

SACMEQ Educational Policy Research Series

The SACMEQ II Project in Malawi:
A Study of the Conditions of Schooling
and the Quality of Education.

Malawi
Working Report

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Foreword

The origins of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) date back to 1991, the year when several Ministries of Education in Eastern and Southern Africa started working closely with UNESCO's International Institute for Educational Planning (IIEP) on the implementation of integrated educational policy research and training programmes.

In 1995 these Ministries of Education formalized their collaboration by establishing a network that is widely known as SACMEQ. Fifteen Ministries are now members of SACMEQ: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia, and Zimbabwe.

SACMEQ is registered in Zimbabwe as an Independent Intergovernmental Non-profit Organization. Its Coordination Centre is located within UNESCO's Harare Cluster Office and is managed by a Director who works under the guidance of a six-member Managing Committee. SACMEQ's Assembly of Ministers meets every two years and provides overall policy guidance concerning SACMEQ's mission and programmes.

The focus of SACMEQ's capacity building programmes has been on building the capacity of Ministries of Education to monitor and evaluate the quality of their basic education systems. SACMEQ employs innovative training approaches that include a combination of face-to-face training, hands-on experience, computer laboratory sessions, and on-line support via the Internet. SACMEQ also encourages a unique form of collaboration among SACMEQ National Research Coordinators in the fifteen member countries as they share and exchange skills and successful experiences.

In September 2004 SACMEQ was awarded the Comenius Medal for its innovative approaches to delivering cross-national educational research and training programmes.

This report provides a description of the results of the SACMEQ II Project - SACMEQ's second major educational policy research project. The results of the SACMEQ I Project were reported in seven national reports for Kenya, Malawi, Mauritius, Namibia, Zambia, Zimbabwe, and Tanzania (Zanzibar).

The SACMEQ Data Archive was launched in June 2004. This valuable information resource contains data, data collection instruments, manuals, technical papers, and related publications from both SACMEQ projects. Copies of the archive may be obtained by completing the registration form on the SACMEQ Website (www.sacmeq.org).

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Chapter 1

The Setting for the Study

Introduction

The aim of this chapter is to set the scene for the results of the Grade 6 study that has been reported in ensuing chapters. The study is part of the work of the Southern Africa Consortium for Monitoring Educational Quality (SACMEQ). The first SACMEQ study took place in 1995/96 but Malawi undertook the data collection only in 1998 because she was not able to source funds in good time. It involved a study of Reading Literacy in Grade 6. SACMEQ 2 also focused on Grade 6 but this time it assessed achievement in both mathematics and reading literacy. Malawi participated in both SACMEQ studies. The bulk of this report is concerned with the results of SACMEQ 2 but in Chapters 3, 4 and 5, comparisons have been made between the major results for SACMEQ 1 and for SACMEQ 2. This allows a comparison not only of the achievement outcomes in Reading Literacy in 1998 and 2002 but also of some of the major conditions of schooling in Grade 6 at these two points in time. The data for this report was collected at the end of the academic year in 2002 in October/November.

Brief Description of Malawi

Malawi is a land locked country which is situated in the southern part of the African continent. Malawi has a total land area of 119,140 square kilometers – of which 20 percent is covered by Lake Malawi. She is bordered by Zambia to the West, Tanzania to the North, and Mozambique to the East and South. At the 1998 national census, the country's total population was around 9.9 million with a population density of 104 people per square kilometer. For administrative purposes, Malawi is divided into three regions (North, Centre, and South) which cover 28 districts. The official language of English is used for communication in business and commerce, and it is also used as the language of instruction in all levels of education except in Standards 1 to 4 of primary schooling. In those standards, the most dominant local language of the area in which the school is located is used as the medium of instruction. English is taught as a subject in all Standards.

Malawi gained her independence in 1964 at a time when the 'wind of change' was sweeping across most of the African continent. The country was ruled by a one party system of government (Malawi Congress Party MCP) under the dictatorship of Dr Hastings Kamuzu Banda for 30 years up to 1994. Like most African countries, one of the aims of the country at independence was to expand education so that it covered most of the Malawi population and also to make it more relevant to the needs of the society. As a result of the efforts made, the primary education system expanded from a total enrolment of 359,841 in 1964 to 847,157 in 1980 and to 1,895,423 in 1994.

Malawi changed her political system of government from one party to a multi-party system in May 1994. During the one-party government period, primary school pupils paid token school fees. The new democratic government (under the United Democratic Front UDF) introduced FPE in the 1994/95 academic year, partly in response to the Jomtien conference on Education for All (EFA) which was held in Thailand in 1990, but also in fulfillment of one of the promises the new government had made to its electorate. This also formed part of a national policy of poverty alleviation (PA) by the new government. The new government had realized that reducing poverty was not possible without sustained economic growth and that economic growth would not happen without investing in education.

As a result of this policy change, more than a million additional pupils joined the primary education system during the first year of the policy change. Consequently, the situation in the education system deteriorated even further. Overcrowding increased, the few resources in schools were inadequate for the increased numbers, and the recruitment of temporary teachers (TTs) made the teaching and learning process fall short of what was expected. The Government was in a crisis of how to keep the children in school. While the government was already facing difficulties in providing services to meet the educational needs of the country, its problems were compounded with the introduction of Free Primary Education (FPE). This is the context in which both SACMEQ I and II studies were conducted.

The Structure of the School System

This structure follows a 8-4-4 pattern of education comprising three levels. The primary level, which is an eight-year cycle, runs from Standard 1 through Standard 8. This level is divided into three sections; infant section which comprises Standards 1 and 2; junior section comprising Standards 3, 4 and 5 and senior section comprising Standards 6, 7 and 8. Secondary level education lasts four years and consists of two cycles- junior (Forms one and two) and senior (Forms 3 and 4) with national examinations after each cycle. The last level is tertiary education, which includes university, technical and vocational and teacher education. The number of years for this level varies depending on the course being pursued and ranges from one year to five years.

Primary Level

The official entry age into primary level education is 6 years but there are wide variations in the ages of pupils, ranging between 4 years in Standard 1 to 18 years in Standard 8. The wide variations are mainly due to late and multiple entries into schools and multiple grade repetitions. The Malawi government maintained a policy of open access (but not compulsory) to primary education for a long time. Until the introduction of the FPE policy, this access had been severely hampered by the charging of user fees, the requirement to wear school uniform and the many other contributions parents were expected to make towards the education of their children.

The average repetition rates at the primary level have increased from 17 percent in 1990/91 to 29 percent in 1994. Kadzamira et al. (1997) contended that the increase in repetition in 1994/95 was largely as a result of the decline in school quality following the expansion of enrolment that occurred as a result of the FPE policy. An equally plausible explanation is that even if standards remained the same; more would fail probably because of the characteristics of the many pupils who joined the system. In general, the quality of education is feared to have deteriorated as evidenced by high teacher pupil ratios, high classroom pupil ratios and inadequate teaching learning materials.

Secondary Level

Secondary education is offered by three categories of institutions: the conventional secondary schools, the Community Day Secondary Schools (CDSS) and the Private Schools. The last two categories mainly cater for those primary school leavers who are not selected into the formal secondary schools by the government on the basis of the nation-wide Primary School Leaving Certificate Examinations (PSLCE). The CDSSs lack instructional materials, are characterized by high teacher pupil ratios and have inadequate and unqualified teaching staff. Most of the teachers in the CDSS are former primary school teachers and therefore experience difficulty in teaching secondary school curricular material/content. This is also true to some extent of the private schools.

The number of secondary school institutions did not increase very much during the post independence era because of the government policy of providing only sufficient secondary school graduates at Form II and Form IV levels to meet the student input level of post secondary training institutions and the estimated direct manpower needs of the economy (MoE, 1994). But since 1994, there has been the upgrading of Malawi College of Distance Education (MCDE)¹ centres to secondary schools and an unprecedented mushrooming of private secondary schools. The number of total secondary schools has increased from 66 schools in 1980/81 to 93 schools in 1990/91 to 107 schools in 1994/95 and to 985 in 2003. Secondary school net enrolment is estimated at 20% making it one of the lowest in Africa. As a result, there is stiff competition at the primary to secondary school transition level and the teaching and learning in primary schools therefore tends to be examination oriented. Gender disparities in access and attainment are more pronounced at post primary levels. In 1995, girls constituted 39% of the total secondary school enrolment (MoE 1995). Research evidence has suggested that the family background of regular secondary school pupils differ markedly. Parents of girls attending secondary school education are better educated and are of a higher socio-economic status than parents of boys (Hyde, 1993 and Chimombo, 1999).

¹ In 1998, all MCDEs were converted into Community Day Secondary Schools (CDSS)

Tertiary Level

The major institution at the tertiary level is the University of Malawi (UNIMA). Established in 1965, UNIMA was to educate, train and produce local manpower for medium and high level managerial positions both in government and in the private sector. Since its establishment, there has been a very modest increase in overall enrolments from 1,704 in 1980/81 to 3,531 in 1995/96. Tertiary education also admits a very small proportion of the eligible school population. World Bank (1995) observed that the 7,500 places available in all tertiary institutions only represented a mere 0.3% of the total number of enrolments at all levels of education. Females constitute a quarter of the total enrolment. Attempts by the democratic government of UDF to increase access to university saw the establishment of the second Mzuzu University in 1998. While University education normally lasts 4 years, teacher training has traditionally been 2 years, while technical training may last four to five years depending on the field of specialization.

The Administration of School Education

The Ministry of Education (MoE) has administrative, financial and academic control over primary, secondary, tertiary (including the university), distance education as well as the training of primary school teachers. The system of education is organised in four tiers. At the top of the national structure is the minister of education. While the MoE plans and administers the system as a whole, the responsibility of managing and administering the three levels above is assigned to one Principal Secretary who is assisted by heads of departments. The second tier is the division administration. Under the recent efforts to decentralize education services, the previous regions (three) were split into six and renamed divisions each headed by a division manager. The divisions are organised into 33 education districts of which four are urban. After the introduction of the FPE policy, there was attempt at improving the management of the education system which saw the districts being demarcated into zones. Each zone is manned by a primary education advisor (PEA) with a maximum number of schools of up to 15² and a teacher

² In reality, there may be up to 18 schools in a zone.

development centre in each zone. These are expected to play both inspection and supervisory roles in the schools.

At the bottom of the tier, are the schools. According to the 2003 education statistics, there were 5055 primary schools, 103 conventional secondary schools, 636 community day secondary schools, 246 private secondary schools, 6 TTCs, 4 technical colleges and two universities (including the new Mzuzu University) in the country.

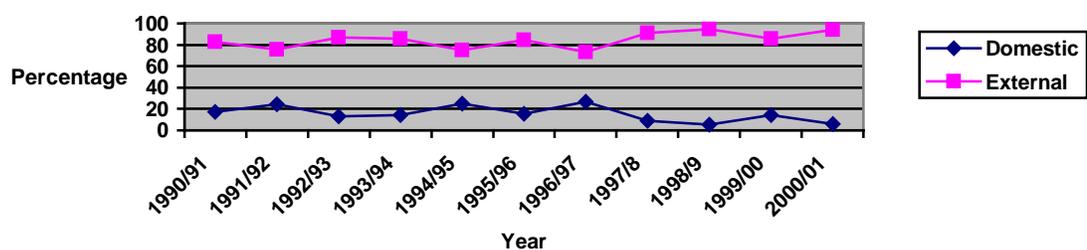
There are also two autonomous institutions which greatly contribute to education in the country. The Malawi National Examination Board (MANEB), which oversees examinations and the Malawi Institute of Education (MIE), which has in recent years played a leading role in curriculum and material development and in-service teacher education. Other Institutions include the Centre for Educational Research and Training (CERT) which is a unit attached to the University of Malawi that was established to undertake educational research studies. The Malawi National Commission for UNESCO is a national organization that links government ministries in the fields of education, science, culture, and communication. The Commission provides some training for education personnel in various fields of management. It also helps to solicit funding and to involve the Ministry in UNESCO programmes that have a bearing on the development of education in Malawi. The Malawi National Library Service has responsibility for promoting, establishing, equipping, and managing national libraries. Two other ministries are also involved in education on a smaller scale. These are the Ministry of Gender and Community Services which is responsible for early childhood education and adult literacy, and the Ministry of Labour which is responsible for technical education and vocational education and training.

Financing of Education

The education sector receives its funding from the education budget, donors, and parental support in the form of labour needed for classroom construction and maintenance, and through the payment of fees at secondary school level and above. The role of donors in financing of education is the most important element and it has enabled the Ministry to

provide some resources, through the development budget, towards the construction and maintenance of buildings and the provision of teaching and learning materials and teacher education. What became obvious in Malawi when the FPE was introduced was that although government and donor's resources increased in response to the policy, the financial implications of implementing FPE were considerable and the resourcing levels have in general been low to ensure primary schooling of acceptable quality for all. An analysis of the donor involvement in education in Malawi shows that external funding for the sector has been variable as can be seen from the figure below.

Figure 1.1: Education Development Expenditure by Source



A closer look at the graph indicates that in addition to the variations, the gap between the external and internal sources of funding is widening. This is an indication of the ever-increasing dependency on foreign aid for the financing of education in Malawi. In fact, an analysis of levels of foreign aid by Brantigan and Knack (2004) showed that overseas development assistance as a percentage of government expenditure in Malawi was 89 percent in 1999 and this was second highest from war torn Rwanda at 99 percent. And an examination of the 2003/04 budget showed that the financing of government business remains heavily reliant on external resources.

The share of education of the national budget has averaged around 10 percent from the early 1980s to the early 1990s. From 1990 however, the proportion allocated to education had risen to 22 percent in 1995 to 27 percent in 1996/97 but declined to 18.6 percent in 1997/8 and declined further to 11.9 percent in 200/01. This is an indication of the difficulty faced by developing countries in maintaining high levels of support for education. In terms of allocations within the sector, there has been a shift of resources towards primary education to the extent that between 1993 and 1997, the primary-

education share rose from 49 percent to 62 percent. The ratios of primary education unit costs to other levels of education have been presented for the years 1993/94 to 1998/9 in Table 1.1. (MOE, 2000) below.

It can be seen from the table that the unit cost at primary level is by far the lowest in comparison to all levels of education. For example, the university student unit cost has persistently remained at over 160 times the primary pupil unit cost. This may mean that total expenditure on primary education has increased faster than total enrolment in nominal terms, but has not kept pace in real terms. On average the government spends about 6 percent on goods and services at the primary level, compared to about 40 percent at teacher-training colleges, 35 percent at technical and vocational colleges, and about 26 percent at the secondary- education level (Kadzamira et al. (2004). It is important to note that, on average, about 85 percent of the primary education allocation is spent on teachers' salaries.

Table 1.1: Unit Costs in Post Primary as a Multiple of Primary Unit Costs.

Level	1990/1	1993/4	1994/5	1995/6	1996/7	1997/8	1998/9
Secondary	7.92	6.24	6.14	3.87	3.09	2.58	2.37
Technical	78.00	83.57	61.95	45.20	34.79	60.40	0.00
Teacher Training	105.29	37.61	68.16	53.90	54.38	19.61	11.91
University of Malawi	165.41	177.43	277.96	219.47	176.00	138.14	187.16

A close analysis of the unit costs also showed that while giving due attention to the primary education sector, the government also progressively increased funding for the higher education sectors. While absolute increases for primary education have been greater since the new government took office in 1994, relative funding increases for secondary, teacher education, technical and university education have surpassed primary education (Lewin 1999). The truth of the matter however is that, if government does not take steps to seek cost recovery at the secondary and indeed tertiary levels, the burden of a government budget that already has too many demands on it to cover increased educational expenditure will eventually become unbearable.

Curriculum Development.

Curriculum development is the responsibility of the Malawi Institute of Education (MIE). MIE was established in 1979 and became operational in April 1982. The Malawi Institute of Education is a Government sub vented parastatal which fulfills a social function of ensuring quality education in Malawi.

The overall mission of the Institute is to contribute to the improvement of the quality of education in Malawi, through:

- .Undertaking, encouraging and coordinating curriculum development, evaluation and research
- .Assisting with the training of teachers
- .Providing professional help and services to teachers.
- .Arranging for the publication and production of teaching /learning materials.

In the 22 years of MIE's existence, the following activities have been done among others:

- Revision of the primary school curriculum,
- Development of pupils books and teachers' guides for the schools,
- In-servicing Primary School District Inspectors of Schools (now Primary Education Advisors) and Head teachers in the Malawi Institute of Education-Brandon University program and in Malawi School Support Systems Programme (MSSSP).
- Revision of the junior and the senior secondary school curricula
- Conducting education – related research.
- Orientation of PEAs/inspectors, head teachers, and teachers to new curricula,
- Consultancy service on curriculum development, research, textbook development and in –service courses.
- Introduction of various education initiatives such as continuous assessment.

The history of innovations in curricula in Malawi can be traced back to immediately after independence. As Hauya (1993) wrote, this was the time for consolidation,

experimentation and adaptation. One of the main aims was to produce a sense of consciousness in the new state, to give an education that would support economic development and at the same time sustain the country's cultural heritage. As a first step therefore, the curriculum was to be revised. In 1968, agriculture science was introduced into the primary school curriculum. This was intended to influence Malawi's economic development through improved farm methods, especially through the work of those for whom a primary education was terminal. This decision tied in well with the renewed teachings of the Malawi Young Pioneers on the importance of and nobility of manual work and work ethics. It was also an attempt to keep up with the Joneses – i.e. Tanzania's Education for self-reliance. There was also a general emphasis on the teaching of science and reflection and use of local materials from the environment. It was hoped that agriculture would contribute to Malawi's economic development since pupils would be able to use new modern farming methods.

