading Teachers											
	Transformed scores				Reaching minimum level				Reaching desirable level			
	Male		Female		Male		Female		Male		Female	
	Mean	SE	Mean	SE	%	SE	%	SE	%	SE	%	SE
Central	715.9	52.29	714.6	31.20	81.0	17.50	100.0	0.00	77.0	17.90	68.0	16.10
Eastern	694.4	35.98	717.0	14.59	84.0	16.00	100.0	0.00	75.0	18.00	84.0	7.30
Kagera	698.4	21.68	727.3	30.37	100.0	0.00	100.0	0.00	100.0	0.00	91.0	8.00
Kilimanjaro	757.2	12.98	732.3	27.36	100.0	0.00	100.0	0.00	100.0	0.00	87.0	10.80
Mwanza	687.8	31.12	782.7	42.82	100.0	0.00	100.0	0.00	66.0	20.50	100.0	0.00
Northeast	893.8	109.89	705.3	15.36	100.0	0.00	100.0	0.00	98.0	2.60	77.0	10.60
Northern	700.3	29.43	723.7	18.85	100.0	0.00	100.0	0.00	100.0	0.00	78.3	8.40
S. Highlands	725.5	33.66	743.8	21.14	100.0	0.00	100.0	0.00	65.0	20.04	87.0	8.90
Southern	739.1	51.14	707.1	21.88	100.0	0.00	100.0	0.00	88.0	11.90	82.0	12.70
Southwest	707.4	21.38	818.4	59.57	100.0	0.00	100.0	0.00	80.0	13.10	100.0	0.00
Western	713.9	20.61	688.4	29.54	100.0	0.00	91.0	9.20	77.0	14.3	75.0	13.60
Tanzania	**720.9**	**13.91**	**725.5**	**8.17**	**98.0**	**1.40**	**99.0**	**1.10**	**81.0**	**5.30**	**82.0**	**3.40**

Table 8.12a: Mean performance and sampling errors for the HAKT of Mathematics teachers by gender

	Mathematics Teachers											
	Transformed scores				Reaching minimum level				Reaching desirable level			
	Male		Female		Male		Female		Male		Female	
	Mean	SE	Mean	SE	%	SE	%	SE	%	SE	%	SE
Central	755.4	27.37	750.8	0.00	100.0	0.00	100.0	0.00	83.0	11.60	100.0	0.00
Eastern	781.2	23.73	698.3	14.78	100.0	0.00	100.0	0.00	100.0	0.00	76.0	12.10
Kagera	722.1	24.32	678.0	0.00	100.0	0.00	100.0	0.00	78.0	13.00	100.0	0.00
Kilimanjaro	723.3	18.31	794.2	63.28	100.0	0.00	100.0	0.00	97.0	3.00	76.0	21.2
Mwanza	755.8	34.67	823.2	0.00	100.0	0.00	100.0	0.00	87.0	9.10	100.0	0.00
Northeast	770.8	31.13	796.6	28.34	100.0	0.00	100.0	0.00	88.0	8.10	100.0	0.00
Northern	709.7	19.99	743.1	17.30	100.0	0.00	100.0	0.00	78.0	11.20	100.0	0.00
Southern Highlands	732.4	15.03	751.3	58.71	100.0	0.00	100.0	0.00	95.0	4.90	100.0	0.00
Southern	692.2	15.36	654.3	19.23	100.0	0.00	100.0	0.00	69.0	13.30	56.0	36.00
Southwest	732.6	26.22	699.4	0.00	94.0	5.90	100.0	0.00	85.0	10.00	100.0	0.00
Western	734.0	17.45	708.7	26.66	100.0	0.00	100.0	0.00	89.0	8.00	84.0	16.3
Tanzania	**734.4**	**7.30**	**734.6**	**12.95**	**100.0**	**0.50**	**100.0**	**0.00**	**86.0**	**3.00**	**87.0**	**5.40**

Table 8.12b: Mean performance and sampling errors for the HAKT of Health teachers by gender

	Health Teachers											
	Transformed scores				Reaching minimum level				Reaching desirable level			
	Male		Female		Male		Female		Male		Female	
	Mean	SE	Mean	SE	%	SE	%	SE	%	SE	%	SE
Central	719.5	18.80	731.1	69.42	100.0	0.00	100.0	0.00	87.0	12.40	58.0	32.5
Eastern	728.6	20.20	711.7	23.41	100.0	0.00	100.0	0.00	100.0	0.00	69.0	12.3
Kagera	750.0	21.08	764.6	19.75	100.0	0.00	100.0	0.00	77.0	12.4	100.0	0.00
Kilimanjaro	802.5	27.75	793.8	26.75	100.0	0.00	100.0	0.00	100.0	0.00	100.0	0.00
Mwanza	727.4	28.98	738.1	30.45	100.0	0.00	100.0	0.00	79.0	17.80	100.0	0.00
Northeast	772.8	20.95	743.8	23.85	100.0	0.00	100.0	0.00	99.0	0.50	100.0	0.00
Northern	756.9	21.47	742.1	16.98	100.0	0.00	100.0	0.00	98.0	2.30	97.0	2.90
S. Highlands	715.4	18.90	718.6	33.7	100.0	0.00	100.0	0.00	86.0	9.60	66.0	21.20
Southern	694.4	14.58	805.9	26.72	100.0	0.00	100.0	0.00	82.0	10.80	100.0	0.00
Southwest	744.3	18.62	732.6	38.37	100.0	0.00	100.0	0.00	95.0	5.10	100.0	0.00
Western	745.7	32.09	716.3	33.43	100.0	0.00	100.0	0.00	86.0	9.40	68.0	17.6
Tanzania	**737.9**	**7.67**	**737.7**	**9.91**	**100.0**	**0.00**	**100.0**	**0.00**	**89.0**	**3.20**	**83.0**	**4.70**