The major curriculum review in Malawi was undertaken in 1978 and was aimed at comprehensively changing the primary school curriculum. According to Hauya (1993) the new curriculum was made community-oriented, learners-centred and experience centred. 'There was an effort in this new curriculum to make learning valuable as a tool for survival in one's own community rather than a warrant for migration to urban areas' (:45). It was however evident during the evaluation of the textbooks under the revised curricula (Mwale et al 1998) that the new curricula were not sensitive enough to the needs of varied ethnic backgrounds. In 1998, another set of reviews was embarked on at the primary level- the Primary Curriculum and Review (PCAR) which has also been extended into the secondary level. It seems that in a heterogeneous society, a diversified curriculum is still not able to accommodate the interests of the varied ethnic groups, and the financial implications of producing the required diversified materials is considerable (Watson 1994).

Primary Teacher Training

Primary Teacher Training has traditionally been a two-year program in Malawi. However, programs of one year and three years duration have also been implemented.

The one-year course was a crash programme (funded by UNICEF) at MIE aimed at training temporary teachers who had teaching experience but no formal teaching qualification. The second innovative approach to teacher training was the Malawi Special Teacher Education Programme (MASTEP). The program was a three-year one and its goal was to increase by some 4,500 the supply of appropriately qualified teachers thereby achieving a more 'tolerable' pupil-teacher ratio of 60:1. MASTEP was a combination of a distance mode of training and short residential courses during the long vacations. MASTEP student teachers had a full time teaching responsibility in the schools. An evaluation of the programme (Kuthemba Mwale, 1995) however indicated that MASTEP was in the short-run more expensive than the other two programmes.

One of the major strategies which was put in place for the implementation of FPE was the employment of an extra 22,000 temporary teachers. These untrained teachers were given a two-week orientation (basic survival skills) before being posted to schools. A new training program for these untrained teachers called the Malawi Integrated In-service Teacher Education Programme (MIITEP) that combined residential and distance modes of training, was instituted in 1997. The course structure for MIITEP consisted of residential training (one term), self-study through self-instructional materials (four terms), supervised teaching in primary schools (five terms), 12 one-day seminars in zonal teacher development centres, 12 assignments (one assignment per subject) and 4 projects. According to MIITEP News (1997), 'MIITEP was expected to improve the quality of teaching and learning in primary schools in Malawi by increasing the number of qualified teachers in the education system who were able to demonstrate enhanced professional skills and knowledge' (:1).

The status and competence of teachers is perhaps the greatest factor in the teaching profession. Government policy is to increase the number of trained teachers and reduce the T/P ratio from 1:62 at present to 1:45 by the year 2005 (MoE 1999). Given the present conditions, this is an ambitious one. In the mean time, the temporary teachers (TTs) recruited to service the flood of pupils into the system, face enormous challenges - from extremely overcrowded classes and lack of teaching materials to difficulties with

the curriculum (Kunje and Stuart 1996). In their preliminary conclusion, Kunje and Lewin (1999: 39) observed that the college curriculum of the temporary teachers upgrading course did not fully recognise the conditions under which many untrained teachers were working.

The main problem with MIITEP appeared to be the fact that the school-based component of the program lacked the necessary support for effective implementation. As a result, most of the components (e.g. seminars, school-based supervisions, and manuals) were not in place. Further, many trainees reported (Chimombo 1999) that they often had to leave their classes to attend to bureaucratic issues, the most common being delayed or unpaid salaries. Thus the teacher training programs under the FPE reform have not been able to focus on in-depth professional development of the trainees. The main challenge is how to provide an appropriate high standard of training in what is normally a relatively short period of training time and with limited resources. 'The issue is not simply one of what teachers should teach, but also how they should teach in order to foster effective learning' (Sylva et al. 1995:34). Further, it seems imperative that as Malawi struggles with problems of providing EFA, a decision is needed regarding the mode and type of teacher training program that is to be followed in addition to ensuring that trained teachers are equitably distributed among schools, districts and divisions.

A Review of Education Development Policies

The post-independence era needed an education system that could afford to accommodate the new aspirations of an independent state. These new aspirations included an expanded primary school system, a larger secondary and tertiary education sector, as well as some vocational education for producing the much-needed skilled manpower to replace the departing expatriates. Other aspirations were those of nationhood, national cohesion and group solidarity in addition to the production of middle and top-level management personnel to develop and manage the national economy.

This first education development plan (1973-1980) provided only rather limited guidelines for educational development, since it did not cover all levels of the formal

education system. During the mid-1980s, there was some evidence that the first education plan did not help the education personnel to establish and run an efficient and qualitative system of education. The reasons were not clear because there was no deliberate attempt to evaluate the plan at the end of its life. It is believed (Kuthemba Mwale 1998) that the plan started with flaws. The second education plan 1985-95 (EDPII) began to shift the emphasis away from post-secondary education in favour of primary education. It sought to improve access, quality and efficiency, particularly at the primary school level. Thus, despite the UNESCO conferences of the early 1960s and beyond, it was not until this second education plan that UPE came into the minds of education policy makers in Malawi.

FPE policy emerged at a time when the government was putting in place a Policy Investment Framework (PIF 2000-2012) (MoE, 1995). The PIF is a document that defines the Government of Malawi's policies and outlines the Ministry of Education Science and Technology (MOEST) priority programs for the next 12 years. The PIF is based on a comprehensive analysis of the education sector in Malawi. It is the Ministry of Education's response to the Government of Malawi's policy of poverty alleviation and addresses the national educational goal as spelt out in Vision 2020. It realizes that an educated populace can best exploit Malawi's rich natural resources' base and that an educated populace is fully able to participate in a democratic society, is full aware of its cultural heritage and the need to further develop it's culture. The PIF also appreciates the fact that Malawi's education system cannot contribute significantly to the alleviation of poverty unless the main constraints facing the education system are addressed. The major challenges in basic education can be identified to be: limited and unequal access to educational opportunities, declining educational quality, a school curriculum which does not effectively address individual and social needs, poor planning and management capacity and inadequate financing. Although significant policy changes have been made in the past decades, they were in most cases partial and aimed at redressing problems inherited from the past and rarely did they seek to address the educational challenges of the future. The PIF outlines the key policy changes in basic education as follows:

- Basic education is to be expanded beyond the provision of primary education to embrace pre-school provision, adult education and literacy as well as school health and nutrition.
- Decentralisation will devolve responsibility for primary education to the district assemblies
- The share of the education budget devoted to primary education shall increase from 62% to at least 65%.
- Dropout and repetition rates will be reduced through a combination of advocacy and structural change.
- Primary schools are to become full community primary schools through increasing the autonomy of school management committees.
- A national assessment system will be established to determine minimum-learning requirements at all levels.

It can be observed that the PIF underlines the importance of paying the greatest attention to the basic education sub-sector. This is in keeping with Article 28 of the UN convention of the human rights of the child which guarantees the right of the child to a basic education of minimum quality to which Malawi is a signatory. However, the achievement of the goals set forth in the PIF requires a challenging program of reforms at all levels. And this challenge requires an increasing level of both financial and human resources to overcome current conditions and resource shortages. To provide the quality implied by the policy and standards in the PIF, will require, over time, at least a doubling of current per/pupil expenditures. While the PIF wholly subscribes to the philosophy of the medium term expenditure framework (MTEF), it is difficult to see how the objectives set forth in the PIF can be achieved within this philosophy. The level of funding for the PIF policies will always be constrained by the financial ceilings set by the MTEF. Further, as the ministry and donors strive for the building of the capacity of the ministry personnel, the ministry need not be reminded that these efforts are not new and that the main constraint in capacity building in MOESC is the ministry's inability to train and retain its personnel within the education sector and indeed in the planning unit of the MOESC in particular.

The perceived importance of SACMEQ

Until the time of SACMEQ 1, the only indicator of the achievement of pupils was from the Grade 8 PSLCE. One problem was that these data were rarely analysed to examine either the differences in achievement between the educational administrative regions in the country between different points in time. Thus, there were no skill-based performance standards for the primary cycle. From Standard 1 to 7, assessment is school-based. This creates much scope for arbitrary assessment. All grade repetitions, as reported by schools, are not based on some standardized criteria-referenced academic performance but rather they reflect performance in relation to school-level norms, which in turn reflect the teachers' attitude towards the type of tests set, and their judgments in giving marks. Given the overall lack of orientation to the profession, these can be very varied indeed. This means then that the SACMEQ 1 results in terms of policy suggestions for action proved to be very useful to the Ministry of Education and Culture. These policy suggestions were not only to do with the Grade 6 achievement in Reading Literacy but also with actions required in order to improve the conditions of learning in the schools. The Ministry was therefore more than pleased to participate in SACMEQ II because it would provide further information on the conditions of schooling and also measure achievement in Reading Literacy and Mathematics. It would also allow a measure of the change, if any, in achievement levels in the various regions since the time of SACMEQ I. The Ministry's interest in undertaking SACMEQ II data collection was to examine if there were changes in the overall provision to schools, and whether Standard 6 pupils were achieving any better.

The structure of the report

The rest of this report is devoted to supplying information from the SACMEQ study. In Chapter 2 the conduct of the study has been summarized. This involves the establishment of the policy research questions, the development of the instruments and the subsequent scaling procedures, the population tested, the sampling procedures used and the calculation of sampling errors, the data collection, the data entry and the cleaning and weighting of the data.

Data on the pupils and their home backgrounds have been reported in Chapter 3. Information on the teachers' characteristics and their viewpoints on teaching, classroom resources, professional support, and job satisfaction and schools have been given in Chapter 4. School headteachers' characteristics and their viewpoints on educational infrastructure, the organization and operation of the schools, and problems with pupils and staff are presented in Chapter 5. In Chapter 6, the results of the analysis of the equitable allocation of educational inputs to regions and also to schools within regions have been given. The achievement results of both pupils and teachers in reading and mathematics 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.

Conclusion

This chapter has provided a nuanced understanding of problems of school participation in Malawi. Together with chapters three, four and five, it is intended to set the scene for a better understanding of the results of the Standard six study that has been reported in ensuing chapters. Policy interventions will not be meaningful if they are not based on a proper understanding of why and how things happen. There is considerable evidence elsewhere that problems of schooling are mirrored in the social, and economic settings in which the school operates.

The Malawi education system more or less mirrors its economic structure. A large proportion of the population receives little formal education, while a small group of people benefit from the education system. While the situation has been aggravated by internal and external shocks that have weakened economic growth and retarded social progress, thus retarding system growth, the introduction of Free Primary Education in 1994 seem to have worsen the situation. Consequently, the quality of the education being offered has greatly deteriorated.

Chapter 2

The Conduct of the Sacmeq II Project¹

Introduction

There has been a worldwide growth of interest in the application of large-scale scientific survey research techniques to the study of issues related to improving the quality of education. Many developed countries are now applying these techniques to undertake systematic studies of the conditions of schooling and of student achievement levels. In developing countries there have been increased efforts to provide training for educational planners in the technical skills that are required to conduct these kinds of policy research studies.

In 1991 the International Institute for Educational Planning (IIEP) and a number of Ministries of Education in Southern and Eastern Africa began to work together in order to address training and research needs in this area. The focus for this work was on establishing long-term strategies for building the capacity of educational planners to monitor and evaluate the quality of their basic education systems.

In 1993 a proposal was prepared by a group of educational planners (Moyo et al., 1993) that aimed to extend the reach and formal status of this work by creating an association known as the Southern Africa Consortium for Monitoring Educational Quality (SACMEQ). The proposal received a positive reaction from Ministries of Education, and in 1995 SACMEQ was officially launched with the generous assistance of the Governments of Italy and the Netherlands. Fifteen Ministries of Education are now members of SACMEQ: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia, and Zimbabwe. The IIEP was invited to become a member of the consortium in 1997.

¹ This chapter for Malawi was adopted from Kenneth N. Ross, Mioko Saito, Stephanie Dolata, Miyako Ikeda, Linda Zuze, Saul Murimba, T. Neville Postlethwaite, and Patrick Griffin

SACMEQ's main mission is to undertake integrated research and training activities that will: (a) expand opportunities for educational planners to gain the technical skills required to monitor and evaluate the general conditions of schooling and the quality of basic education, and (b) generate information that can be used by decision-makers to plan improvements in their education systems.

The SACMEQ consortium has enabled educational researchers and planners to develop important technical skills related to the design and implementation of large-scale data collection, and to the application of a wide variety of computer-based techniques for the preparation, management, analysis, and reporting of educational planning data. SACMEQ's research programme has resulted in the preparation of research reports that have contributed towards the conduct of informed debates concerned with: equity in the allocation of human and material resources among regions and schools, and literacy and numeracy levels for important sub-groups of pupils defined by gender, socio-economic background, and geographic location.

The first two educational policy research projects undertaken by SACMEQ (widely known as "SACMEQ I" and "SACMEQ II") were designed to provide detailed information that could be used to guide planning decisions aimed at improving the quality of education in primary school systems. During 1995-1998 seven Ministries of Education participated in the SACMEQ I Project and the results of this research were reported in a series of national policy reports (Kulpoo, 1998; Machingaidze et al, 1998; Milner et al, 2001; Nassor and Ali Mohammed, 1998; Nkamba and Kanyika, 1998; Nzomo et al, 2001; Voigts, 1998). Technical information about the sampling, instrument construction, and field work for the SACMEQ I Project may be found in these reports.

The SACMEQ II Project commenced in 1998 and has involved 15 Ministries of Education. Moving from the SACMEQ I Project (covering around 1100 schools and 20,000 pupils) to the SACMEQ II Project (covering around 2500 schools and 45,000 pupils) resulted in a major increase in the scale and complexity of SACMEQ's research

and training programmes. The main purpose of this chapter was to provide a detailed account of the key technical procedures that were involved in the design and implementation of the SACMEQ II Project. The chapter has been presented three main parts: the pre-planning and initial planning, sample design procedures and the construction of tests for the SACMEQ II Project

The Fourteen Main Phases of the SACMEQ II Project

Phase 1: “Pre-Planning” for the SACMEQ II Project

One of the distinguishing features of the SACMEQ projects has been that their research results have been widely used for policy and planning purposes. This successful outcome has occurred because SACMEQ research reports were designed from the very beginning to address the high-priority policy concerns of decision-makers in Ministries of Education. This was achieved via a three-step “pre-planning” process (described below for the SACMEQ II Project) that was completed before work commenced on the overall design and implementation of the research.

Step 1: The SACMEQ II Project commenced by engaging senior decision-makers in Ministries of Education (for example, Ministers, Permanent Secretaries, Heads of Divisions, and Regional Directors) in discussions on high-priority policy concerns associated with their education systems. The SACMEQ National Research Coordinators (NRCs) structured these discussions by asking the decision-makers to identify the main areas where the Ministry needed to review, refine, change, monitor, and/or develop policies that had relevance for the general conditions of schooling and the quality of education. The decision-makers’ responses were then analyzed in order to identify groups of **”General Policy Concerns”** that were subsequently used as a foundation for guiding the research design.

For example, decision-makers in most SACMEQ countries were concerned about policy issues linked with: (a) equity in the gender balance and home background profiles of Grade 6 pupils, and (b) the magnitude of the age range of Grade 6 pupils and its

implications for teaching and learning. The NRCs summarized these and similar concerns in the form of a single question: “What are the personal characteristics (for example, age and gender) and home background characteristics (for example, books at home and parent education) of Grade 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?” This question represented the first General Policy Concern developed by the NRCs for the SACMEQ II Project.

A total of 20 General Policy Concerns were prepared for the SACMEQ II Project. These have been grouped in Figure 2.1 under five “themes” concerned with: pupils’ characteristics and learning environments, teachers’ characteristics and viewpoints, school heads’ characteristics and viewpoints, equity in the allocation of human and material resources, and the reading and mathematics achievement levels of pupils and their teachers.

Step 2: The NRCs linked each of the 20 SACMEQ II General Policy Concerns to a set of “**Specific Research Questions**” that provided precise guidance concerning the information that was required in order to respond to the General Policy Concerns. That is, the Specific Research Questions were used to decide exactly what should be included in, or excluded from, the data collection instruments. For example, three of the Specific Research Questions linked to the first General Policy Concern were: “What is the age distribution of pupils?” “What is the gender distribution of pupils” and “What is the level of parents’ education?” These questions implied that the pupil questionnaire should collect information about pupil age, gender, and the educational level of pupils’ parents.

Figure 2.1:SACMEQ II: General Policy Concerns of Ministry Decision-Makers

Theme A: Pupils' Characteristics and Their Learning Environments

General Policy Concern 1: What were the personal characteristics (for example, age and gender) and home background characteristics (for example, parent education, regularity of meals, home language, etc.) of Grade 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?

General Policy Concern 2: What were the school context factors experienced by Grade 6 pupils (such as location, absenteeism (regularity and reasons), grade repetition, and homework (frequency, amount, correction, and family involvement)) that might impact upon teaching/learning and the general functioning of schools?

General Policy Concern 3: Did Grade 6 pupils have sufficient access to classroom materials (for example, textbooks, readers, and stationery) in order to participate fully in their lessons?

General Policy Concern 4: Did Grade 6 pupils have access to library books within their schools, and (if they did have access) was the use of these books being maximized by allowing pupils to take them home to read?

General Policy Concern 5: Has the practice of Grade 6 pupils receiving extra lessons in school subjects outside school hours become widespread, and have these been paid lessons?

Theme B: Teachers' Characteristics and their Viewpoints on Teaching, Classroom Resources, Professional Support, and Job Satisfaction

General Policy Concern 6: What were the personal characteristics of Grade 6 teachers (for example, age, gender, and socio-economic level), and what was the condition of their housing?

General Policy Concern 7: What were the professional characteristics of Grade 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?

General Policy Concern 8: How did Grade 6 teachers allocate their time among responsibilities concerned with teaching, preparing lessons, and marking?

General Policy Concern 9: What were Grade 6 teachers' viewpoints on (a) pupil activities within the classroom (for example, reading aloud, pronouncing, etc.), (b) teaching goals (for example, making learning enjoyable, word attack skills, etc.), (c) teaching approaches/strategies (for example, questioning, whole class teaching, etc.), (d) assessment procedures, and (e) meeting and communicating with parents?

Figure 2.1 (Ctd): SACMEQ II: General Policy Concerns of Ministry Decision-Makers

General Policy Concern 10: 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 Grade 6 classrooms?

General Policy Concern 11: What professional support (in terms of education resource centres, inspections, advisory visits, and school head inputs) was given to Grade 6 teachers?

General Policy Concern 12: What factors had most impact upon teacher job satisfaction?

Theme C: School Heads' Characteristics and their Viewpoints
on Educational Infrastructure, the Organization and Operation of Schools,
and Problems with Pupils and Staff

General Policy Concern 13: What were the personal characteristics of school heads (for example, age and gender)?

General Policy Concern 14: What were the professional characteristics of school heads (in terms of academic, professional, experience, and specialized training)?

General Policy Concern 15: 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?

General Policy Concern 16: 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)?

Theme D: Equity in the Allocation of Human and Material Resources
Among Regions and Among Schools Within Regions

General Policy Concern 17: Have human resources (for example, qualified and experienced teachers and school heads) been allocated in an equitable fashion among regions and among schools within regions?

Figure 2.1 (Ctd): SACMEQ II: General Policy Concerns of Ministry Decision-Makers

General Policy Concern 18: Have material resources (for example, classroom teaching materials and school facilities) been allocated in an equitable fashion among regions and among schools within regions?

Theme E: The Reading and Mathematics Achievement Levels of Pupils and Their Teachers

General Policy Concern 19: What were the levels (according to descriptive levels of competence) and variations (among schools and regions) in the achievement levels of Grade 6 pupils and their teachers in reading and mathematics – for my country and for all other SACMEQ countries?

General Policy Concern 20: 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)?

Step 3: The NRCs used the SACMEQ II Specific Research Questions to design “Dummy Tables” – which were blank (or empty) data tabulation templates that employed the variables and information layouts that would be used in the final SACMEQ II national policy reports.

The main advantages of producing Dummy Tables were that this process forced the NRCs to (a) check that the data collection instruments covered all information needs, (b) ensure close linkages between the specific research questions and the questions on the data collection instruments, (c) reach agreement on the selection of variables and the types of data analyses to be applied, and (c) design and justify the data tabulation templates to be used in reporting the data analyses.

In Figure 2.2 an example of moving through the above three steps has been presented – starting with the first General Policy Concern developed for the SACMEQ II Project, then moving to a set of Specific Research Questions, and finally arriving at a suitable Dummy Table. The table shown in Figure 2.2 only covers information related to the six Specific Research Questions that have been presented in bold type. A different table was developed for the other six Specific Research Questions.

General Policy Concern 1

What were the personal characteristics (for example, age and gender) and home background characteristics (for example, parent education, regularity of meals, home language, etc.) of Grade 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?



Specific Research Questions

What was the age distribution of pupils?

What was the gender distribution of pupils?

How regularly did pupils eat meals?

How far did pupils travel to school?

What percentage of pupils spoke the language of the test at home?

What was the level of the parents' education?

What support did pupils get at home regarding homework and interest in schoolwork?

Did teachers ask parents to sign that homework assignments have been completed?

Where did pupils live during school days, i.e., when school is on?

How many books were there in pupils' homes?

What access to reading materials and electronic media did pupils have in their homes?

What was the socio-economic status of pupils' parents?



First Dummy Table for General Policy Concern 1

Variable Names for SACMEQ I = XPAGEMON, XPSEX, XPBOOKSH, XPTOTP, XPREGME, XPFAMOED.

Variable Names for SACMEQ II = ZPAGEMON, ZPSEX, ZPBOOKSH, ZPTOTP, ZPREGME, ZPFAMOED.

Figure 2.2: An Example of Transforming a General Policy Question into Twelve Specific Research Questions and One (of Two) Dummy Tables

Dummy Table : Grade 6 Pupil Age, Gender, and Home Background Characteristics

Division	Age (months)		Gender (pupils)		Books at Home (books)		<i>Possessions at Home</i> (index)		Meals (index)		Parent Education (index)	
	Mean	SE	%	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Division 1												
Division 2												
Division 3												
Division 4												
Division 5												
Division 6												
<u>Nation</u>												

The upper section of the Dummy Table in Figure 2.2 was used to name the variables (for example Age, Gender, Books at Home, etc.) and also to provide guidance as to whether the variables were to be based on a single question in the data collection instruments (which was the case for the first three variables), or whether the variables were to be derived from two or more questions to form an “index” (which was the case for the second three variables). In this example, the information in the Dummy Table has been broken down by administrative regions - which was a popular approach because most SACMEQ school systems operated on the basis of some form of regional administration.

Each variable in the table was linked with “statistics” and “units”. For example, the Age variable was expressed as a mean and the units were months, the Gender variable was expressed as a percentage and the units were pupils, and Books in the Home was expressed as a mean and the units were books. The statistics for the final three variables were “indices” and therefore the units depended on the procedures used in their construction. Some indices, such as “Possessions at Home”, were based on a simple count generated from a checklist of possessions, and therefore this index referred to the counted number of possessions. However, other indices (in other tables) were constructed using principal components analysis, and this resulted in “standardized” units of measurement.

The computer-stored names of each variable were listed in the base of each Dummy Table. It was important to include these so that the person responsible for data processing knew exactly which variables to use in the analyses. In the Dummy Table presented in Figure 2.2 the computer-stored variable names have been given for both SACMEQ Projects – indicating that this table needed to be completed twice for the countries that participated in both projects.

In Appendix 1 the SACMEQ II General Policy Concerns have been listed in association with Specific Research Questions. This list has also included the sequence numbers of the Dummy Tables prepared using either SACMEQ I or SACMEQ II data, and the relevant question numbers in the data collection instruments that were used to collect the required

information. The 20 General Policy Concerns were associated with 75 Specific Research Questions, and these were linked to around 150 Dummy Tables.

For example, the first Specific Research Question for the first General Policy Concern was: “What was the age distribution of pupils? From the first page of Appendix 1 it may be seen that this information was to be entered into Dummy Tables 3.1(a) and 3.1(b) for the SACMEQ I and SACMEQ II Projects, respectively. The source question for this information was the second question on the pupil questionnaires for both the SACMEQ I Project (SI: P2) and the SACMEQ II Project (SII: P2).

Phase 2: Moving From Pre-Planning to Instrument Construction

A meeting of National Research Coordinators (NRCs) was held in Durban, South Africa during April 1998 in order to use the Dummy Tables produced during the “Pre-Planning” phase of the SACMEQ II Project to guide the construction of data collection instruments. Three experienced South African teachers also attended the meeting in order to participate in sessions concerned with an analysis of the structure, sequence, and content of curricula across countries. The first major decision taken at the meeting was that the data collection for the SACMEQ II Project should be expanded beyond the SACMEQ I Project to include an assessment of both reading and mathematics performance levels for both pupils and teachers.

The meeting operated as two parallel working groups that focused on test and questionnaire construction. The test construction group completed a comprehensive analysis of the official curricula, school syllabi, textbooks, and examinations that were used in SACMEQ countries. This analysis was used to construct test blueprints as frameworks for writing a large pool of test items for pupils and teachers in both reading and mathematics. The questionnaire group concentrated on using the Dummy Tables to guide the construction of questionnaires for pupils, teachers, and school heads.

By the end of the meeting the following data collection instruments had been drafted: Pupil Reading and Mathematics Tests, Pupil Questionnaire, Teacher Reading and

Mathematics Tests, Teacher Questionnaire, and School Head Questionnaire. In addition draft manuals had been prepared for the NRCs and data collectors.

During the meeting the NRCs were invited to make a presentation to a UNESCO meeting of African Ministers of Education that was being held in Durban at the same time. They also attended a special meeting for SACMEQ Ministers of Education in order to discuss the policy impact of SACMEQ research, and to launch the first five SACMEQ I national reports. These events enabled Ministers to gain a much clearer picture of how the SACMEQ research programme could be used for the preparation of policies aimed at improving the quality of education.

After the Durban meeting, work proceeded at the IIEP and within the SACMEQ countries to finalize the overall SACMEQ II Project research design and to complete “try-out” versions of data collection instruments and manuals. These materials were circulated among the NRCs via the Internet and, on the basis of further NRC inputs, edited and then re-circulated for further comment and improvement.

Phase 3: “Small-Scale Trial Testing” of Instruments and Manuals

When the first drafts of the SACMEQ II data collection instruments and manuals had been completed it was agreed to hold a combined planning and training meeting for NRCs and their Deputies in Harare, Zimbabwe during February 1999.

The main purpose of the meeting was to undertake a small-scale “try-out” of the draft data collection materials. To achieve this, a field test was conducted in 10 schools located in a variety of social and geographic situations within a 50 km radius of Harare. The data gathered during this exercise were entered into computers by the NRCs, and then analysed to provide information about the quality of the data collection instruments and the field procedures. On the basis of these analyses further improvements were made to the tests, questionnaires, and manuals.

An important benefit of the “try-out” exercise was that the NRCs were required to act as both data collectors and data entry staff. This gave them first hand experience of the complexities of these two tasks, and also provided them with a sound foundation for training their own research teams for the trial testing and the main data collection.

In the period March to May 1999, the data collection materials tested at the Harare meeting were shared and edited via the Internet. IIEP staff coordinated this "virtual workgroup" approach and arranged inputs from external consultants.

Phase 4: “Large-Scale Trial Testing” of Instruments and Manuals

The “large-scale trial test” versions of the SACMEQ II data collection instruments were distributed in electronic format via the Internet in June 1999. Paper copies were also distributed to several countries because some NRCs had experienced difficulties with downloading documents in a manner that preserved the integrity of graphical figures and special fonts contained within the tests and questionnaires.

Each NRC was provided with specialized software that could be used to transform the trial test data into computer-readable files. In Lesotho, Malawi, and Swaziland difficulties were experienced in loading and using this software on Ministry of Education computers. An IIEP staff member visited these countries during September 1999 in order to reconfigure the software so that it would operate properly on the available computers. During these visits the NRCs and other Ministry staff were provided with training in computer-based data entry and data cleaning techniques.

The trial testing of the data collection instruments and manuals took place during August-September 1999. The sample used consisted of more than 400 schools and 8000 pupils. During September 1999 these data were entered into computers under the supervision of NRCs and then transmitted via the Internet to the IIEP where they were checked and merged into a single database. At the IIEP a number of validity checks were undertaken on the data, and any errors and/or omissions that emerged were corrected and/or clarified by email communication with the NRCs.

Phase 5: Finalization of Instruments and Manuals for the Main Data Collection

A meeting of SACMEQ II NRCs and their Deputies was held at the IIEP in October 1999 in order to analyze the trial test data. This meeting was held at the same time as the biennial meeting of the SACMEQ Assembly of Ministers, and the NRCs took advantage of this coincidence by presenting a "Policy Forum" for the Ministers.

The meeting concentrated on analyzing the trial test data that had been collected on reading and mathematics performance from pupils and their teachers. The aim was to select the best possible sets of test items for the main data collection by reducing the two forms of the trial tests for pupils and teachers to single forms.

At the close of the meeting another "virtual workgroup" was established in order to use the Internet during the period October 1999 to May 2000 to finalize the preparation of tests, questionnaires, and manuals. The IIEP agreed to prepare final forms of the data collection instruments and to distribute these in "camera-ready" electronic and paper formats that would be suitable for immediate printing.

The preparation of the final forms of the data collection instruments and manuals proved to be a massive task because of the different notations used in different countries. For example, changes were made in order to address the use of: (a) a comma or a full stop for decimals, (b) a comma, a full stop, or a space for "separating" digits in numbers greater than or equal to 1000, (c) different currency units, (d) different nomenclature for grade levels, (e) different methods for expressing dates, and (f) 12 hour or 24 hour clocks for time. Since no two countries used exactly the same conventions for items (a) to (f), it was necessary to prepare a unique set of data collection instruments and manuals for each country.

An extra complexity for several countries at this stage was the need to translate the SACMEQ II tests, questionnaires, and manuals into local languages. Mozambique translated the materials into Portuguese, while Tanzania and Zanzibar translated the materials into Kiswahili. In order to ensure high quality translations for the reading and

mathematics tests, each item was translated into the local language and then back translated. The back translations were compared with the original (English) versions of the tests in order to check for omissions, additions, unwanted changes in meaning, or other problems.

Phase 6: Sample Design, Sample Selection, and Sample Evaluation

The Specification of the Target Population

The target population for both the SACMEQ I and SACMEQ II Projects was focused on the Grade 6 level for three main reasons.

First, Grade 6 identified a point near the end of primary schooling where school participation rates were reasonably high for most of the seven countries that participated in the SACMEQ I data collection during 1995-1998, and also reasonably high for most of the fourteen countries that participated in the SACMEQ II collection during 2000-2002. For this reason, Grade 6 represented a point that was suitable for making an assessment of the contribution of primary schooling towards the literacy and numeracy levels of a broad cross-section of society.

Second, the NRCs considered that testing pupils at grade levels lower than Grade 6 was problematic – because in some SACMEQ countries the lower grades were too close to the transition point between the use of local and national languages by teachers in the classroom. This transition point generally occurred at around Grade 3 level – but in some rural areas of some countries it was thought to be as high as Grade 4 level.

Third, the NRCs were of the opinion that the collection of home background information from pupils at grade levels lower than Grade 6 was likely to lack validity for certain key “explanatory” variables. For example, the NRCs felt that children at lower grade levels did not know how many years of education that their parents had received, and they also had difficulty in accurately describing the socioeconomic environment of their own homes (for example, the number of books at home).

Desired Target Population

The desired target population definition for the SACMEQ II Project was exactly the same (except for the year) as was employed for the SACMEQ I Project. This consistency was maintained in order to be able to make valid cross-national and cross-time estimates of “change” in the conditions of schooling and the quality of education.

The desired target population definition for the SACMEQ II Project for Malawi was as follows.

“All pupils at Grade 6 level in 2002 (at the first week of the eighth month of the school year) who were attending registered mainstream primary schools.”

Excluded and Defined Target Populations

The use of the word “mainstream” in the definition of the desired target population automatically indicated that special schools for the handicapped should be excluded from the SACMEQ II data collection.

In addition, a decision was taken to exclude small schools – based on the definition of having less than either 15 or 20 pupils in the desired target population. Small schools were excluded because it was known that they represented a very small component of the total population of pupils, and were known to be mostly located in very isolated areas that were associated with high data collections costs. That is, it was understood that the allocation of these small schools to the excluded population had the potential to reduce data collection costs – without the risk of leading to major distortions in the study population.

The exclusion rules that were applied in Malawi was as listed below.

Schools with fewer than 15 Grade 6 pupils, private schools, special schools, and “inaccessible” schools.

The “defined target population” was constructed by removing the “excluded target population” from the “desired target population”. The excluded population for Malawi has been presented in Table 2.3. In Table 2.4 the numbers of schools and pupils in the desired, defined and excluded populations for the SACMEQ II Project have been presented.

Table 2.3: Desired, Defined, and Excluded Populations for the SACMEQ II Project

School System	Desired		Defined		Excluded		
	Schools	Pupils	Schools	Pupils	Schools	Pupils	Pupils %
Malawi	3663	219945	3368	212046	295	7899	3.6

The final column of figures in Table 2.4 summarized the percentages of the SACMEQ II pupil desired target population in each country that had been excluded in order to form the defined target population. This was less than 5 percent - which satisfied the technical requirements that had been set down for the SACMEQ sampling procedures.

Table 2.4: The desired, defined and excluded of Grade 6 population for the SACMEQ II project.

Country	Desired		Defined		Excluded			
	Schools	Pupils	Schools	Pupils	Schools	Pupils		
	No.	No.	No.	No.	No.	%	No.	%
Botswana	720	41408	589	39773	131	18%	1635	4%
Kenya	15439	631544	13313	607900	2126	14%	23644	4%
Lesotho	1170	40493	947	39212	223	19%	1281	3%
Malawi	3663	219945	3368	212046	295	8%	7899	4%
Mauritius	277	26510	274	26481	3	1%	29	0%
Mozambique	509	112279	500	112173	9	2%	106	0%
Namibia	849	48567	767	47683	82	10%	884	2%
Seychelles	25	1577	24	1571	1	4%	6	0%
South Africa	17073	962350	11997	920020	5076	30%	42330	4%
Swaziland	498	19940	458	19541	40	8%	399	2%
Tanzania (Mainland)	10786	529296	9516	511354	1270	12%	17942	3%
Tanzania (Zanzibar)	161	22179	151	22041	10	6%	138	1%
Uganda	9688	517861	8425	499127	1263	13%	18734	4%
Zambia	3858	180584	3090	176336	768	20%	4248	2%
SACMEQ-II	64716	3354533	53419	3235258	11297	17%	119275	4%

In order to establish the number of schools and pupils that were required to satisfy SACMEQ's sampling accuracy standards, it was necessary to know the magnitude of (a) the minimum cluster size, and (b) the coefficient of intraclass correlation.

Minimum Cluster Size

The value of the minimum cluster size referred to the smallest number of pupils within a school that would be included in the data collection. It was important that this was set at a level that permitted test administration within schools to be carried out in an environment that ensured that: (i) the test administrator was able to conduct the testing according to the standardized procedures specified for the study, (ii) the sample members were comfortable and unlikely to be distracted, (iii) the sample members responded carefully and independently to the tests and questionnaires, and (iv) the testing did not place an excessive administrative burden on schools.

After a consideration of these four constraints the SACMEQ National Research Coordinators decided to limit the sample in each selected school to a simple random sample of 20 pupils.

Coefficient of Intraclass Correlation

The coefficient of intraclass correlation (ρ) referred to a measure of the tendency of pupil characteristics to be more homogeneous within schools than would be the case if pupils were assigned to schools at random. The estimated size of ρ may be calculated from previous surveys that have employed similar target populations, similar sample designs, and similar criterion variables.