Policy Suggestion 8.7: *The Ministry (HIV and AIDS section and School Inspectorate Department) in collaboration with PMORALG should investigate the teachers' poor performance in HIV and AIDS tests in low performing zones. They should also investigate the wide knowledge gap between female and male teachers in Northeast, Mwanza, Eastern and Southern zones.*

8.8 Conclusion

In this chapter pupils and teachers were assessed in terms of their attitudes towards and awareness of HIV and AIDS. The results indicated that the majority of Standard 6 pupils in Tanzania did not discriminate against their counterpart pupils infected with HIV. In addition most teachers and head teachers had no stigmatized views of infected pupils continuing to attend school. However, among the zones, substantial proportions of pupils, teachers and head teachers indicated they may discriminate against pupils infected with HIV. The Ministry and PMORALG were advised to investigate the prevalence of stigma across the zones with particular attention to Kilimanjaro, and ensure that HIV and AIDS plans include interventions that aim to minimize discriminatory habits among pupils.

Generally, Standard 6 pupils were taught by teachers whose awareness of there being no or low risk of being infected with HIV from contact with infected persons was reasonably higher than that of head teachers. A suggestion was made that the Ministry in collaboration with PMORALG and other agencies to strengthen HIV/AIDS education programmes for teachers and head teachers

Pupil and teacher achievement levels in a HIV and AIDS knowledge test have been examined using two different measurements: The transformed mean scores and minimum and desirable levels. Generally, the performance of pupils in the health knowledge test was quite high and was above the SACMEQ II mean of 500. Nevertheless about one in three pupils did not have the minimum knowledge level of HIV and AIDS. It was also observed that teachers' mean score in health knowledge test were substantially higher than that of pupils but was lower than the SACMEQ II average for teachers. Interestingly, female teachers tended to outperform male

teachers. However, the performance of teachers in Central, Mwanza and Western zones was unimpressive compared to teachers in the rest of the zones.

The high performance of pupils is quite a sound base for making informed decisions on lifestyles and behaviors to minimize the risks of HIV and AIDS. All children need to have the basic knowledge about HIV and AIDS that is required to protect and promote their health. However, one third of the Standard 6 pupils in Tanzania did not have this minimal level of knowledge. This was alarming because Standard 6 pupils in Tanzania (with an average age of 14.6 years) are entering a stage of mental and physical development where they may become sexually active, and/or may choose to become involved in high-risk behaviors. The Ministry was advised to take immediate action to facilitate the development and implementation of more effective HIV and AIDS prevention education programmes.

Chapter 9
Conclusion and Agenda for Action

9.1 Introduction

An attempt was made in the preceding chapters to generate information that clearly shows the changes made in Tanzania's primary education system between 2000 and 2007. Along with the progress made, challenges also were noted. Generally, the situation in the primary education system improved towards the provision of quality education as articulated in the expanded vision of the 1990 Jomtien Declaration, and re-affirmed in the Dakar 2000 goals. However, despite the important strides made severed challenges remained which have to be tackled in order to maintain and increase the momentum towards quality education.

The information presented in this report highlighted several issues that require attention and action by actors at various levels. The factors that impact on the performance of the entire education system remain diverse but most of them are related in a complex manner. Efforts to improve the performance of Tanzania's primary education system could begin by focusing on the individual challenges that have already been highlighted. However, the ideal situation is to present the issues generated by this study in the form of an agenda that can stimulate a policy debate. In this sense, the present study provides informed guidance for a co-ordinated set of policy options that take into account the interrelated nature of the challenges faced by the education system.

PEDP aims at delivering sustainable, universal, basic education of good quality. The programme is being implemented in phases. PEDP I was implemented between 2002 and 2006. PEDP II is being implemented between 2007 and 2011. Its main strategic priority areas are: expansion of enrolment and quality improvement including capacity building and strengthening institutional arrangements. Its implementation has addressed access issues such as compulsory enrolment of eligible children both girls and boys in Standard 1, teacher recruitment and deployment policy, construction of classrooms, construction of teachers' houses, sanitation facilities and enrolment of out of school children and youth. Others issues addressed by the programme were: improving the professional skills of teachers through the re-organization of pre-service and in-service teacher training and increasing teaching and learning resources such as the supply of adequate textbooks. Also covered were governance and management training at all levels including financial management, Education

Management Information Systems (EMIS) and institutional responsibilities from the school to the central level.