The values of ρ for educational achievement measures are usually higher for education systems where pupils are allocated differentially to schools on the basis of performance – either administratively through some form of “streaming”, or structurally through socio-economic differentiation among school catchment zones. In general terms, a relatively large value of ρ means that, for a fixed total number of sample members (pupils in this study), a larger number of primary sampling units (schools in this study) needs to be selected in order to obtain the same sampling precision as would be obtained for a relatively lower value of

rho. That is, higher values of rho normally require larger numbers of schools to be selected into the sample.

Following a consideration of the results of the SACMEQ I Project, it was decided to use rho value of 0.3 for Malawi as an estimate of the value of the coefficient of intraclass correlation for

The Selection of Schools

In educational survey research the primary sampling units that are most often employed (schools) are rarely equal in size. This variation in size causes difficulties with respect to the control of the total sample size when schools are selected with equal probability at the first stage of a multi-stage sample design.

One method of obtaining greater control over the total sample size is to stratify the schools according to size and then select samples of schools within each stratum. A more widely applied alternative is to employ probability proportional to size (PPS) sampling of schools within strata followed by the selection of a simple random sample of a fixed number of pupils within selected schools. This approach provides control over the sample size and results in epsem sampling of pupils within strata.

The Selection of Pupils within Schools

A critical component of the sample design for the SACMEQ II Project was concerned with the selection of pupils within selected schools. It was decided that these selections should be placed under the control of trained data collectors – after they were provided with materials that would ensure that a simple random sample of pupils was selected in each selected school. The data collectors were informed that it was not acceptable to permit school principals or classroom teachers to have any influence over the sampling procedures within schools. These groups of people may have had a vested interest in selecting particular kinds of pupils, and this may have resulted in major distortions of sample estimates (Brickell, 1974).

In the two SACMEQ Projects the data collectors initially explained to School Heads in selected schools that a “mechanical procedure” would be used to select the sample of 20

pupils. The data collectors then applied the following set of instructions in order to ensure that a simple random sample of pupils was selected.

Step 1: Obtain Grade 6 register(s) of attendance.

These registers were obtained for all Grade 6 pupils that attended normal (not “special”) classes. In multiple session schools, both morning and afternoon registers were obtained.

Step 2: Assign sequential numbers to all Grade 6 pupils.

A sequential number was then placed beside the name of each Grade 6 pupil. For example: Consider a school with one session and a total of 48 pupils in Grade 6. Commence by placing the number “1” beside the first pupil on the Register; than place the number “2” beside the second pupil on the Register; ...etc. ...; finally, place the number “48” beside the last pupil on the Register.

Step 3: Locate the appropriate set of selection numbers.

In a school of 48 pupils in Grade 6, then the appropriate set of selection numbers was listed under the “R48” heading. Similarly, if a school had 90 Grade 6 pupils then the appropriate set of selection numbers was listed under the “R90” heading.

Step 4: Use the appropriate set of selection numbers.

After locating the appropriate set of selection numbers, these were used to select the sample of 20 pupils. The first selection number was used to locate the Grade 6 pupil with the same sequential number on the Register(s). The second selection number was used to locate the Grade 6 pupil with the same sequential number on the Register(s). This process was repeated in order to select 20 pupils. In Table 2.5, the planned and achieved samples for both SACMEQ studies have displayed.

Table 2.5: Planned and Achieved Samples for SACMEQ I and SACMEQ II Projects

School System	SACMEQ I				SACMEQ II			
	Schools		Pupils		Schools		Pupils	
	Planned	Achieved	Planned	Achieved	Planned	Achieved	Planned	Achieved
Malawi	155	148	3100	1983	140	140	2800	2333

In order to obtain the “revised weights”, the revised raising factor may be multiplied by a constant equal to the achieved total sample size divided by the sum of the values of the revised raising factor across all pupils in the achieved sample.

In the SACMEQ Projects the revised weights were referred to as “pweight2” on the data files. The raising factor linked to this sampling weight, labelled RF2 on the data file, provided a mechanism for estimating population totals for different important independent variables. For example, by using RF2 it was possible to make estimates such as the total numbers of pupils in the defined target population who were attending isolated, rural, and urban schools; or the total number of pupils in the defined target population who had their own reader, were sharing a reader, or were without a reader.

Phase 7: Preparations for Computer-Based Entry of Data

After the completion of the SACMEQ II data collection instruments and manuals, work commenced on the preparation of data entry structure files for the full data collection. These computer files provided a complete specification of the nature of the data that were to be entered into computers. Separate structure files were prepared for each country as follows: four tests (pupil and teacher reading and mathematics tests), three questionnaires (pupil, teacher, and school head), and two “tracking forms” (used to gather supplementary data about sample schools and sample pupils).

The SACMEQ II structure files were tested extensively throughout August-September 2000 so as to make sure that they contained the correct specifications for linking each variable with specific questionnaire and test items. This process included the specification of valid ranges for each variable so that “wild-codes” (that is, variable values that fall outside realistic ranges) could be intercepted as part of the on-going process of data entry.

Separate sets of structure files had to be prepared for each country – even though the same data collection instruments were employed in all countries. This occurred because each country had its own specific valid code ranges, and because some teacher

information used for the identification of subject specialists and classes was country-specific.

The validated structure files and copies of the WINDEM data entry and data cleaning software were sent to NRCs during September 2000. These materials were accompanied by instructions on how to load the software and how to access the structure files. Where problems were encountered, the IIEP provided tutorial support via the Internet. By early October 2000 the NRCs had installed and tested all of these materials.

When the WINDEM software and associated structure files were fully operational, each NRC selected and trained a data entry team. This training was provided “on the job” whereby the data enterers were given completed data collection instruments to enter into computers. After the data entry assistants had completed entering data for the first 100 pupils, their work was checked and discussed during a group meeting so as to clarify all instructions and to ensure that everybody was working carefully and accurately. At regular intervals, similar pauses were made in the data entry work in order to monitor progress and to ensure that standards of work were kept at the highest possible level. If a data entry assistant submitted poor quality work then that person was given extra training or, in occasional cases, was removed from the data entry team.

Phase 8: Preparations for the Main Data Collection

For the main SACMEQ II data collections each NRC was required to organize at least three days of intensive training for the data collectors. This was conducted for most SACMEQ countries in the period July-September 2000 – just prior to the commencement of the main data collection.

Between 15 and 50 data collectors were trained in most countries. On the first day of training the NRC presented a “simulated” data collection exercise in which he/she acted as a data collector and the trainees took the roles of pupils, teachers, and school heads. The second day involved an intensive study of the Manual for Data Collectors. This document set down, in sequential order, all of the actions to be taken by the data collector

from the time of receiving packages of data collection instruments from the Ministry of Education to the time when the data collector had completed the data collection and was preparing all materials for return. The third day involved a second “simulated” data collection whereby the trainees supervised a full-fledged data collection in several schools that were not involved in the main data collection. The experiences gathered during these exercises were shared and discussed during a later meeting so that all data collectors understood the procedures to be completed within schools.

A special effort was made to ensure that the data collections were conducted according to explicit and fully-scripted steps so that the same verbal instructions were used (for pupils, teachers, and school heads) by the data collectors in all sample schools in all countries for each aspect of the data collection. This was a very important feature of the study because the validity of cross-national comparisons arising from the data analyses depended, in large part, on achieving carefully structured and standardized data collection environments.

Two other important matters related to preparing for the main data collection were to obtain formal permission to visit sample schools, and to manage the printing and packaging of a complete set of data collection instruments for each sample school. The arrangement of permission to visit sample schools was a straightforward procedure because all Ministers had previously approved the implementation of the SACMEQ II Project.

In some cases the NRCs arranged printing through the Government Printing Office and in other cases through private printers. Some of the NRCs had difficulty in finding the resources required for these tasks and therefore needed to obtain assistance from the IIEP in order to search for supplementary funding. When all instruments were printed, the NRCs conducted a “hand check” of all materials so as to verify that there were no missing pages or misprints or omissions. All work related to the printing and packaging of the data collection instruments was undertaken under strict security arrangements – so

that there was no possibility of a “leakage” of information about the content of the pupil and teacher reading and mathematics tests.

The final task for this phase was to have NRCs establish expert committees with the mission of selecting subsets of “essential” pupil reading and mathematics test items that were central to the core curriculum in their country. These subsets of “essential” test items were designated for use at a later stage when the scoring of pupils would be undertaken on both the total test and the essential items (after they had been scaled appropriately using Rasch procedures). This task was completed before the main data collection because there was a need for decisions concerning the selection of essential items to be taken without being influenced by a knowledge of pupil performance on these items.

Phase 9: Implementation of the Main Data Collection

The main SACMEQ II data collection occurred for 12 of the 15 SACMEQ Ministries of Education in the period September to December 2000, the Mauritius data collection was completed in July 2001, and the Malawi data collection in September 2002.

The numbers of schools involved in the data collection for each school system ranged from 24 in the Seychelles (where the whole target population of schools and Grade 6 pupils were involved), to 275 in Namibia (where the known magnitude of the coefficient of intra-class correlation and the requirement to gather data in “new” administrative regions added substantially to the required number of schools). The average number of schools per country for the designed samples was around 165.

In smaller countries it was possible to assemble the whole data collection team at the head office of the Ministry of Education and then travel out to sample schools. However, the management of transportation represented a major undertaking for NRCs in larger countries such as Kenya, Namibia, and Mozambique - where much greater distances had to be traveled, and sample schools were sometimes located in extremely remote and

difficult-to-find locations. For these countries, the NRCs enlisted the assistance of Regional and District Education Offices.

Two days of data collection were required for each sample school. On the first day pupils were given the pupil questionnaire and the pupil reading test, and on the second day they were given the mathematics test. The teachers (who completed a questionnaire and one of, or both of, the reading and mathematics tests) and school heads (who completed a questionnaire) were asked to respond on the first day. These arrangements made it possible for the data collectors to check all completed questionnaires (pupil, teacher, and school head) during the evening of the first day and then, if necessary, obtain any missing or incomplete information on the second day.

The data collection for teachers was in three parts: questionnaire, reading test, and mathematics test. Where sample teachers taught both reading and mathematics, they took both tests. Where they taught only one of these subjects, they were given the relevant test.

The manual used by the data collectors contained detailed instructions concerning the random selection of 20 sample pupils and up to 6 sample teachers within schools. The data collectors were given intensive prior training in the strict application of these procedures. It was necessary to do this because the validity of the whole SACMEQ II data collection could have been seriously damaged if “outside influences” had been applied to selecting respondents. A further measure that was applied in order to avoid the inclusion of unknown biases into the data collection was to absolutely forbid the replacement of absent pupils.

The data collectors were provided with a 40-point checklist in order to ensure that they completed all important tasks that were required before, during, and after their visits to schools. Each task was cross-referenced to specific pages of instructions in the data collectors’ manual.

Phase 10: Data Checking, Data Entry, and Data Cleaning

(a) Data Checking and Data Entry

Data preparation commenced soon after the main data collection was completed. The NRCs had to organize the safe return of all materials to the Ministry of Education where the data collection instruments could be checked, entered into computers, and then “cleaned” to remove errors prior to data analysis. The data-checking involved the “hand editing” of data collection instruments by a team of trained staff. They were required to check that: (i) all questionnaires, tests, and forms had arrived back from the sample schools, (ii) the identification numbers on all instruments were complete and accurate, and (iii) certain logical linkages between questions made sense (for example, the two questions to school heads concerning “Do you have a school library?” and “How many books do you have in your school library?”).

The next step was the entry of data into computers using the WINDEM software. A team of 5-10 staff normally undertook this work. In some cases the data were “double entered” in order to monitor accuracy. The numbers of keystrokes required to enter one copy of each data collection instrument were as follows: pupil questionnaire: 150; pupil reading test: 85; pupil mathematics test: 65; teacher questionnaire: 587; teacher reading test: 51; teacher mathematics test: 43; school head questionnaire: 319; school form: 58; and pupil name form: 51.

There was a great deal of variation in the delivery dates for the initial versions of the computer-stored SACMEQ II data files. This occurred because of different testing dates and also because of different amounts of time required to complete entry of data into computers. The dates associated with the initial delivery of SACMEQ II data for cleaning have been presented in the second column of Table 2.6. The first data files were delivered by Botswana and the Seychelles in February 2001, and the last were delivered by Malawi in December 2002.

Table 2.6: Number of Cycles and Amount of Time Required for the Completion of SACMEQ II Data Cleaning.

School System	Date When Data Arrived	Date When Cleaning Finished	Number of Cleaning Cycles	Number of Months
Botswana	8-Feb-01	5-Dec-01	15	10
Kenya	20-Jun-01	23-Oct-02	24	16
Lesotho	20-Mar-01	25-Jan-02	15	10
Malawi	15-Dec-02	5-May-03	13	5
Mauritius	9-Oct-01	15-Apr-03	11	18
Mozambique	8-Feb-01	27-Jan-03	23	24
Namibia	2-May-01	25-Jan-02	9	9
Seychelles	15-Feb-01	13-Jun-01	5	4
South Africa	9-Mar-01	26-Aug-02	22	18
Swaziland	7-Jun-01	27-Sep-02	14	16
Tanzania	26-Mar-01	19-Nov-02	25	20
Uganda	26-Feb-01	22-Jan-03	31	23
Zambia	23-Jan-01	29-Nov-02	25	22
Zanzibar	15-Jun-01	23-Apr-03	27	22

(b) Data Cleaning

The NRCs received written instructions and follow-up support from IIEP staff in the basic steps of data cleaning using the WINDEM software. This permitted the NRCs to (i) identify major errors in the sequence of identification numbers, (ii) cross-check identification numbers across files (for example, to ensure that all pupils were linked with their own reading and mathematics teachers), (iii) ensure that all schools listed on the original sampling frame also had valid data collection instruments and vice-versa, (iv) check for “wild codes” that occurred when some variables had values that fell outside pre-specified reasonable limits, and (v) validate that variables used as linkage devices in later file merges were available and accurate.

A second phase of data preparation directed efforts towards the identification and correction of “wild codes” (which refer to data values that fall outside credible limits), and “inconsistencies” (which refer to different responses to the same, or related, questions). There were also some errors in the identification codes for teachers that needed to be corrected before data could be merged.

During 2002 a supplementary training programme was prepared and delivered to all countries via the Internet. This training led each SACMEQ Research Team step-by-step through the required data cleaning procedures – with the NRCs supervising “hands-on” data cleaning activities and IIEP staff occasionally using advanced software systems to validate the quality of the work involved in each data-cleaning step.

This resulted in a “cyclical” process whereby data files were cleaned by the NRC and then emailed to the IIEP for checking and then emailed back to the NRC for further cleaning. The figures presented in the final two columns of Table 2.6 show the number of cleaning “cycles” (that is the number of times that SACMEQ II data were sent from a country to the IIEP for detailed checking and then returned to the country for further cleaning) and the total amount of time in months required to complete the data cleaning for each country.

The number of cycles required to complete all of the data cleaning ranged from lows of 5 and 9 cycles in the Seychelles and Namibia, respectively, to highs of 27 and 31 cycles in Zanzibar and Uganda, respectively. The time required to complete all of the data cleaning took from lows of 4 and 5 months in the Seychelles and Malawi, respectively, to highs of 23 and 24 months in Uganda and Mozambique, respectively.

Phase 11: Merging and Weighting

As each NRC finalized the cleaning of the SACMEQ II data for his/her country, the data from all sources within a country were merged and weighted.

The merging process required the construction of a single data file for each school system in which pupils were the units of analysis. This was achieved by “disaggregating” the teacher and school head data over the pupil data. That is, each record of the final data file for a country consisted of the following four components: (a) the questionnaire and test data for an individual pupil, (b) the questionnaire and test data for his/her mathematics and reading teacher, (c) the questionnaire data for his/her school head, and (d) school and pupil “tracking forms” that were required for data cleaning purposes.

The merged file enabled linkages to be made among pupils, teachers, and school heads at the “between-pupil” level of analysis. To illustrate, with the merged file it was possible to examine questions of the following kind: “What are the average reading and mathematics test scores (based on information taken from the pupil tests) for groups of pupils who attend urban or rural schools (based on information taken from the school head questionnaire), and who are taught by male or female teachers (based on information taken from the teacher questionnaire)?”

The calculation of sampling weights could only be conducted after all files had been cleaned and merged. Sampling weights were used to adjust for missing data and for variations in probabilities of selection that arose from the application of stratified multi-stage sample designs. There were also certain country-specific aspects of the sampling procedures, and these had to be reflected in the calculation of sampling weights.

Two forms of sampling weights were prepared for the SACMEQ II Project. The first sampling weight (RF2) was the inverse of the probability of selecting a pupil into the sample. These “raising factors” were equal to the number of pupils in the defined target population that were “represented by a single pupil” in the sample. The second sampling weight (pweight2) was obtained by multiplying the raising factors by a constant so that the sum of the sampling weights was equal to the achieved sample size.

Phase 12: “Scoring” Literacy and Numeracy Levels

A particularly innovative aspect of the SACMEQ II Project was its approach to presenting the literacy and numeracy performance of pupils in a manner that provided descriptive accounts of increasing levels of competence. This was made possible through the use of the Rasch scaling procedures - which permitted, for each test, the performance of pupils to be aligned along a single dimension that could be broken into groups or levels – each being named according to the skills required to successfully complete the items within each group. This method of defining reading and mathematics performance moved far beyond the traditional approach of assigning scores based on the number of correct test items.

The traditional approach to describing test performance is of limited use concerning the identification of specific strategies that can be understood by teachers who would like to plan either remediation programmes or performance improvement for their pupils. In contrast, the levels of competence approach provide meaningful descriptive information about the tasks that pupils can currently manage, and the knowledge and skills that pupils require if they are to move to higher levels of competence.