Since the inception of PEDP a number of achievements have been registered. The Gross Enrolment Rate (GER) and Net Enrolment Rate (NER) improved from 84 percent and 65.5 percent respectively in 2001 to 112.7 percent and 96.1 percent respectively in 2006; the number of primary schools increased from 11,873 in 2001 to 14,700 in 2006; and a total of 50,800 under qualified teachers have been upgrading their professional skills to attain the minimum qualifications for Grade A teachers. PEDP I focused mainly on enrolment expansion with little attention to quality aspects resulting in a number of challenges which undermined the attainment of quality primary education. These included: inadequate in-service training for teachers in pre-primary classes and primary schools; undesirable Book-Pupil Ratio (BPR) of 1:3; inadequate classrooms, teachers' houses, toilets and furniture; inadequate capacity of existing education system to address crosscutting issues including gender, HIV and AIDS and the environment.

In PEDP II (2006 – 2011) the aim is to improve upon the gains made through PEDP I. Major areas of focus are: enrolment expansion (access and equity), quality improvement, strengthening capacity in governance and management, cross-cutting issues, strengthening institutional arrangements, undertaking educational research and conducting educational monitoring and evaluation. Several other programmes and initiatives were and continue to be implemented during PEDP I and PEDP II, although some have remained weak.

The Complementary Basic Education Project (COBET) is a specially tailored program supported by UNICEF and other agencies which aims to provide basic education to out of school children with a particular focus on girls. Through this programme, out of school children are able to access and complete primary education in five years instead of seven. Due to its success the project has now been adapted into mainstream education. This has successfully continued to complement the mainstream education by simultaneously providing access to children of legal age of entry to primary education and absorbing overage pupils who would otherwise cause a backlog.

The school feeding programme supported by World Food Program (WFP) and implemented in four drought-prone regions (Arusha, Manyara, Singida, and Dodoma and Shinyanga) aims at improving the participation of pupils in education by enhancing the nutritional status of children. The programme has expanded to cover schools in 16 local authorities. It is noteworthy that several other community based organizations and private institutions are also supplementing these efforts.

The Ward Based Education Management (WABEM) is a management strategy implemented in six districts whose aim is to strengthen school management through strengthening participation and partnership between the school and the community. Its focus is on the establishment of school clusters and Education Cluster Centres (ECCs) at ward level where cooperation among schools is promoted. The strategy dates back to 1999 and aims at addressing local level educational issues. Its implementation has not yet been scaled up and so its potential remains untapped. However, it needs to be replicated on a national scale as a matter of urgency in order to address the disparities in school facilities and professional experience among teachers and head teachers in different schools.

The Child Friendly School (CFS) initiative, started in 2000, is a rights-based learning reform strategy which was implemented in 11 districts. It aims to improve mental and physical health and quality learning through providing a learner-friendly environment. Its objectives include the establishment of school-parent management information systems to support child learning, to develop participation, active learning approaches and to develop school self assessment systems. Like WABEM, implementation of the initiative remains local and has not been nationalized although it has the potential to address local level educational issues.

The Government is to be commended for the improvement made in the provision of primary education. There have been significant gains in pupils Reading and Mathematics performance and in upgrading teachers' academic and professional qualifications. One of the challenges the Government faces is that of addressing the wide disparities that have been tracked between 2000 and 2007 in several educational inputs across the zones and across different social subgroups of pupils e.g. the deterioration in the provision of textbooks and toilet facilities. It is important, therefore, that the data generated through this study be used for

purposes of alleviating disparities so that equity is attained in resource distribution. This will require the coordination of efforts by different actors within and outside the education system.

There are several other challenges facing the Government, among them the need to address the tracked disparities in the levels of pupils' competence in Reading and Mathematics again across the zones and across different social subgroups of pupils. Many Standard 6 pupils were underachieving in 2000, grappling with less complex levels that required recall and comprehension. It is worrying that substantial numbers were still located in these low levels in 2007. Sustainable strategies, to ensure that pupils' achievement is at desirable levels and that all teachers are significantly way above pupils' competence levels, will be required. Health problems (illness) were consistently the biggest behavioural problem for pupils and teachers over the two time periods. This is unfortunate because sick pupils cannot learn well, likewise sick teachers cannot execute their tasks effectively. This is a challenge requiring concerted efforts of different government sectors and agencies to improve the health of pupils and teachers.

The Government also needs to address the problem of negative pupil attitudes. It was observed in 2007 that more than half head teachers reported experiencing common behavioural problems such as: 'classroom disturbance', 'cheating', 'use of abusive language', 'skipping classes', 'vandalism', 'fights', 'theft', 'intimidation of pupils' and 'sexual harassment'. This set of problems continued to exist in 2007. This is a serious challenge to the aspirations of the education system and is crucial that learners are inculcated with the appropriate values and attitudes for good citizenship. The finding that Standard 6 pupils in Tanzania came from families of intermediate SES is yet another challenge requiring appropriate policies to ensure that the status does not deny pupils equal learning opportunities.