Four main steps were used in the SACMEQ II Project to define levels of competence. First, Rasch Item Response Theory was used to establish the difficulty value for each test item. Second, the NRCs subjected each test item to an intensive “skills audit” (in order to identify the required problem-solving mechanisms for each item “through a Grade 6 pupil’s eyes”). Third, the items were clustered into eight groups or “levels” that had similar difficulties and that required similar skills. Finally, the NRCs wrote descriptive accounts of the competencies associated with each cluster of test items by using terminology that was familiar to ordinary classroom teachers.

The work undertaken to define the descriptive levels of competence was commenced at a meeting of NRCs and their Deputies in the Seychelles during June 2001. This work continued via the Internet and was eventually finalized at another follow-up meeting of the same participants that was held in Mauritius during December 2002. The major delay in finalizing this aspect of the work was due to the problem that the scaling of test scores using the Rasch technique required all countries to have completed their data cleaning.

When all data were available, it was possible to transform the Rasch scores to an international mean and standard deviation of 500 and 100, respectively. These two figures were established by using a special sampling weight that treated the samples in each country as if they were the same size.

Phase 13: Analyzing the Data

The data analyses for the SACMEQ II Project were very clearly defined because they were focused specifically on generating results that could be used to “fill in the blank entries” in the Dummy Tables described above. There were two main tasks in this area. First, the SPSS software system was used to construct new variables (often referred to as “indices”) or to recode existing variables. For example, an index of “socioeconomic level” was constructed by combining recoded variables that described the educational level of the pupils’ parents, the materials used in the construction of pupils’ homes, and the number of possessions in pupils’ homes. Second, the IIEP’s specialized data analysis software, IIEPJACK, was used to “fill” the Dummy Tables with appropriate statistics along with their correct measures of sampling error.

Phase 14: Writing the SACMEQ II Policy Reports

The NRCs commenced the process of drafting their national educational policy reports during early 2003. Two workshops (in Mauritius in December 2002 and in Paris during September 2003) were organized to support the NRCs in this work. These workshops permitted the NRCs to work together and exchange ideas concerning the policy implications of the research results.

Some sections of the national reports were written as “group tasks” because they described aspects of the SACMEQ II Project research programme that were common across countries. However, the tasks of reporting and interpreting the research results were undertaken on a country-by-country basis.

The general structure of the national reports was common across all SACMEQ countries. The 5 “themes” listed in Figure 2.1 were used as chapter titles, the 20 “General Policy Concerns” listed in Figure 2.1 were used within the chapters as main headings, and the 75 “Specific Research Questions” listed in Appendix 1 were used as sub-headings.

Throughout each national report the NRCs introduced “policy suggestions” based on the research results. In the final chapter these policy suggestions were drawn together into an

“agenda for action” that grouped the suggestions according to timeframe and estimated costs. These ranged from low cost and easy to implement actions (for example: adapting the established School Census Questionnaire to include some questions on the availability of certain school and classroom resources) up to long-term expensive investments (for example: the implementation of a nationwide programme of in-service training for teachers).

Conclusion

The aim of this chapter was to describe the research procedures that were applied for the execution of the SACMEQ II Project. The chapter was prepared in three parts that covered the fourteen main phases of the research, the sample design procedures, and the construction of the reading and mathematics tests for pupils and their teachers.

The first part of the chapter described how the SACMEQ II Project commenced with an innovative “pre-planning” phase that underpinned the whole research design. During this phase key decision-makers in Ministries of Education were consulted concerning their “General Policy Concerns” – which were then collated across countries, grouped into five themes, and used as a foundation for the design of the whole data collection and the research reporting procedures. One of the important messages that emerged from this part of the chapter was that the speed at which a cross-national research project proceeds is strongly influenced by the speed with which the slowest country can complete all aspects of its data collection and data preparation.

The second part of SACMEQ II was on sampling which included an evaluation of the sampling procedures. The evaluation showed that nine countries did satisfy the sampling accuracy requirements that had been set down for the SACMEQ II Project – by achieving equivalent sample sizes for the pupil tests that were in excess of 400 pupils while two countries did not . These results indicated that care should be exercised in interpreting the reading and mathematics achievement levels that were obtained for these two countries, and also that even more care should be taken when examining within-country regional differences.

The third methodological part in SACMEQ II provided a detailed description of how the SACMEQ II Project moved away from traditional approaches to the calculation of test scores (based on numbers of correct responses to test items) towards the use of Modern Item Response Theory to generate descriptions of “levels of increasing pupil competence”. This approach to describing pupil reading and mathematics achievement offered a mechanism for describing the performance of pupils in a manner that was more meaningful within a teaching and learning context.

Chapter 3

What Were the Characteristics of the Standard 6 Pupils and their Homes?

Introduction

The aim of this chapter is to present comprehensive information on some of the characteristics of Standard 6 pupils and their homes. These data have been presented for three reasons. The first is that they present a 'context' for the later analyses to be presented in this report. The second is that since, over time, the levels and distributions of the data may change and thus the data can be used to compare the types of pupils in Standard 6 at different time periods. 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 will be constructed and it is important for the reader to know exactly which variables are included in this scale. It is common sense that schools that have an intake of pupils from 'better' home backgrounds should achieve better than schools that have an intake of pupils from less well-off home backgrounds. Indeed, the research literature abounds with such examples. It is schools that have high scores but have an intake of low socio-economic-status children that are remarkable. Many of the school and teacher variables that appear in later chapters in this report will be examined for their effect on pupil achievement. It will be important to examine their pristine relationship with achievement but also their effect once the socio-economic status intake of pupils has been taken account of.

A note on the interpretation of the data analyses

Before presenting the results, two points should be stressed. The first is that the variables presented in this chapter represent a small subset of the larger number of variables for which data were collected. The second point is that 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 Malawi 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 divisions) then the standard 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 standard 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.

To illustrate, consider the first column of entries in Table 3.1. The average age of pupils in months at the time of data collection has been presented separately for each division and for Malawi overall. The standard error (SE) of each average has also been presented. For the second division of Central East, the average pupil age was 179.9 months at the time of the data collection, and the standard error for this estimate was 2.76 months. That is, there were 19 chances in 20 that the average age of the population of Standard 6 pupils in the Central East division was $179.9 \pm 2(2.76)$. In other words, we can be 95 percent confident that the population value for the Central East division was between 174.38 and 185.42 months.

It is important to note that the value of the standard error for each estimate changed from division to division. The variation was caused by two main factors: differences in the distribution of pupils among schools within divisions and the structure of the sample design within each division. The smallest standard error of 1.2 months occurred for the sample estimate of average age for the whole population of Standard 6 pupils in Malawi. This result was to be expected because the overall sample estimate, was based on a much larger sample of schools and pupils than the corresponding estimate for any single division.

In interpreting the values in Table 3.1 and all other tables throughout this report, it is important to remember that the percentages and means have been presented in terms of pupils as the units of analysis - even though some variables in this report referred to teachers or schools. Where a percentage for a variable that describes teachers has been presented, this percentage should be interpreted as 'the stated percentage of pupils in schools with teachers having the particular school characteristic'. Similarly, a percentage for a variable that describes schools should be interpreted as 'the stated percentage of pupils in schools with the particular characteristic'. In terms of mean values, a mean value for teachers should be interpreted as meaning that the average Standard 6 pupil in Malawi had a teacher who had that particular mean and for a school it is that the average Standard 6 pupil was in a school where the head had that particular mean.

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 five major general policy concerns.

General Policy Concern 1: What were the personal characteristics (for example, age and gender) and home background characteristics (for example, parent education, regularity of meals, home language, etc.) of Standard 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?

The general policy concerns were further divided into several specific research questions. For example, the policy concern on personnel characteristics and home background of Standard 6 pupils was divided into the following specific research questions:

- What was the age distribution of pupils?
- How many books were there in pupils' homes?
- How regularly did pupils eat meals?
- What was the level of the parents' education?
- What was the gender distribution of pupils?

- What were the detailed home possessions of Standard 6 pupils?
- What was the socio-economic status of pupils' parents in terms of housing conditions (lighting, floor, wall, and roof)?
- What were the material home conditions of the Grade 6 pupils?

What was the age distribution and sex of Standard 6 pupils?

In Tables 3.1 and 3.2 below, the ages in months of the pupils as well as the percentage of girls in Standard 6 have been given for the SACMEQ I and II studies respectively.

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

Region	Age (months)		Sex (female)		Books at home (number)		Possessions at home (index)		Meals (index)		Parent education	
	Mean	SE	%	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
North	176.0	2.16	47.3	3.00	7.2	1.32	3.8	0.18	11.4	0.10	2.8	0.12
Central East	186.2	1.67	46.6	3.13	13.1	2.81	4.3	0.18	11.4	0.11	2.5	0.09
Central West	184.2	2.15	48.2	2.28	13.4	2.78	4.3	0.28	11.4	0.09	2.8	0.15
South East	182.0	2.48	46.8	3.59	8.7	2.06	4.9	0.34	11.5	0.12	2.9	0.18
South West	174.4	3.10	45.5	3.69	17.7	2.40	5.1	0.33	11.6	0.06	3.4	0.20
Shire Highlands	183.5	1.96	41.8	2.92	8.2	1.83	4.1	0.16	10.9	0.26	2.4	0.08
Malawi	181.1	1.01	46.5	1.27	11.5	0.97	4.4	0.12	11.4	0.04	2.8	0.06

Table 3.2. Means, percentages, and sampling errors for pupil personal and home-related characteristics (SACMEQ II)

	Mean	SE	%	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
North	171.8	3.47	47.3	2.59	6.9	1.23	3.6	0.37	11.5	0.13	3.2	0.18
Central East	179.9	2.76	46.0	3.73	9.1	2.61	3.3	0.23	11.5	0.14	2.7	0.16
Central West	174.2	2.61	47.1	2.70	9.7	2.90	4.0	0.38	11.4	0.14	2.9	0.14
South East	174.3	3.05	51.8	4.12	9.1	1.85	4.9	0.35	11.0	0.21	3.0	0.22
South West	170.6	2.69	45.8	4.13	18.9	3.60	4.6	0.37	11.5	0.10	3.3	0.17
Shire Highlands	174.0	1.88	49.5	2.50	6.9	1.09	3.7	0.30	10.9	0.18	2.6	0.15
Malawi	174.0	1.19	47.8	1.34	10.1	1.07	4.0	0.15	11.3	0.06	3.0	0.07

It can be observed from Table 3.2 that the average age for all Standard 6 pupils in Malawi in 2002 was 173.9 months. If all pupils had entered school at the official entry age of 6 years, and there had been no standard-repetition, then the expected mean age would have been 152 months. The figure of 173.9 demonstrates that there are serious problems of overage pupils in Malawi primary schools. The problem of overage pupils has persisted in the Central East division between SACMEQ I and II studies. However, it is pleasing to note that compared with SACMEQ I, pupils in SACMEQ II were slightly younger than they were in 1998 (down from 181.1 in SACMEQ I). This might be an indication that the wave of over-age pupils that had entered the system as a result of the FPE policy in 1994 is gradually leaving the system.

The second datum entered in the table is the percentage of females amongst the Grade 6 pupils. If all went well with pupils' progression through school then a 50/50 split would be expected. However it could be seen (Chimombo et al. 2003) that in Malawi the proportion of girls in the lower standards was the same or more than that of boys, but from the information from Table 3.2 in this report, it can be seen that girls were only 47.8 percent of the total by the time they reach Standard 6. The Shire Highland division had significantly improved in terms of girls' participation from 41.8 to 49.5 percent in the two

studies, but the South West division appeared to be the division with more problems of girls' participation in schools. One possible explanation is that the rural districts of Chikwawa and Nsanje are still neglected as other studies (see Hyde 1994) have pointed out.

Policy Suggestion 3.1 : The ministry of education should through, school management committees and PTAs, intensify the messages about the importance of starting schooling earlier and more attention should focus on the rural areas of the South West division.

How many books were there in pupils' homes?

The next datum in Table 3.1 was the number of books in Standard 6 pupils' homes. It can be seen from the table that the mean number of books in the homes of Standard 6 pupils in 2002 was 10.1 significantly down from 12.7 in SACMEQ I. The South West division had by far the largest mean number of textbooks (probably because of the urban district of Blantyre) while the North and the Shire Highlands had the least mean number of books in the homes. In general however, the number of books is small and this is not very much in terms of resources for children who are learning to read.

What were the detailed home possessions of Grade 6 pupils?

The next piece of information presented in Table 3.1 is the numbers of possessions that the pupils stated were in their homes. A question was asked on the Pupil questionnaire about thirteen possessions they might have in the home. These were: daily newspaper, weekly or monthly magazine, radio, TV set, video cassette recorder (VCR), cassette player, telephone, car, motorcycle, bicycle, piped water, electricity (mains, generator, solar), and a table to write on. The number of possession owned in the home was summed for each pupil. The lowest score possible was zero and the highest 13.0. It can be noted from Table 3.2 that the number of possessions in the homes was generally low with a mean of 4.0 possessions. When compared to the SACMEQ I figures, it was found that there was a significant decrease overall and also in the Central East, and Shire Highlands divisions. Data on poverty levels is hard to come by but these indicators seem to show that pupils in general come from low socio-economic status and that households in Malawi have become poorer over the years. The Shire Highlands division scored the

poorest on all but one (which is possessions at home) of the four measures of home circumstances.

How regularly did pupils eat meals?

A further question concerned the nutrition of the pupils at least in terms of having three meals a day, even if the nutritional value of each meal was not known. The question asked about a morning meal, a midday meal and an evening meal and how many times a week they ate each of these meals. A score of 3 meant that they did not eat at all while a score of 12 indicated that they ate every meal each day. It can be noted from the information from Table 3.2 that pupils in 2002 were having 11.3 meals per week.

What was the level of the parents' education?

As for the intellectual milieu characterized by the education of the parents, separate questions were asked of the mothers' and fathers' educational level. The results were summed and a score of '1' indicated that neither parent had received any school education and a score of 6 indicated that both parents had received tertiary education. Children from the South West division had more educated parents seconded by those from the Northern division. Pupils from the Shire Highlands reported having lesser-educated parents. Overall, it can be noted that there was no significant difference between the parental education level of Standard 6 pupils (3.0) in 2002 compared to 2.8 in SACMEQ I.

What was the gender distribution of pupils?

Problems of girls' education in Malawi are not new. Many development partners have assisted the Malawi ministry of education to come to terms with this problem. Notable in this endeavour has been the assistance given by the USAID with its Girls' Attainment in Basic Literacy and Education (GABLE) Social Mobilization Campaign programs. It is therefore of interest to see what the effects of these efforts have been on the education system. In Table 3.3 below, information for this question has been provided.

Table 3.3. Percentages and sampling errors for the enrolment of girls in schools and in Standard 6 in schools (SACMEQ I and SACMEQ II)

Division	Enrolment of girls in schools							
	SACMEQ I				SACMEQ II			
	Girls		Standard 6 girls		Girls		Standard 6 girls	
	%	SE	%	SE	%	SE	%	SE
North	48.9	0.75	46.9	1.34	45.5	1.93	45.2	1.84
Central East	51.4	0.89	46.3	1.65	47.8	1.56	48.0	2.46
Central West	48.7	1.07	47.3	2.78	51.1	0.82	49.5	1.68
South East	48.6	0.58	46.6	1.77	51.8	3.74	53.1	4.64
South West	48.7	2.49	45.6	3.12	52.9	2.93	50.8	3.60
Shire Highlands	48.1	1.20	42.2	2.03	46.8	1.10	48.3	1.38
Malawi	49.1	0.53	46.0	0.95	49.5	0.85	49.1	1.10

It can be observed from Table 3.3 that by division, there were mixed trends in girls' participation. Two divisions (North and Central East) registered significant decreases in the percentage of girls while the decrease of Shire Highlands was not significant. Central West and South West divisions registered significant increases in the proportion of girls while that of South East was not significant. The good news however is that only in one of the six divisions (North) was there a decrease (although not a significant one) in the proportion of girls in Standard 6. While overall, the proportion of girls significantly increased from 46.0 to 49.1 percent between 1998 and 2002, there was a significant increase in the percentage of girls' persisting to Standard 6 in the South East division and this is the division where most of these efforts at increasing girls' participation in schools have been directed to. One could therefore speculate from these results that the efforts aimed at encouraging girls to stay in school are beginning to bear some good fruit. However, the other message coming from these results is that a lot of work is still needed in order to keep girls in schools.

Policy Suggestion 3.2: While appreciating the commendable work done by the ministry of education in the drive towards promoting girls' education, it would appear that much more continued effort is needed by the ministry to promote girls' education especially in the Northern division.

What was the socio-economic status of pupils' parents in terms of housing conditions (lighting)?

The quality of the lighting the homes had, the materials from which the homes were built, and the livestock owned were also considered to be indicators of wealth in African homes. In Table 3.4 below, the information on the types of lighting that the pupils had in their homes is presented.

Table 3.4 Percentages and sampling errors for the lighting in pupils' homes

Division	No light		Candle/Oil Lamp		Gas lamp		Electric lighting	
	%	SE	%	SE	%	SE	%	SE
North	1.1	0.62	84.4	6.50	0.8	0.57	13.7	6.32
Central East	3.2	1.11	85.2	4.24	5.7	2.24	5.8	2.67
Central West	1.2	0.52	81.7	5.52	0.5	0.34	16.6	5.47
South East	0.8	0.56	82.8	6.20	2.0	0.95	14.4	5.96
South West	2.3	0.93	72.3	5.54	2.2	0.69	23.3	5.59
Shire Highlands	1.4	0.62	88.5	4.96	1.1	0.60	9.0	4.91
Malawi	1.6	0.29	82.3	2.33	1.8	0.37	14.3	2.26

From Table 3.4 above, it can be noted that the major source of light in the homes of Standard 6 pupils in 2002 was candle or oil lamp (82.3%). Only 14.3 percent of the pupils were from homes with electricity. The Central East division had most households without any light as well as the least percentage of households with electricity. As expected, the South West (23.3%) and Central West (16.6%) divisions had the majority of the households with electricity because of the urban districts of Blantyre and Lilongwe respectively. These results confirm those found by NSO (2002), that very few houses in Malawi (33%) have electricity. It should be pointed out that it is very important to have

light to be able to read and this means that many pupils in Malawi households are denied the opportunity to having a good reading environment.