The gains made under PEDP and other initiatives need to be sustained. Most of the suggestions here are made to steer a discussion requiring the participation of a broad range of stakeholders within the Government, in the school, in the local community and in other non-governmental agencies, where appropriate. The suggestions have been presented in such a way that they serve as the starting point for the government and other players to critically review the existing policies and regulatory mechanisms and processes. It is expected that this will facilitate more pragmatic and sustainable plans and programmes that can further the gains

of PEDP. This research study may become a valuable tool, because within it the policy suggestions that facilitate collaborative action by actors within the Ministry and with partners outside have been presented. Efforts have been made to map out the roles of relevant stakeholders within a framework where effective interventions can be undertaken by each.

9.2 Classification of policy suggestions

In *Table 9.1* a total of 52 policy suggestions made in Chapters 3 to 8 have been presented. They have been categorized in order to facilitate intensive policy dialogues at different levels of Tanzania's education system. This presentation format facilitates decisions and action. Firstly, they are clustered on the basis of the nature of the policy action required (consultations, reviews, data collection, policy research or investment in infrastructure or human resources). Secondly, they specify the units, departments or sections of the Ministry and other actors that have to take a lead in the implementation of the required policy actions. Thirdly, they specify the estimated time frame (short, medium or long) for the implementation of each policy suggestion. Lastly, they provide an estimate of the cost (low, moderate or high) associated with the implementation of each policy suggestion. Presented this way, they provide a clear roadmap to the main stakeholders at the different levels of implementation. Five main groups of policy suggestions, therefore, emanated from this analysis.

Group 1: Consultation with staff, community, and experts. This group contained 7 suggestions: 3.5, 3.10, 4.4, 4.12, 5.6, 8.2, 8.3, that require a variety of consultations and discussion with other stakeholders, for example, consultation with parents so that they can contribute additional resources for the procurement of classroom supplies that cannot be procured through capitation grants.

Group 2: Reviews of existing planning and policy procedures. This group contained 16 suggestions: 3.2, 3.4, 3.11 (b), 4.1, 4.5, 4.7, 4.10, 5.1, 5.2, 5.4 (b), 5.5, 5.6 (b), 5.6(c), 5.7, 7.3 and 7.5(b), which focused on the need to revisit and reform existing regulations and practices. For example, the enforcement of compulsory enrolment.

Group 3: Data collection for planning purposes. This group consisted of 2 suggestions: 5.3 and 6.1(b), which identified information gaps that could only be addressed with suitable supplementary data instance e.g. carrying out an audit of the school buildings and toilet facilities that require major repair or complete rebuilding.

Group 4: Education policy research projects. This group contained 20 suggestions: 3.1, 3.3, 3.4, 3.7, 3.8, 3.11 (a), 4.2, 4.7, 4.8, 5.4, 6.1(a), 7.1, 7.2, 7.5 (a), 7.6, 8.1, 8.4, 8.5, 8.6 and 8.7 that identified specific educational policy research projects. For example, studies to establish why girls' level competencies in Reading and Mathematics was lower than that of boys have been suggested.

Group 5: Investment in human and material resources

This group contained 7 suggestions: 3.6, 4.3, 4.6, 4.9, 4.11(a), 4.11(b) and 7.4 which dealt with large scale national undertakings addressing educational inputs and process characteristics that would require substantial funding and a great deal of time to implement e.g. building more teachers' quarters.

9.3 An agenda for action by the Ministry

The implementation of many of the policy suggestions made require financing and the availability of appropriate human resource. Yet some will require more time to be implemented than others. It is reasonable therefore that their meaningful implementation can be done through prioritization so that the Ministry can coordinate the different tasks to ensure effective implementation. In this chapter time and cost in the last two columns of *Table 9.1* were used to determine the priority list. They were derived through rough estimates of the resources required for each suggestion and where applicable against the background of what has already been accomplished on the ground though PEDP and other ongoing Ministry initiatives.

The following describes the definition of the range of time and cost of estimates. With regard to the time frame, three descriptions were used, namely: 'short'- about three to nine months; 'medium'- about one to two years; 'long'- about three to five years. Similarly, three descriptions were used to refer to cost estimates: 'low cost'- for initiatives that required no increased expenditure and could be accommodated within the existing budgets e.g. redeployment of staff, more efficient use of resources, and/or refining data collection procedures that are already in place, 'moderate cost' for activities that required data collection and/or research projects but could not be built into existing arrangements, and would therefore

need to be funded in addition to normal Ministry operations; and 'high cost'- for large investments in capital works and human resources.

It can be seen that for most policy suggestions with short time frame were linked to low costs while medium term ones were linked to either low or moderate cost, and long term ones were normally associated with high cost. On this basis, a four-stage priority listing emerged. In the first stage a list of suggestions that need to be addressed by the Ministry immediately has been given. The second stage is a list of suggestions that could be implemented after the implementation of the first stage has begun. The third stage comprises suggestions that require further information as inputs before a consideration of priorities and the selection of a manageable subset of suggestions. The final stage requires no large scale action by the Ministry until a partnership has been established between the Ministry and a suitable development partner or donor agency.

Stage 1: For immediate action by the Government. The Ministry should first concentrate on 17 policy suggestions listed: under Group 1 (consultations) 3.5, 3.10, 4.4, 4.12, 5.6, 8.2, and 8.3, Group 2 (reviews) 5.6(c), and 7.5(b), Group 4 (education policy research projects) 3.9, 3.11, 3.15, 3.16, 5.2, 7.4(a), 7.5, and in Group 5 7.4. All these had short to medium time frames and low to moderate costs. Within the limits of logical interrelatedness, the policy suggestions which had a short time frame and low costs that should be given top priority in terms of implementation.