What were the material home conditions of the Grade 6 pupils?

The kind of materials from which the house is built is another aspect of wealth. And again, in African societies, especially in rural areas, another indicator of wealth in many African countries is the number of livestock possessed by the families either in the place where they live or in their rural homes. However, the mean levels of livestock possessions (see Appendix 2) were very low and the variations so small that it was not worthwhile reporting the results here. Only information about the structure of the floors has been presented in Table 3.5 below.

Table 3.5. Percentages and sampling errors for structure of floors in pupils' homes

Division	Not sealed		Wood		Cement		Carpet/Tiles	
	%	SE	%	SE	%	SE	%	SE
North	58.0	6.37	1.2	0.57	40.4	6.39	0.5	0.32
Central East	68.0	7.53	0.3	0.28	31.7	7.44	0.0	0.00
Central West	52.7	5.80	0.4	0.31	46.0	5.64	0.9	0.58
South East	59.4	6.72	0.4	0.27	39.8	6.70	0.4	0.26
South West	36.8	6.62	0.3	0.29	60.7	6.26	2.2	1.17
Shire Highlands	63.9	6.87	0.4	0.36	34.0	6.11	1.7	1.17
Malawi	55.8	2.75	0.5	0.15	42.8	2.66	0.9	0.29

In terms of the structure of the floors of the homes of the Standard 6 pupils, it can be seen from Table 3.5 that the majority of them (55.8%) were coming from homes where the floors had not been sealed. The majority of these were from Central East (68.0%) followed by Shire Highlands (63.9%) divisions. It can also be seen that only the South West division had more than half of their households cemented while only 31.7 percent of the houses in the Central East division were cemented.

What was the general condition of the households?

An attempt was then made to construct a measure of the general condition of the households. This information has been presented in Table 3.6 below. The general quality of pupils' homes was derived from an amalgamation of four variables of light, floor, wall and roof. It was possible to sum the values for the floors, walls and roofs because each of the materials given in the tables was considered to be hierarchical in terms of wealth. For example, carpet/tiles was considered to be 'better' than cement that was 'better' than wooden planks and so on. There were five categories for floors, six for walls, and five for roofs, making a high total of 16.

Table 3.6. Means and sampling errors for the general quality of pupils' homes

Division	General quality of pupil's homes (Index)	
	Mean	SE
North	8.7	0.41
Central East	7.9	0.36
Central West	8.9	0.35
South East	8.8	0.39
South West	9.6	0.33
Shire Highlands	8.6	0.40
Malawi	8.8	0.16

It can be noted from the information about the general quality of pupils' homes that pupils in Standard 6 in Malawi came from homes that had just half (8.8 out of a possible 16) of the expected characteristics that were thought to contribute to good quality of houses. Pupils from the South West division were from homes with better characteristics (mean of 9.6); while those from the Central East and the Shire Highlands divisions were from homes which were generally of poor quality (means of 7.9 and 8.6 respectively). The Shire Highlands and the Northern divisions also exhibited greater disparity in the general quality of pupils' homes.

In summary, there are serious problems of overage pupils in Malawi primary schools. However, compared to SACMEQ I, pupils in SACMEQ II were slightly younger than

they were in 1998. Although the proportion of girls in Standard 6 increased between the two studies, the proportion of girls in standard 6 was lower than that of the total and that the proportion of girls in general diminished as pupils progressed to higher standards especially in the Northern Division. The number of books in the homes was small and the number of possessions was generally low. There has been a significant decrease in the possessions of the home. Further, very few homes had electricity and in general, Standard 6 pupils came from homes that were of low quality.

Policy Concern 2: What were the school context factors experienced by Standard 6 pupils that might impact upon teaching/learning and the general functioning of schools?

In trying to examine the context in which Standard 6 pupils were schooling, the above general policy concern was broken down into the following specific research questions:

- What was the location of the school?
- How many days were pupils absent in the previous month, and what were the reasons for these absences?
- What percentage of pupils spoke the language of the test at home?
- How many pupils had repeated a standard, and were they currently repeating Standard 6?
- How frequently did pupils receive homework in reading and mathematics?
- Did the teachers correct assigned homework?
- Did family members monitor, assist with, request demonstrations, ask questions about, and/or look at, pupils' homework?

What was the location of the school?

In Table 3.7, the percentages of schools in urban areas and the mean distances from school to the nearest service providers in the six Divisions for both SACMEQ I and SACMEQ II have been presented.

Table 3.7: School location (SACMEQ I and SACMEQ II)

Division	SACMEQ I				SACMEQ II			
	Urban		Distance (km)		Urban		Distance (km)	
	%	SE	Mean	SE	%	SE	Mean	SE
North	12.5	6.90	29.8	5.49	21.4	9.69	30.7	6.33
Central East	28.0	9.17	19.9	3.26	35.5	12.94	13.0	2.69
Central West	20.0	7.43	24.9	3.46	34.5	9.42	11.0	1.54
South East	47.6	11.17	14.7	2.10	23.0	9.72	12.8	2.51
South West	50.0	10.43	12.4	3.21	54.4	11.56	16.0	3.07
Shire Highlands	8.3	5.76	16.8	2.93	28.6	11.49	16.7	2.69
Malawi	27.1	3.53	20.5	1.55	33.0	4.35	16.5	1.39

Access to schools determines what kind of services can be made available to the schools. In Malawi the proportion of schools which are situated in the urban areas has significantly increased from 27.1 percent in SACMEQ I to 33.0 percent in SACMEQ II. In general, the mean distance of schools to the nearest facilities has significantly dropped down from a mean of 20.5 kms. in SACMEQ I to a mean of 16.5 kms. in SACMEQ II indicating that schools are now closer to the service providers (especially in the Central West and Central East divisions). These providers include health centres, public libraries, bookshops, secondary schools, shopping centres and tarred roads. In Divisions where the mean distances have increased, it may mean that more schools have been built in rural and remote areas and are not very easily accessible.

What percentage of pupils spoke the language of the test at home?

Two further pieces of information that are important were collected in the study about the homes of the Standard 6 pupils. The first is the extent to which they spoke the language of instruction used in the schools (which is English) when they were outside of the school. The second is to what extent the pupils were absent from school in the month preceding the survey. All these pieces of information have been presented in Tables 3.8 and 3.9 below.

Table 3.8: Percentages, mean, and sampling errors for the pupil language, days absent, and repetition (SACMEQ I)

Region	Speak English		Days absent		Repetition	
	%	SE	Mean	SE	%	SE
North	61.0	8.59	4.3	0.36	62.4	5.66
Central East	69.0	4.71	4.3	0.33	58.8	2.70
Central West	79.3	3.65	3.0	0.21	68.9	2.31
South East	66.2	6.96	4.0	0.48	59.1	4.00
South West	65.8	5.79	3.1	0.23	58.9	4.29
Shire Highlands	66.5	9.13	4.0	0.47	67.1	3.70
Malawi	69.1	2.49	3.7	0.13	62.9	1.57

Table 3.9: Percentages, mean, and sampling errors for the pupil language, days absent, and repetition (SACMEQ II)

Region	Speak English		Days absent		Repetition	
	%	SE	Mean	SE	%	SE
North	26.2	8.18	1.5	0.19	63.7	5.72
Central East	52.2	6.57	3.2	0.75	71.1	4.23
Central West	29.2	6.24	1.1	0.16	70.6	3.11
South East	32.7	6.68	2.3	0.29	67.7	4.14
South West	58.7	6.51	2.2	0.32	44.4	6.55
Shire Highlands	57.8	5.92	2.6	0.27	79.0	4.77
Malawi	40.8	2.87	2.0	0.15	66.1	1.95

The information in Table 3.8 shows that on average, only 40.8 percent of the pupils spoke the language of instruction in their homes and this is a very significant decrease from 69.1 percent in 1998. Major drops in the percentage of pupils speaking English at home occurred in the North and Central East divisions. The massive decrease could be explained by the overall lowering standards of education in Malawi, which was precipitated by the introduction of free primary education.

How many pupils had repeated a grade, and how many were currently repeating Standard 6?

In Table 3.9, information about the incidence of repetition has also been presented. Pupils were asked whether they had repeated a Standard since they started school. It can be seen from this table that 66.1 percentage of pupils reported that they had at least repeated a standard. Compared to SACMEQ I, the percentage of pupils repeating increased from 62.6 percent in 1998 to 66.1 percent in 2002. The South West division had the lowest percent of pupils repeating and it was also the only division in which repetition had significantly decreased (from 58.9 percent to 44.4 percent) while the Shire Highlands had the highest percentage of pupils repeating. Problems of repetition have been highlighted in the past by other studies (Williams 1996, Kadzamira et al., 1999, Chimombo 1999, Chimombo et al., 1999) and these represent serious schooling problems in the education system of Malawi. The increase in repetition is an indication of decreasing standards in Malawi primary schools which is a result of the overall poor learning conditions in schools.

Policy suggestion 3.3: The ministry of education should find ways of curbing the increasing repetition in schools. Serious attempts must be made to understand the factors surrounding repetition and how these can be addressed to reduce it. Particular attention need to be given to efforts aimed at reducing repetition by Division managers of the Shire Highlands, Central East and Central West divisions.

How many days were pupils absent in the previous month and what were the reasons for the absences?

In terms of absenteeism, it can also be seen from Table 3.9 that absenteeism continues to be a problem in Malawi schools. On average, pupils were absent in two days of the month but this ranged from 1.1 days in the Central West to 3.2 days in the Central East divisions. In general, the number of days absent significantly decreased from 3.7 days to 2.0 days between the two studies probably because of the mobilisation and sensitisation campaigns that are being mounted in the country. Major decreases occurred in the Northern division.

The pupils were also asked to give the reasons for being absent. In Table 3.10 below some information about why pupils were absent has been provided.

Table 3.10: Percentages and sampling errors for reasons of pupils' absenteeism.

Division	Illness		Family reasons		Fees		Work	
	%	SE	%	SE	%	SE	%	SE
North	67.9	4.70	23.9	4.37	0.0	0.00	9.8	2.86
Central East	68.4	5.51	24.6	3.02	0.0	0.00	8.8	1.66
Central West	71.5	4.03	18.7	3.12	0.0	0.00	3.6	1.43
South East	73.8	4.64	31.6	5.57	1.0	0.73	19.2	4.46
South West	65.9	5.22	26.1	5.58	0.0	0.00	7.5	2.84
Shire Highlands	65.8	5.17	25.6	3.87	0.0	0.00	15.6	3.32
Malawi	69.0	1.99	24.8	1.73	0.1	0.11	10.4	1.18

Illness was the most frequently stated reason for being absent from school (69.0%) seconded by family reasons (24.8%) and work (10.4%). It can be noted that family reasons and work together constituted a substantial proportion of reasons for absenteeism. The greatest percentage of pupils being absent because of illness was in the South East division. It can also be noted that this was the only division where pupils indicated that they were absent because of fees. With the FPE policy, it cannot be true that pupils were

absent because of fees but this is perhaps an indication that although fees were abolished, pupils and their parents still have to incur some school related costs.

Policy Suggestion 3.4: As the ministry of education implements the new strategy for community mobilization and sensitization, there is need for more public awareness and sensitization to ensure that families are aware of the dangers of frequent absenteeism.

In summarizing this section, it can be noted that about a third (33%) of the schools were in urban areas but this was a significant increase from 27.1 percent in 1998. There were very few specialized buildings in Malawi primary schools. There were also indications of a decreasing quality of education being offered in schools as exemplified by the decreasing percentage of pupils who spoke English, as well as increased absenteeism and repetition.

How frequently did pupils receive homework in reading and mathematics?

One other factor that might contribute to student achievement in school is the amount of support that pupils might receive while at home. Here, the report concentrated on assistance in school work and examined the trends in the kinds of assistance which pupils in school related work in general and reading and mathematics in particular received. First, the frequency at which pupils received homework in reading and mathematics has been examined. In Table 3.11 the information for the frequency of homework given on most days for SACMEQ I and SACMEQ II studies has been presented.

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

Division	SACMEQ I		SACMEQ II			
	Homework on any subject		Reading homework		Mathematics homework	
	%	SE	%	SE	%	SE
North	18.8	7.78	5.0	4.58	9.1	6.40
Central East	12.8	3.99	11.5	4.80	11.3	5.51
Central West	18.2	5.44	6.5	3.91	28.4	7.85
South East	14.9	8.44	6.8	6.48	11.2	7.31
South West	14.4	6.31	16.1	7.03	22.3	8.11
Shire Highlands	19.0	9.00	12.2	6.86	33.2	11.25
Malawi	16.4	2.70	9.2	2.20	19.8	3.22

It can be noted from the information from Table 3.11 that more pupils reported to have teachers who were giving them mathematics homework than reading homework in SACMEQ II. In both studies, the Shire Highlands division had teachers who were giving more homework in English and maths respectively. It can also be noted that in both years, there were large variations in the frequency in which teachers gave homework in their subjects. It can be noted that in SACMEQ II, reading plus math was nearly twice what all homework was in SACMEQ I and this highlighted the irregularities in the ways teachers assign homework.

Did the teachers correct assigned homework?

It is not enough just to give homework. It is important that the homework given must be corrected. An attempt was therefore made to see if the homework which was given by the teachers in the two subjects was corrected. This information is presented in Table 3.12 below for SACMEQ II. This piece of information was not collected for SACMEQ I.

It can be noted from Table 12 that up to 31.4 percent of the pupils reported that their reading teachers never gave them any homework. Of those who received homework, 2.5 percent reported that their teachers never corrected it while 24.4 percent said that their

reading teachers sometimes corrected the homework and 41.7 percent said that they always corrected it. The Central West division had most of the pupils (53.4 percent) whose reading teachers always corrected the homework while the Shire Highlands division had the least proportion of the pupils (31.0 percent) whose reading teachers were always correcting the homework. The variations in the frequency of marking the homework were large in all the divisions

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

Division	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
North	35.8	10.56	0.0	0.00	20.8	8.50	43.5	10.77
Central East	37.7	14.96	1.6	1.09	30.9	10.16	29.8	9.57
Central West	27.3	9.33	4.1	3.88	15.2	6.62	53.4	9.67
South East	21.5	9.92	0.3	0.23	35.4	10.72	42.8	11.47
South West	33.2	10.65	6.9	6.16	28.9	9.17	31.0	8.32
Shire Highlands	35.2	11.86	1.1	1.06	22.7	9.09	41.0	11.67
Malawi	31.4	4.47	2.5	1.38	24.4	3.54	41.7	4.22

Table 3.13: Percentages and sampling errors for the frequency of mathematics homework being corrected by teacher (SACMEQ II)

Division	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
North	24.3	9.86	0.0	0.00	12.6	7.32	63.1	10.84
Central East	3.7	3.27	3.7	2.76	27.2	8.52	65.4	10.30
Central West	0.1	0.08	0.1	0.12	20.6	7.83	79.2	7.83
South East	7.8	6.59	0.5	0.35	41.1	11.65	50.7	11.88
South West	5.6	3.37	0.3	0.29	36.5	10.38	57.6	10.46
Shire Highlands	0.0	0.00	0.6	0.61	28.0	10.20	71.4	10.10
Malawi	6.8	2.11	0.8	0.40	26.5	3.76	66.0	4.11

As for mathematics teachers, 6.8 percent of the pupils said that their maths teachers never gave them homework. Only 0.8 percent of those who said that they received mathematics homework said that their teachers never corrected it while 26.5 percent said that they sometimes corrected it and 66.0 percent said that their teachers always corrected the homework. Again, the Central West division had the largest proportion of pupils whose teachers always corrected the homework and it also had the least variations. The partial correlation between math score and math homework corrected after having partialled out home background was 0.1272. This is good evidence that it is worthwhile correcting homework.

Policy suggestion 3.5: It is important that all teachers give homework to their pupils in all subjects and correct it. The teacher training institutions should ensure that all teachers in the pre-service programmes have been oriented to the importance of giving homework to pupils. This will enable them identify mastery levels of curriculum content for individual pupils which can guide them in putting in place remedial actions for the weak pupils.

In this section, it has been shown that there are large variations in the way teachers give homework and that up to almost a third of pupils had teachers who never gave homework. There were also variations in the way the homework was marked once it was given. This was true across all the divisions.

Did family members monitor, assist with, request demonstrations, ask questions about, and/or look at, pupils' homework?

Did pupils received any assistance with school related work from their homes? This information has been presented in Table 3.14 below.

Table 3.14: Home assistance with school related work (SACMEQ I and SACMEQ II)

Division	Home assistance 'most of the time' with school work											
	SACMEQ I *						SACMEQ II *					
	Ensure homework done		Help with the homework		Look at school work done		Ensure homework done		Help with the homework		Look at school work done	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	26.4	6.42	15.6	3.76	26.5	4.83	16.1	5.04	10.4	4.03	30.7	5.91
Central East	33.5	4.75	12.9	2.65	37.8	3.54	22.5	7.28	13.9	4.03	30.6	5.33
Central West	26.6	3.50	9.8	1.64	27.5	2.83	14.3	4.18	6.8	3.54	16.5	4.18
South East	17.5	5.44	8.8	2.04	23.4	5.11	2.8	1.12	2.2	1.00	14.1	5.01
South West	30.1	4.80	9.9	1.94	27.2	4.07	23.6	5.48	17.0	3.85	25.3	3.58
Shire Highlands	9.3	3.35	2.1	1.10	14.9	3.88	14.6	3.31	14.5	3.58	26.6	3.66
Malawi	25.6	2.01	10.5	1.00	27.3	1.64	15.6	1.93	10.4	1.48	23.3	1.98

The most common assistance given to pupils was looking at school work done. In both SACMEQ I and II, very few households (10.5% in 1998 and 10.4% in 2002) helped their children with their homework. When the assistance levels were examined by subject, it was observed that while still low, people in the homes were more inclined to assist in English than in Mathematics.