Stage 2: For second phase action by the Ministry. The Ministry should next act on 16 suggestions listed under Group 2 (reviews) 3.6 and 4.4, Group 3 (data collection) 5.3, and 6.1 Group 4 (education policy research projects) 3.3, 3.7 3.11, 4.2, 4.7, 8.1, 8.4, 6.1(a), 7.2, and 5.4 and under Group 5(human resources) 4.3, and 4.9. These mainly had medium time frames and moderate costs.

Stage 3: For further review before action is taken by the Ministry. These are the 13 suggestions in Groups 4 and 5 (mainly research projects) 3.4, 4.8, 7.1, 7.5 (a), 7.6, 8.5, 8.6, and 8.7 and those requiring the establishment of partnerships, namely 3.5 and 4.12. These are also associated with medium time frames and moderate to high costs. The Ministry should

establish those that could be undertaken as the preliminaries to other research and those that could run concurrently.

Stage 4: For action by the Ministry after a 'partnership' has been established. Three suggestions: in Group 2 3.1, in Group 3, 8.2, and in Group 1 8.3 had long time frames and mostly high costs. Some of the suggestions require engaging other government sectors and the use of existing operations. Exploration into the Ministry's strategic and/or Medium Term Plans (MTEF) and joint Ministry/donor operations could be used to address the suggestions.

Table 9.1: A summary of the policy suggestions in relation to relevant actors and related time frame and cost of implementation

Policy Suggestion	Relevant Department(s)	Time	Cost
Group 1: Consultation with staff, community, and experts.			
Policy suggestion 3.5. The Ministry in collaboration with PMORALG (Departments of Health and Community Development) should design interventions that will minimize pupils' illness in primary schools with a special emphasis on the zones where illness was particularly high. In addition the School Health Education Program and mechanisms used for making schools child friendly under the CFS initiative should be explored to improve school hygiene.	MOEVT, PMORALG	Medium	Moderate
Policy suggestion 3.10. The Ministry in collaboration with PMORALG and school committees should mobilize parents so that they can contribute additional resources for the procurement of classroom supplies that cannot be procured through capitation grants.	MOEVT, PMORALG	Medium	Low
Policy Suggestion 4.4. The Ministry in collaboration with PMORALG should sensitize the local communities to start initiatives of building more teachers' quarters especially in the zones with the worst housing conditions.	MOEVT, PMORALG	Short	High
Policy suggestion 4.12. The Ministry, (School Inspectorate Department) should ensure that head teachers provide professional advice to their teachers on a regular basis.	MOEVT (SCHOOL INSPECTORATE DEPARTMENT)	Long	Low

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 5.6 (a). The Ministry (TIE) PMORALG and local communities should ensure that primary, secondary and teacher education curricula facilitate the inculcation of values and attitudes that are cherished by the communities they serve, and by Tanzania as a nation.	MOEVT, TIE, PMORALG	Medium	Moderate
Policy suggestion 8.2. The Ministry (HIV and AIDS section) in collaboration with PMORALG and other agencies dealing with HIV and AIDS related issues should strengthen awareness HIV and AIDS education programmes for teachers and head teachers	MOEVT, PMORALG, AGENCIES	Short	High
Policy suggestion 8.3. The Ministry (HIV and AIDS section) in collaboration with PMORALG and agencies including NGOs should examine the possibility of intensifying interventions that popularize condom usage among teachers.	MOEVT, PMORALG, AGENCIES AND NGOS'	Short	Moderate
Group 2: Reviews of existing planning and policy procedures.			
Policy suggestion 3.2. The Ministry (School Inspectorate Department) in collaboration with PMORALG, head teachers, village executive officers, and ward education officers should ensure that the law on compulsory enrolment is implemented in order to ensure that children of school going age are timely admitted to school.	MOEVT, PMORALG WEO,VEO	Long	Low
Policy suggestion 3.4. The Ministry in collaboration with PMORALG should explore the possibility of formulating a national strategy for sustainable school feeding programmes which use locally produced foods with priority given to the most severely affected zones.	MOEVT, PMORALG LOCAL COMMUNITIES	Short	Low

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 3.9. The Ministry (School Inspectorate Department) in collaboration with PMORALG (District Education Offices) should put in place mechanisms for monitoring the levels of instructional materials, including textbooks, in schools annually. Information obtained from such monitoring could be used by the central government to review the amount of funds allocated to schools for instructional materials.	MOEVT, PMORALG	Medium	Moderate
Policy suggestion 3.11 (b). The Ministry should monitor extra tuition to ensure that teachers do not take unfair advantage of this practice.	Ministry (School Inspection Unit)	Short	Low
Policy Suggestion 4.1. The Ministry and PMORALG should explore strategies that encourage female teachers to teach Mathematics and should review their teacher deployment policy in order to ensure a more equitable distribution of male and female teachers in schools.	MOEVT, PMORALG	Medium	Moderate
Policy suggestion 4.5. The Ministry in collaboration with PMORALG should formulate a policy that requires teachers to attend a certain minimum number of in-service courses over a given period of time to ensure that every teacher keeps abreast with the changing demands of the curriculum as well as the needs of learners and of society.	MOEVT, PMORALG	Medium	Low
Policy suggestion 4.7. The Ministry (Teacher Education Department) should identify the strategies used in zones where teachers responded particularly positively on effectiveness of in-service courses in Reading and Mathematics and adapt the same to less positive zones and tailor the strategies to in-service teachers teaching other subjects in primary school.	MOEVT(Teacher Education Department)	Short	Moderate

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 4.10 (a). The Ministry (School Inspectorate Department) and curriculum specialists should determine the appropriate frequency of testing in Reading and Mathematics, and collaborate with head teachers to ensure that teachers test pupils with the required regularity.	MOEVT(School Inspectorate Department), TIE	Moderate	Low
Policy suggestion 4.10 (b). The Agency for Development of Educational Management (ADEM) and the Teacher Education Department and the School Inspectorate Department should include in their management, pre-service and in-service, training programmes content that enhances teachers' appreciation of the importance of teacher-parent meetings, and that equips them with skills for enhancing parental participation in pupil learning.	MOEVT(School Inspectorate Department ,Teacher Education Department) ADEM,TIE	Moderate	Low
Policy suggestion 5.1. The Ministry in collaboration with PMORALG should review its school head teacher appointment and deployment policies in order to ensure that both male and female teachers are equitably appointed as primary school head teachers.	MOEVT, PMORALG	Short	Low
Policy suggestion 5.2. The Ministry (School Inspectorate Department) should investigate zones with the lowest percentages of female head teachers and liaise with District Education Officers to correct the shortfall.	MOEVT, PMORALG, MOH, Local communities	Medium	Low/Moderate
Policy suggestion 5.5. The Ministry in collaboration with PMORALG should establish a health programme for each school where pupils are regularly examined and treated. The existing first aid system in many schools should be integrated into the programme and strengthened by ensuring that each school has at least one male and one female teacher trained in providing first aid care.	MOEVT, PMORALG	Short	Moderate

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 5.6 (a). The Ministry should ensure that primary, secondary and teacher education curricula facilitate the inculcation of values and attitudes that are cherished by the communities they serve, and by Tanzania as a nation.	MOEVT	Long	High
Policy suggestion 5.6 (b). The Ministry in collaboration with PMORALG should design and establish a school community/parent information system that tracks pupils' behaviour and uses the information for remedial actions which include counselling.	MOEVT, PMORALG	Medium	Moderate
Policy suggestion 5.6 (c). The Ministry in collaboration with the Ministry of Health and Social Works should establish external referrals to provide probationary services to juvenile delinquents in extreme cases.	MOEVT, PMORALG	Medium	Moderate
Policy suggestion 5.7. The Ministry in collaboration with PMORALG should ensure that the National Health Insurance fund for civil servants benefits all teachers so that teachers become assured of regular health checks and treatment. In addition the sector care and support initiative should be intensified in order to reach all the needy in schools.	MOEVT, PMORALG, NHIF	Medium	Low/Moderate
Policy suggestion 7.3. The Ministry (Teacher Training Department) should review its pre-service and in-service training programmes, including its general teacher training curriculum, in order to ensure that the content of the assessment techniques include item response theory. This will enable trainees to broaden their diagnostic techniques.	MOEVT(Teacher Education Department), TIE	Short	Low/Moderate
Policy suggestion 7.5(b). The Ministry (School Inspectorate Department) in collaboration with TIE should re-examine teaching materials provided for teaching, their suitability and adequacy and the teaching strategies of teachers especially in the zones where relatively large proportions of pupils and teachers did not reach the cut off literacy and numeracy competence levels.	MOEVT, TIE	Medium	Moderate

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 7.6. The Ministry (Primary Education Department) in collaboration with National Examination Council of Tanzania should use SACMEQ study results to monitor changes in the competence levels of pupils in primary schools in addition to using local analyses of the same. With consideration given to the various subcategories of pupils which include school location, zone or region, gender, and SES.	PMORALG, Local Authorities, School Committees	Long	Moderate
Policy suggestion 7.2. The Teacher-Training Department should review its pre-service and in-service programmes, including its general teacher training curriculum, in order to ensure that the assessment techniques include item response theory.	MOEVT Teacher Training Department	Medium	Moderate
Policy suggestion 7.4(b). The Tanzania Institute of Education and the inspectorate should re-examine teaching materials provided for teaching, their suitability and adequacy and the teaching skills of teachers especially in the zones where relatively large proportions of pupils and teachers did not reach the cut off literacy and numeracy competence levels.	MOEVT(School Inspectorate Department) TIE	Medium	Moderate/High
Policy suggestion 7.6. The Ministry should take deliberate efforts to enhance the learning opportunities of pupils in rural schools by examining policies which will preferentially improve their learning conditions.	MOEVT	Long	Moderate/High
Group 3: Data Collection for planning purpose			
Policy suggestion 5.3. In addition to the ongoing construction of classroom buildings, toilets and teachers' quarters by the government under PEDP, the Ministry in collaboration with PMORALG and local communities should carry out an audit of the buildings and toilet and other facilities that require major repairs or compete rebuilding in order to guide the on-going school reconstruction so that all schools meet the Ministry norms for the inputs.	Inspectorate Policy and Planning PMORALG	Short	Low