Table 3.15 Home assistance with reading work (SACMEQ I and SACMEQ II)

Division	Home assistance 'most of the time' with school work							
	SACMEQ I *				SACMEQ II *			
	Ask to read		Questions on school reading work		Ask to read		Questions on school reading work	
	%	SE	%	SE	%	SE	%	SE
North	21.9	3.88	18.1	4.24	12.5	3.35	19.1	5.42
Central East	20.9	2.73	29.3	3.36	16.6	4.09	23.9	6.61
Central West	18.2	3.20	18.7	2.63	10.0	3.70	10.2	2.37
South East	17.8	4.18	17.2	5.35	12.5	6.61	7.4	4.16
South West	17.1	2.84	17.9	3.10	16.4	3.56	17.0	3.09
Shire Highlands	11.9	3.90	8.1	2.90	14.1	2.74	15.1	3.71
Malawi	18.4	1.42	19.1	1.48	13.3	1.67	15.0	1.65

In Table 3.15 above, information about the assistance pupils received from their homes with respect to the subjects of reading and mathematics has been presented. It can be seen from this table that only 13.3 percent of pupils were from homes which asked them to read while 15 percent were from homes which asked questions on school reading work. These percentages had significantly decreased compared with the SACMEQ I study. It is interesting to note that despite being largely rural, the Central East division had the largest proportion of pupils coming from homes which asked them to read as well as asked questions about reading work in both studies.

In the next table, information about home assistance in mathematics has also been presented. Here, information was sought for SACMEQ II study only. It can be seen from Table 3.16 that only 14.3 percent of the pupils were from homes which assisted them do mathematics calculations while 16.9 percent were from homes which asked them questions on school mathematics work. The Central East division had the least proportion of pupils who were from homes which assisted them on mathematical calculation as well as in asking question on school mathematics work. On the other hand, the Central West had the largest proportion of pupils who were from homes which assisted on mathematical calculation as well as asked questions on school mathematics work.

Table 3.16: Home assistance with mathematics work (SACMEQ II)

Division	Home assistance 'most of the time' with school work			
	Do mathematical calculations		Questions on school mathematics work	
	%	SE	%	SE
North	16.0	4.29	17.8	4.64
Central East	16.3	3.42	21.0	5.63
Central West	16.0	5.24	15.2	4.17
South East	2.7	1.24	5.7	2.00
South West	16.9	3.87	24.7	4.61
Shire Highlands	16.0	3.63	17.6	3.81
Malawi	14.3	1.77	16.9	1.78

Where did pupils live during the school week?

It could be assumed that the type of assistance pupils get may be influenced by the environment in which they are staying. Pupils were asked to say whom they were staying with. In Table 3.17 below, information regarding the person who the pupils were staying with during the school week is presented.

Division	Place where pupils stay during the school week							
	Parent/Guardian		Relatives/Family		Hostel/Board		Self/Children	
	%	SE	%	SE	%	SE	%	SE
North	83.9	3.38	16.1	3.38	0.0	0.00	0.0	0.00
Central East	89.9	2.01	8.0	1.53	1.1	0.87	0.9	0.79
Central West	86.3	2.80	13.7	2.80	0.0	0.00	0.0	0.00
South East	79.1	2.85	19.3	2.73	1.2	1.02	0.5	0.38
South West	80.2	2.76	18.9	2.54	0.6	0.39	0.4	0.39
Shire Highlands	89.7	2.58	10.1	2.50	0.3	0.25	0.0	0.00
Malawi	84.9	1.18	14.4	1.14	0.4	0.20	0.3	0.14

Table 3.17 Place where pupils stay during the school week

The majority of the pupils (84.9%) wer staying with their parents or guardian, 14.4 percent were staying with their relatives, very few (0.4%) were staying in hostels and the remaining (0.3%) were staying on their own. The South East division had more pupils staying in hostels as well as staying alone although on the whole but in fact these were very few pupils. No pupils were staying alone in the Northern, Central East and Shire Highlands divisions.

In this section, it has been observed that very few households were helping their school children with school work. When households assisted pupils with school work, it was mainly in asking questions on shool reading work. The majority of the pupils were staying with their parents or guardian.

General Policy Concern 3: Did Standard 6 pupils have sufficient access to classroom materials in order to participate fully in their lessons?

Both teachers and pupils need materials in order to effectively participate in their lessons. Pupils in particular need textbooks in the subjects in which they are learning. They also need other materials like exercise books, pencils, rulers, erasers and other things. A question was therefore posed to find out whether pupils had access to classroom materials. In order to answer the general policy concern above, it was broken down into two specific research questions.

What percentage of students had reading and mathematics textbooks?

In Table 3.18 below, the percentages and sampling errors for pupils having own reading and mathematics textbook (SACMEQ I and SACMEQ II) have been presented.

Table 3.18: Percentages and sampling errors for pupils having own reading and mathematics textbook (SACMEQ I and SACMEQ II)

Division	SACMEQ I		SACMEQ II			
	Own reading textbook		Own reading textbook		Own mathematics textbook	
	%	SE	%	SE	%	SE
North	66.3	10.12	60.9	10.31	45.2	10.76
Central East	67.8	7.43	60.6	11.74	64.4	11.27
Central West	57.4	7.06	50.0	8.93	59.0	8.40
South East	58.0	10.91	62.6	10.89	54.1	11.33
South West	63.3	7.64	35.5	9.99	37.9	10.23
Shire Highlands	60.8	12.06	80.3	8.60	82.5	8.19
Malawi	62.1	3.58	57.0	4.12	56.5	4.13

From Table 3.18, it can be seen that the percentage of pupils with their own reading textbooks decreased (although not significantly) from 62.1 percent in 1998 to 57.0 percent in 2002. Across the divisions, it can also be noted that there was a decrease in all of the divisions in terms of the percentages of pupils with own textbooks but a significant decrease occurred in the urban division of South West (35.5 from 63.3 percent) an indication that because of the large numbers of pupils in some of the districts in this division, the system is not able to meet the high material needs. In terms of provisions of mathematics textbooks, only 56.5 percent of the Standard 6 pupils had their own textbooks. It should be pointed out that these general low levels of textbook provisions are happening amidst massive efforts by CIDA to distribute textbooks to all primary schools in the country. It can also be noted that for both English and mathematics textbooks, the Shire Highlands had the largest percentage of pupils with own textbooks. The Shire Highlands had also the least variations in provisions in both textbooks in 2002. Thus, despite the efforts by development partners to equip schools with textbooks, 43 percent and 43.5 percent of the pupils had no reading and mathematics textbooks of their own respectively. It would be worthwhile investigating what happens with the books in schools as this raises questions about the distribution and the durability of the books.

Policy suggestion 3.6 While the effort by CIDA to equip schools with the essential textbooks is commended, the low level provisions as reported by the pupils, is a mystery. It would be better if such efforts were accompanied by the institutionalisation of mechanisms to check what is happening with the books especially in the urban districts. Issues of durability of the books may be at stake here.

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

In Tables 3.19 and 3.20, information about the provisions in basic classroom materials such as exercise books, notebooks and pencils for the two studies has been presented.

Table 3.19: Percentages and sampling errors for shortages of basic classroom materials: Exercise books, notebook, and pencil. (SACMEQ I and SACMEQ II)

Division	SACMEQ I						SACMEQ II					
	Exercise books		Notebook		Pencil		Exercise books		Notebook		Pencil	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	8.0	4.49	25.3	9.12	44.8	9.10	0.0	0.00	5.2	3.27	43.2	5.33
Central East	4.6	1.19	5.1	1.34	24.3	5.18	0.2	0.17	2.0	0.91	49.2	9.05
Central West	0.6	0.38	0.4	0.35	17.7	4.07	0.0	0.00	0.8	0.41	42.2	6.04
South East	0.4	0.45	1.1	0.61	18.6	4.22	0.0	0.00	9.4	7.30	32.1	7.38
South West	1.1	0.65	1.1	0.44	25.0	4.43	1.0	0.54	4.7	2.48	30.6	6.10
Shire Highlands	0.7	0.46	0.7	0.50	12.2	4.93	0.0	0.00	2.3	0.91	24.4	5.90
Malawi	2.6	0.81	5.7	1.60	24.4	2.35	0.2	0.09	3.8	1.26	37.8	2.76

It can be noted in the table that there was a significant decrease in the percentage of pupils reporting shortages in exercise books and notebooks between 1998 and 2002 but there was a significant increase in the percentage of pupils reporting shortages in pencils between the same two years. In four of the six divisions, none of the pupils had reported shortages in exercise books. It would appear from these results that most of the costs incurred by households are associated with writing materials.

Information about the provision of other basic classroom materials has been presented in Table 3.20.

Table 3.20: Percentages and sampling errors for shortages of basic classroom materials: Eraser, pen, and ruler. (SACMEQ I and SACMEQ II)

Division	SACMEQ I						SACMEQ II					
	Eraser		Pen		Ruler		Eraser		Pen		Ruler	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	70.0	7.97	10.0	5.37	86.7	3.87	60.2	4.73	3.5	0.91	40.3	3.59
Central East	68.5	5.15	11.4	4.27	66.2	5.67	78.7	5.51	18.5	5.41	55.6	7.09
Central West	53.6	5.08	0.4	0.25	44.8	4.76	69.5	4.81	4.3	1.45	52.5	5.01
South East	61.1	6.63	2.3	1.22	41.5	5.64	63.7	5.93	7.5	2.34	30.9	3.40
South West	53.7	5.07	4.8	1.42	42.4	4.02	53.3	5.96	5.0	1.62	29.9	5.04
Shire Highlands	46.8	8.36	3.1	1.21	40.7	5.33	70.2	4.29	8.6	2.84	41.4	5.57
Malawi	59.2	2.55	5.1	1.20	54.2	2.14	65.9	2.21	7.3	0.95	42.8	2.05

It can be noted in Table 3.20 that there were significant increases in the percentage of pupils reporting shortages of erasers and pens between 1998 and 2002 but shortages in rulers significantly decreased from 54.2 percent to 42.8 percent between the two years. In both SACMEQ I and II, the Central West division had the lowest cases of shortages of pens. It can also be noted that the Central East division had many pupils reporting shortages of basic classroom materials.

Policy Suggestion 3.7. The provisions for basic classroom materials especially erasers, pens and ruler are generally very low. Amidst FPE, the demand for such provisions has become enormous to the extent that government is finding it difficult to make adequate provisions. It is important that the ministry of education comes up with clear guidelines on norms for these provisions to which divisions and district education managers must adhere. Many cases of absenteeism and eventual dropping out are mostly associated with lack of these basic materials and learning materials (see Chimombo et al. 1999, Chimombo et al. 2001).

The evidence in this section has shown that there has been a significant increase in the percentage of pupils reporting shortages of pencils. There are also irregularities in the provision of basic classroom materials. These findings demonstrate that there are indeed considerable costs associated with the free primary schooling in Malawi.

General Policy Concern 4: Did Grade 6 pupils have access to library books within their schools, and (if they did have access) was the use of these books being maximized by allowing pupils to take them home to read?

An attempt was also made to assess the availability of libraries in schools. Virtually all schools did *not* have libraries so it was not worthwhile reporting the table about this.

It should be noted then that the overall availability of sitting and writing places significantly increased between SACMEQ I and SACMEQ II although there were slight decreases in the urban districts of the South West division.

General Policy concern 5: Has the practice of Standard 6 pupils receiving extra lessons in school subjects outside school hours become widespread, and have these been paid lessons?

In recent years, there has been a trend towards an increase in the number of parents demanding that their children be provided with extra lesson apparently to make up for the lowering of standards in education. But how widespread are these lessons and do parents pay for them? In order to answer these questions, the policy concern above was divided into the following two research questions:

- What percentage of pupils received extra tuition?
- Was payment made for receiving extra tuition?
-

What percentage of pupils received extra tuition?

In Table 3.21, the percentages and sampling errors for the extra tuition taken by pupils outside school hours (SACMEQ I and SACMEQ II) have been presented.

Table 3.21: Percentages and sampling errors for the extra tuition taken by pupils outside school hours (SACMEQ I and SACMEQ II)

Division	Extra tuition on any subject			
	SACMEQ I		SACMEQ II	
	%	SE	%	SE
North	17.6	5.05	70.4	9.67
Central East	24.7	4.34	77.5	13.65
Central West	19.2	3.90	84.1	6.59
South East	18.2	3.53	77.4	9.14
South West	26.4	4.55	77.2	6.00
Shire Highlands	29.9	8.52	91.3	5.84
Malawi	22.0	1.95	79.7	3.47

From Table 3.22, it can be noted that between 1998 and 2002, there was a significant increase in the percentage of pupils reporting taking extra tuition outside school hours from 22.0 percent to 79.7 percent. This marked increase in the percentage of pupils reporting taking extra lesson outside school hours was across all divisions. It should be noted that SACMEQ I was undertaken at a time when extra tuition was declared illegal but the situation was different during SACMEQ II so this might explain the marked increase. This might also be an indication of the overall loss of confidence by parents in the standards of education being offered by the Malawi education system. It would also appear that teachers are taking advantage of the crisis resulting from the FPE and are encouraging these extra lessons.

In order to understand better the implications of such a massive increase in the demand for extra tuition, it is important to see if these extra lessons are paid for or not. This information on the percentages and sampling errors for the payment of extra tuition taken by pupils outside school hours has been presented in Table 3.22 below.

Table 3.22: Percentages and sampling errors for the payment of extra tuition taken by pupils outside school hours (SACMEQ II)

Division	There is payment		There is no payment		Don't know	
	%	SE	%	SE	%	SE
North	3.5	1.56	9.4	3.86	87.2	4.04
Central East	17.7	3.99	31.3	8.25	51.0	8.50
Central West	4.3	1.56	3.3	1.40	92.5	2.25
South East	5.0	2.36	3.6	2.26	91.4	3.98
South West	23.6	7.29	12.1	4.45	64.3	9.03
Shire Highlands	3.8	2.12	4.4	3.03	91.8	3.77
Malawi	8.9	1.41	9.6	1.73	81.4	2.34

It was not possible to obtain a good picture about whether the extra lessons were paid for or not during SACMEQ I. This was probably because of the political nature of the FPE policy which meant that people were not open enough to disclose that they were paying for the extra lessons. However, this situation improved as pupils were beginning to say whether their parents were paying for the lessons or not. But the fact that a larger percentage (81.4 percent) of the pupils did not know whether the extra lessons they were having were paid for or not may mean that the practice of conducting paid extra tuition for pupils may not be as open as it ought to be. Most of the pupils indicating that the extra lessons were paid for were from the urban division of South West while most of those saying they did not know also came from the urban division of Central West. It is expected that these are the divisions with the majority of parents asking for extra tuition for their children.

Policy Suggestion 3.8 The general policy concerns from these findings are that there is a great need for clarification about the practice of extra tuition in Malawi. The ministry should undertake a study to determine the reasons for the extra tuitions and how they are organized.

Conclusion

In summarizing this chapter, it has been noted that there are serious problems of overage pupils in Malawi primary schools. However, compared to SACMEQ I, pupils in 2002 were slightly younger than they were in 1998. Although the proportion of girls in Standard 6 increased between the two studies, the proportion of girls in standard 6 was lower than that of the total and that the proportion of girls in general diminished as pupils progressed to higher standards especially in the South West division. The number of books in the homes was small and the number of possessions was generally low. There has been a significant decrease in the possessions of the homes. Further, very few homes had electricity and in general, Standard 6 pupils came from homes that were of low quality. When compared with the home background of SACMEQ I pupils, the findings have depicted a general lowering of the socio-economic status; an indication that probably, there has been an increase in the poverty levels in the country.

It was also noted that only about a third (33%) of the schools were in urban areas and this was a significant increase from 27.1 percent in 1998. There were very few specialized buildings in Malawi primary schools. There were also indications of decreasing quality of education being offered in schools as exemplified by decreasing percentage of pupils who speak English, increased absenteeism and repetition and increased demand for extra tuition.

There were large variations in the way teachers gave homework and that up to almost a third of pupils had teachers who never gave homework. Very few households were helping their school children with schoolwork. When households assisted pupils with school work, it was mainly in asking questions on school reading work. The majority of the pupils were staying with their parents or guardian. In general, there has been a significant increase in the percentage of pupils reporting shortages pencils. There were also irregularities in the provision of basic classroom materials. These findings demonstrate that there are indeed considerable costs associated with the free primary schooling in Malawi. The overall availability of sitting and writing places significantly increased between SACMEQ I and SACMEQ II although there were slight decreases in the urban districts of the South West division.

Chapter 4

Teachers' Characteristics and their Viewpoints on Teaching, Classroom Resources, Professional Support, and Job Satisfaction

Introduction

In this chapter some of the characteristics and experiences of Standard 6 teachers have been examined. In Malawi, all primary school teachers are general class teachers. They can teach all subjects and indeed any standard and where teachers are sharing the same standard, they also share the subjects among themselves. It is therefore possible sometimes that because of problems of teacher shortages, it is the same teacher teaching reading and Mathematics while in other cases these subjects are taught by different teachers.

A number of policy concerns have been addressed in this chapter. The major questions arising from these policy concerns are:

1. What were the personal characteristics of Standard 6 teachers (for example, age, gender, and socio-economic level), and what was the condition of their housing?
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?
3. What was the availability of classroom furniture for teachers (teacher table, teacher chair, and bookshelves) and classroom equipment (for example, chalkboard, dictionary, maps, book corner, and teachers' guides) in Grade 6 classrooms?
4. How did Standard 6 teachers allocate their time among responsibilities concerned with teaching, preparing lessons, and marking?