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 6.1 (b). The ministry in collaboration with PMORALG should carry out an audit of the available essential classroom resources in schools with a focus on the zones where extreme inequities were noted and draw up a list of the resources which need to be supplied to the worst affected schools. A formula for resource allocation that will ensure a more equitable distribution of resources should be derived.	MOEVT, PMORALG	Medium	Moderate
Group 4: Educational policy research projects			
Policy suggestion 3.1. The Ministry should conduct a follow up survey of the same target population employed during the first survey (SACMEQ II) in order to study changes in important educational indicators over time.	MOEVT	Long	High
Policy suggestion 3.4. The Ministry (Adult Education Department and Institute of Adult Education) should examine further the adult/continuing education programmes in order to increase the pace at which parents are upgrading their levels of education.	MOEV Ministry (Adult Education Department and Institute of Adult Education)	Short	Moderate/High
Policy suggestion 3.8. The Ministry (Department of Primary Education) in collaboration PMORALG) should examine why there were dismal shortages of Mathematics and Reading textbooks in primary schools in Tanzania mainland.	MOEVT (Department of Primary Education) PMORALG	Short	Low
Policy suggestion 3.11 (a). The Ministry should establish whether there is a genuine need for extra tuition especially in Central, Southern Highlands and Kilimanjaro zones and, in the cases where it is necessary, regulate it so that the costs involved do not disadvantage the pupils who need it most.	MOEVT (School Inspectorate Department)	Short	Low

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 4.2. The School Inspectorate Department in collaboration with the Tanzania Institute of Education and Teacher Education Department should carry out a study on why female teachers do not opt to teach Mathematics in primary schools and recommend corrective measures.	MOEVT (School Inspectorate Department and Teacher Education Department), TIE	Medium	Moderate
Policy suggestion 4.7: The Ministry (Teacher Education Department) should identify the strategies used in zones where teachers responded particularly positively to the effectiveness of in-service courses in Reading and Mathematics and adapt the same to less positive zones and tailor the strategies to in-service teacher training of other subjects in primary school.	MOEVT (Teacher Education Department)	Short	Moderate
Policy suggestion. 4.8. The Ministry (School Inspectorate Department) should investigate why teachers spent fewer hours on lesson preparation per week during 2007 than during 2000 in Reading and Mathematics.	MOEVT (School Inspectorate Department)	Short	High
Policy suggestion 5.4 (a). The Ministry in collaboration with PMORALG should investigate why school buildings, particularly in Northeast and Southern zones, had dilapidated despite many being newly constructed under PEDP (during 2002-2006).	MOEVT, PMORALG	Medium	Moderate
Policy suggestion 6.1 (a). The Ministry in collaboration with PMORALG should investigate why there was a decline in the supply of Reading and Mathematics textbooks.	MOEVT, PMORALG	Short	Moderate
Policy suggestion 7.1. The Ministry (School Inspectorate Department) should investigate why girls' level of competence in Reading and Mathematics was consistently lower than that of boys between 2000 and 2007.	MOEVT(School Inspectorate Department)	Short	High
Policy suggestion 7.2. The Institute of Education in collaboration with the Inspectorate Department should investigate the strategies used in the teaching and learning of Reading and Mathematics, especially in the most poorly performing zones.	ADEM, Institute of Education, Inspectorate	Short	Moderate

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 7.5 (a). The Ministry (Teacher education Department, TIE and School Inspectorate Department) should establish a taskforce consisting of curriculum developers, and experienced teachers and tutors to establish the skills areas which need to be strengthened among teachers and design interventions that will ensure the achievement of key curriculum objectives.	MOEVT (TANZANIA TIE, SCHOOL INSPECTORATE DEPARTMENT)	Medium	High
Policy suggestion 7.6. The Ministry (Primary Education Department School Inspectorate Department) in collaboration with the National Examination Council of Tanzania should use SACMEQ study results to monitor changes in the competence levels of pupils in primary schools in addition to using local analyses of the same. The various subcategories of pupils which include school location, zone or region, gender, and SES should be taken into account.	MOEVT (TANZANIA NECTA, SCHOOL INSPECTORATE DEPARTMENT)	Long	Moderate
Policy suggestion 8.1. The Ministry (HIV and AIDS section) in collaboration with PMORALG should investigate the prevalence of stigma across the zones with particular attention given to Kilimanjaro zone, and ensure that HIV and AIDS plans include interventions that aim to minimize discriminatory habits among pupils.	MOEVT (HIV and AIDS section)	Medium	Moderate
Policy suggestion 8.4. The Ministry should (a) investigate the reasons for knowledge level differences, and (b) find out why knowledge levels were lower in Kilimanjaro and Western zones.	MOEVT	Short	Moderate
Policy suggestion 8.5. The Ministry should investigate why well-informed teachers were not able to transmit this important knowledge to a considerable proportion of their pupils.	MOEVT	Short	High
Policy suggestion 8.6. The Ministry (School Inspectorate Department) should explore (a) the strategies used in Central zone and apply the best practices to improve performance in other zones (b)why performance in Northern zone was lower than in the rest of the zones.	MOEVT (school inspectorate department	Short	High
Policy suggestion 8.7. The Ministry (HIV and AIDS section and School Inspectorate Department) in collaboration with PMORALG should investigate the poor performance of HIV and AIDS teachers in certain zones and why there was such a wide knowledge gap between female and male teachers in Northeast, Mwanza, Eastern and Southern zones.	MOEVT (HIV and AIDS section, school inspectorate department)	Medium	High

Policy Suggestion	Relevant Department(s)	Time	Cost
Group 5: Investment in human and material resources			
Policy suggestion 3.6. The Ministry, in collaboration with PMORALG, local authorities, and the communities in Southern Highlands, Northern and Western zones, should establish health centres/clinics, public libraries, book shops, and secondary schools in order to reduce the average walking distances of pupils accessing these facilities and promote pupils' learning, motivation and well-being.	MOEVT, PMORALG, COMMUNITIES	Long	High
Policy suggestion 4.3. The Ministry in collaboration with PMORALG should step-up efforts to improve teachers' housing conditions through building more teachers' quarters and maintaining those that are in place. Special attention should be paid to those zones where teachers' housing conditions are worst.	MOEVT, PMORALG, Tanzania Library Services	Long	High
Policy suggestion 4.6. The Ministry (Departments of Primary Education) in collaboration with PMORALG should revive and consolidate Education Cluster Centres under WABEM and District and Zonal Resource Centres in order to broaden teachers' access to opportunities for in–service training. Mentoring, a component of WABEM, should be developed in each cluster to provide regular teacher in-service training at school level. Backup services should be provided in the Education Cluster Centres by District and Zonal Teacher Resource Centres, the Inspectorate and the Teacher Training Colleges when more specialized training is identified.	MOEVT, (Department of Primary Education) PMORALG,	Medium	High
Policy suggestion 4.9. The Ministry (School Inspectorate Department) should investigate why teachers in some zones gave too many or too few tests to pupils especially in Eastern and Mwanza zones for Mathematics, Eastern and Mwanza for Reading and Southern Highlands and Southwest for Health knowledge.	MOEVT (School Inspectorate Department)	Short	Moderate

Policy Suggestion	Relevant Department(s)	Time	Cost
Policy suggestion 4.11(a). The Ministry (Departments of Primary Education and the School Inspectorate) in collaboration with TIE and PMORALG should build more resource centres and develop the capacity of the centres so that in turn teachers who use them may enhance their innovative skills.	MOEVT Department of Primary Education, School Inspectorate Department) PMORALG, TIE	Long	High
Policy suggestion 4.11(b). The Ministry (Department of Teacher Education and TIE), in collaboration with PMORALG should ensure the establishment of District and Zonal teacher resource centres across the districts and zones in order to back up the grassroots education cluster centres under WABEM.	Ministry (Department of Teacher Education, TIE,) PMORALG	Medium	High
Policy suggestion 7.4. The Inspectorate Department should organize training for inspectors in assessment techniques using the item response theory so that they can effectively support and improve teachers' skills in assessing learners in key competencies and their capacity in modern theory techniques particularly at this point in time when the Tanzania education system has adopted a competence based curricula.	Ministry (School Inspectorate Department)	Medium	High

9.4 Coordination of Ministry responses to the Agenda for Action

Many actors, within and outside the Ministry, who can make a contribution have been cited in this four-stage agenda. The Ministry will clearly need to coordinate all forms of inputs from the different actors to ensure that informed decisions taken at the senior level of the Ministry are implemented and that a mechanism for monitoring and evaluating the progress of the decisions is established. It is envisioned that the Commissioner for Education in the Ministry will undertake the coordinating role while liaising with the research unit of the Policy and Planning Department.

9.5 The future

One of the aims of SACMEQ is to improve the capacity of educational planners in monitoring the quality of education. This report has reflected the results of SACMEQ III (2007) research and has also tracked changes between SACMEQ II (2000) and SACMEQ III (2007). Before the report was generated, a series of coordinated research training activities, involving educational planners from 15 ministries of education in the region, was undertaken on topics such as the production of research instruments, designing the conduct of the survey, analyzing

and interpreting the data, and finally producing an educational research report. In addition the research report has covered a selected set of indicators of educational achievement and general conditions of schooling and therefore leaves a lot of other, as yet unanalysed, data in the SACMEQ Data Archive.

The cooperative endeavour to train educational planners should be continued. It is also advised that researchers and educationists use these data to generate more policy reports or research papers. This invaluable strategy has led to the establishment of mechanisms for monitoring and evaluating the education systems in the member countries on regular basis. It is desirable that the mechanisms be sustained and imperative that the research results be used by all relevant ministry departments to inform policy decisions in planning for quality education. Through the consortium of fifteen ministries of education in the region: SACMEQ, Tanzania Mainland and all other members have and will continue to benefit. Furthermore, means should be sought so that SACMEQ expertise and experience be shared with other African countries.