5. What were Standard 6 teachers' viewpoints on (a) pupil activities within the classroom (for example, reading aloud, pronouncing, etc.), (b) teaching goals (for example, making learning enjoyable, word attack skills, etc.) (c) teaching approaches/strategies (for example, questioning, whole class teaching, etc.), (d) assessment procedures, and (e) meeting and communicating with parents?
6. What professional support (in terms of education resource centres, inspections, advisory visits, and school head inputs) was given to Standard 6 teachers?
7. What factors had most impact upon teacher job satisfaction?

Policy Concern 6: What were the personal characteristics of Standard 6 teachers (for example, age, gender, and socio-economic level), and what was the condition of their housing?

This first section of the chapter examines the personal characteristics of the teachers in terms of age, sex, socio-economic status and living conditions.

What were the ages, gender, and possessions in the home of Grade 6 pupils' teachers?

A sub-sample of Grade 6 teachers was taken in each school. Where the teachers were general class teachers, a sub-sample of three teachers from all such teachers was drawn. Where there were specialist teachers then a sub-sample of three mathematics teachers and three English teachers teaching Grade 6 was drawn, making six teachers in the school. Several important characteristics of teachers were measured. These concerned the age of teachers, sex of teachers, academic qualifications, professional qualifications, years of teaching experience, and the number of in-service courses attended.

(a) Age of Teachers

The average ages of Grade 6 teachers in the various regions and in Malawi as a whole have been presented in Table 4.1 for SACMEQ I and Table 4.2 for SACMEQ II.

Table 4.1: Means, percentages, and sampling errors for age, gender, and socio-economic background of reading teachers (SACMEQ I)

Region	Age (years)		Gender (female)		Possession at home (index)	
	Mean	SE	%	SE	Mean	SE
North	33.9	1.60	35.5	10.30	3.9	0.29
Central East	30.3	1.17	14.3	7.86	4.3	0.60
Central West	29.5	1.37	34.6	9.54	4.4	0.35
South East	29.1	1.67	44.1	12.11	4.0	0.47
South West	29.6	0.93	46.5	10.44	4.3	0.35
Shire Highlands	31.3	1.26	14.3	7.85	3.6	0.27
Malawi	30.7	0.57	32.1	4.06	4.1	0.16

Table 4.2: Means, percentages, and sampling errors for age, gender, and socio-economic background of reading and mathematics teachers (SACMEQ II)

Division	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
North	33.9	1.99	22.9	10.20	4.3	0.44	35.0	1.62	15.4	8.69	3.9	0.45
Central East	29.7	1.01	41.1	13.27	4.4	0.48	32.1	1.17	30.8	12.48	4.3	0.52
Central West	34.5	1.70	30.5	9.18	4.2	0.37	32.3	1.25	29.4	9.11	4.3	0.43
South East	29.9	1.03	7.1	5.07	4.2	0.40	31.0	1.34	12.8	7.61	4.4	0.46
South West	30.6	1.18	57.0	11.40	4.2	0.49	33.1	1.35	55.5	10.60	4.6	0.57
Shire Highlands	34.4	1.97	22.6	10.83	4.6	0.68	34.9	1.85	25.3	10.96	3.6	0.37
Malawi	32.4	0.68	30.3	4.18	4.3	0.19	33.1	0.59	28.1	4.02	4.2	0.19

In 1998, the average pupil in Malawi had a reading teacher who was 32.4 years old and a mathematics teacher who was 33.1 years old. The average pupil had a reading teacher in 2002 who was 30.7 years old. Across the divisions, the age ranged from 29.7 years (in the Central East division) to 34.4 years (in the Shire Highlands) for the reading teachers while that of the mathematics teachers ranged from 31.0 years in the South East division to 35.0 years in the Northern division. The averages were quite low and may be an indication that Malawi primary schools were manned by relatively young teachers.

(b) Sex of teachers

In terms of gender, it can be seen from Table 4.2 that 30.3 percent of the pupils in Standard 6 had female reading teachers (32.2 percent in SACMEQ I) while 28.1 percent had female mathematics teachers. By division, there were significant increases in the percentage of pupils with female reading teachers in Central East, South West and Shire Highland divisions while there were very significant decreases in the North and South East divisions. There were wide variations among divisions. The South East division was conspicuous in terms of the absence of female teachers in Standard 6 with only 7.1 percent of the pupils reporting having female reading teachers and only 12.8 percent of them having female mathematics teachers. The South West division was the only division which was well supplied with female teachers (57.0%). These statistics agree with the Ministry of Education's basic education statistics (2000), which portray a gender gap between male and female teachers especially in the higher standards (5, 6, 7, and 8). By tradition, most school heads tend to allocate more female teachers to the lower classes than to the senior classes and there are also more female teachers in the urban and semi urban areas than in rural areas because female teachers follow their husbands who often work in urban and semi urban areas.

Policy Suggestion 4.1: The wide variations in teacher supply may mean that the Ministry of Education is not able to effectively manage its teachers' stock. The Ministry therefore should try to strengthen EMIS so that accurate data is available to be able to identify gaps and needy areas in terms of teacher supply. This may require a change of orientation in terms of how the EMIS data is collected, analyzed and presented.

Policy Suggestion 4.2: The Ministry should further review the existing arrangements for recruiting, posting and allocating teachers to classes to improve gender equity. Head teachers could be given in-service training as part of the efforts aimed at improving their management skills.

What was the socio-economic status of teachers in terms of possessions?

Some few questions were asked of teachers about the possessions they had in their homes (the same questions as those given to pupils - see Chapter 3). A 'possessions index', the same as that for pupils, was calculated. The results of the calculations have been presented as the last piece of information in Table 4.2 for both reading and mathematics teachers.

It can be seen from this table that the average number of possessions was 4.3 for the reading teachers (4.1 in 1998) and 4.2 for the mathematics teachers. This was quite low considering that teachers could have as many as 13 items. Their possession index ranged from 3.6 in the Shire Highlands division to 4.6 in the South Wets division. In short, the socio-economic status of teachers as measured by possessions in the home was not high although the average number of possessions of the teachers was somewhat higher than the average number of possessions in pupils' homes. In only one division (Shire Highlands) was the average number of possessions of pupils higher than that of teachers probably because of the tea plantations in this division. Across the divisions, there were decreases in possession index in four of the six divisions (Northern, Central East, South West and Shire highlands) while the other two had registered slight increases. All these changes were not significant.

Were the living conditions of the teachers acceptable?

Teachers were also asked about their living conditions. They were asked to rate their living conditions as:

- Generally poor or major repairs needed 1
- Minor repairs needed or generally good 2

The percentages and sampling errors of pupils with reading and mathematics teachers who answered that the conditions were generally good or that they needed minor repairs for both SACMEQ 1 and II have been presented in Table 4.3 below.

Table 4.3: Percentages and sampling errors for teacher housing in acceptable conditions (SACMEQ 1 and SACMEQ II)

Division	Teacher housing in acceptable conditions					
	SACMEQ I			SACMEQ II		
	Reading teacher		Reading teacher	Mathematics teacher		
	%	SE	%	SE	%	SE
North	13.4	7.41	19.1	8.98	31.4	10.47
Central East	19.0	8.82	14.5	8.58	10.4	7.87
Central West	21.6	7.56	27.1	8.33	31.6	9.11
South East	17.6	9.59	14.1	6.97	11.1	6.35
South West	17.5	7.71	23.0	10.39	21.5	8.83
Shire Highlands	23.8	9.55	19.2	9.41	18.5	9.09
Malawi	18.7	3.39	20.3	3.65	22.5	3.76

It can be seen from Table 4.3 that 20.3 percent and 22.5 percent of the pupils had reading and mathematics teachers respectively who declared their living conditions to be acceptable. The converse of this is that many teachers (up to 79.7% of the reading teachers) had declared their living conditions to be unacceptable. The situation does not seem to have improved between SACMEQ I and II. The government of Malawi has recently introduced housing allowances but this seems not to have helped may be because there are no houses for rent in some parts of Malawi. Such a situation can lead to teacher demotivation and hence can affect the quality of education being provided.

Policy Suggestion 4.3: The evidence showed that teachers were generally not happy with their living conditions. The Ministry of education needs to review the working conditions of teachers so as to improve in some areas such as teachers' living conditions.

The information above has indicated that Standard 6 pupils in Malawi were mainly taught by relatively young teachers and that very few of them were female in 2000. The socio-economic conditions of these teachers as measured by possessions at home were also very low and they deemed their living conditions not to be acceptable.

Policy concern 7: What were the professional characteristics of Standard 6 teachers and did they consider in-service training to be effective in improving their teaching?

Another area of policy concern was the teaching experience and training of the Standard 6 teachers. The teachers were asked about the number of years of teaching experience they had and also about the type of teacher training and education they had received. This information has been presented below in Tables 4.4 and 4.5 for SACMEQ I and SACMEQ II respectively.

Table 4.4: Means and sampling errors for experience and training of reading teachers (SACMEQ I)

Region	Reading teacher			
	Experience (Years)		Training (Years)	
	Mean	SE	Mean	SE
North	8.7	1.37	1.6	0.15
Central East	6.2	1.17	1.0	0.19
Central West	5.9	0.87	1.1	0.16
South East	7.8	1.70	1.2	0.24
South West	6.2	0.71	1.2	0.17
Shire Highlands	6.3	0.98	1.4	0.22
Malawi	6.8	0.47	1.2	0.07

Table 4.5: Means and sampling errors for experience and training of reading and mathematics teachers (SACMEQ II)

Division	Reading teacher				Mathematics teacher			
	Experience (years)		Training (years)		Experience (years)		Training (years)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
North	9.1	1.51	1.5	0.15	8.3	1.48	1.1	0.20
Central East	5.8	0.72	1.1	0.27	6.0	0.86	1.5	0.38
Central West	8.2	1.27	1.4	0.19	7.7	1.09	1.3	0.20
South East	6.8	0.56	1.6	0.18	6.6	0.64	1.4	0.21
South West	7.5	1.07	1.7	0.22	8.3	1.02	1.7	0.19
Shire Highlands	7.8	1.51	1.5	0.23	9.4	1.75	1.7	0.28
Malawi	7.7	0.51	1.5	0.09	7.8	0.50	1.4	0.10

(a) Years of teaching experience

It can be seen from Table 4.5 that in SACMEQ II, the average pupil had a reading teacher who had 7.7 years of teaching experience and a mathematics teacher who had 7.8 years of teaching experience. The Northern education division had the highest number of years with 9.1 years of experience for the reading teacher while the Shire Highlands education division had the highest number of years for the Mathematics teacher with 9.4 years. The average number of years of teaching experience in the table corresponded with the age of teachers in Table 4.2 which indicated that most of the teachers were young and that is why they also had few years of teaching experience. There was a significant increase in teaching experience between SACMEQ I and SACMEQ II.

(b) Years of teacher training

A question was also asked about the number of years of teacher training that the teachers had. The normal teacher-training course in Malawi runs for 2 years. However with the introduction of Free Primary Education in 1994, a special program was introduced. From Table 4.5, it can be noted that the average pupil had reading teachers with 1.5 years of training and mathematics teachers with 1.4 years of training. This showed that Standard 6 pupils were taught by teachers who had less than the normal 2-year training program. It could be assumed that most of the teachers were trained under the new innovative MIITEP program. The figures further showed that there was no division which had an average of the 2 years of normal training. This is quite disturbing because it could

indicate that the majority of the pupils in Malawian schools were being taught by teachers who were still undergoing training or indeed who were untrained.

Policy Suggestion 4.4: After the introduction of FPE, Malawi seems to be struggling in providing the schools with acceptable levels of training and adequately trained teachers. The Teacher Development Unit with the support of the Ministry of Education should consider finding appropriate mechanisms for the training of all untrained teachers.

(c) Years of academic education

A question was also asked about the academic education of the Standard 6 teachers. The results of the teachers' responses have been presented in Tables 4.6 below for reading teachers.

Table 4.6: Academic education of reading teachers

Division	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
North	0.0	0.00	44.1	11.18	55.9	11.18	0.0	0.00	0.0	0.00
Central East	0.0	0.00	50.1	13.86	49.9	13.86	0.0	0.00	0.0	0.00
Central West	3.2	3.19	42.6	9.79	54.2	9.86	0.0	0.00	0.0	0.00
South East	0.0	0.00	37.5	11.44	62.5	11.44	0.0	0.00	0.0	0.00
South West	4.9	4.89	36.4	10.81	58.7	11.19	0.0	0.00	0.0	0.00
Shire Highlands	0.0	0.00	30.8	11.11	69.2	11.11	0.0	0.00	0.0	0.00
Malawi	1.5	1.09	40.7	4.56	57.8	4.58	0.0	0.00	0.0	0.00

It can be seen from Table 4.6 that 57.8 percent of the pupils were taught by reading teachers who had completed senior secondary while 40.7 percent were being taught by reading teachers with junior secondary education only. The Shire Highlands division had the highest percentage of pupils being taught by teachers with senior secondary education. None of the pupils had a reading teacher with an A-level education let alone tertiary level education. However, the Central West and South West divisions had some

pupils who were being taught by teachers with primary level education. Recently, there have been cases where communities have employed volunteer teachers and it is possible that some of the districts in these divisions were hiring the services of volunteers for the teaching of primary schools. While the ministry has been trying to institute a policy of employing Form 4 graduates only for the teaching of primary schools, the above evidence suggests that the teaching profession has not been successful in attracting such caliber of graduates.

In Table 4.7 below information about the academic education of the Standard 6 teachers has been presented.

Table 4.7: Academic education of mathematics teachers (SACMEQ II)

Division	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
North	0.0	0.00	23.0	9.70	77.0	9.70	0.0	0.00	0.0	0.00
Central East	0.0	0.00	31.8	12.58	68.2	12.58	0.0	0.00	0.0	0.00
Central West	0.0	0.00	36.5	9.49	63.5	9.49	0.0	0.00	0.0	0.00
South East	0.0	0.00	47.9	11.94	52.1	11.94	0.0	0.00	0.0	0.00
South West	0.0	0.00	23.9	9.18	73.3	9.23	2.8	2.83	0.0	0.00
Shire Highlands	0.0	0.00	17.6	7.95	82.4	7.95	0.0	0.00	0.0	0.00
Malawi	0.0	0.00	30.6	4.17	69.0	4.17	0.4	0.44	0.0	0.00

In terms of mathematics teachers, it can be seen from Table 4.7 above that 69.0 percent of the Standard 6 pupils were being taught by mathematics teachers who had completed senior secondary education while 30.6 percent were being taught by mathematics teachers with junior secondary education only. Just like the English teachers, the Shire Highlands had the largest percentage of pupils being taught by mathematics teachers with senior secondary education. All the mathematics teachers had at least secondary education and the South West division had some pupils (2.8%) who were being taught by teachers who had some A-level education.

Policy suggestion 4.5 It can be noted from the evidence above that the ministry of education has not been able to attract the right type of people for the teaching profession. The ministry through the human resource department should therefore try to improve the general conditions of service for teachers so that more able form 4 graduates are attracted.

How many in service courses had Standard 6 teachers attended?

The many innovative approaches introduced after the FPE policy could have meant that teachers were being oriented to new ways of dealing with the new situations. To get an idea of the situation, the teachers were also asked to report on the number of in-service courses they had attended in the past three years. The information on the means and sampling errors for teacher in-service courses and days attended in the last three years (SACMEQ II) has been presented in Table 4.8 below.

Table 4.8: Means and sampling errors for teacher in-service courses and days attended in the last three years (SACMEQ II)

Division	Reading teacher				Mathematics teacher			
	In-services courses		Days		In-services courses		Days	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
North	1.5	0.69	20.7	12.39	0.3	0.20	1.9	1.37
Central East	1.8	1.03	16.9	10.35	1.9	1.21	17.1	12.14
Central West	0.3	0.12	5.3	3.13	0.2	0.08	2.4	0.86
South East	1.0	0.38	17.9	11.19	1.2	0.48	13.3	10.11
South West	0.6	0.38	6.1	4.41	0.8	0.42	5.2	2.30
Shire Highlands	0.4	0.18	27.1	17.60	0.6	0.18	14.0	9.23
Malawi	0.9	0.21	14.5	4.01	0.7	0.19	7.8	2.52

From Table 4.8, it can be seen that the average pupil had reading teachers who had attended 0.9 courses and mathematics teachers who had attended 0.7 courses. There are some variations among divisions. Central West education division had the lowest mean number of courses (0.3 for reading teachers and 0.2 for mathematics teachers) while

Central East education division had the highest mean number of in-service courses with 1.8 for reading teachers and 1.9 for mathematics teachers. It should be noted that the ministry's policy states that teachers will be exposed to an in-set for at least once a term and these figures clearly indicated that in-service courses were not emphasized.

Also included in Table 4.8 was information about the number of days the teachers had attended the in-service courses. The information in the table shows that the reading teachers spent on average 14.5 days for the three years, making an average of five days per year. The mathematics teachers on the other hand spent an average of 7.8 days for the three years. Reading teachers in the Shire Highlands division were exposed to more in-service days while mathematics teachers in the Central East division were exposed to more days of in-service.

Policy Suggestion 4.6: Given the many untrained teachers in the education system, it is disturbing that these teachers were also not exposed to adequate in-service training. The Ministry of Education needs to strengthen and intensify the use of its TDCs for in-service programs in order to improve the skills of teachers in a fast changing teaching environment. Priority needs to be given to the untrained teachers.

Policy Suggestion 4.7: The Ministry of Education should identify donors to provide resources for in-service training throughout the country, which is quite low at the moment and almost non-existent in some areas.

The teachers were also asked to what extent they found these in-service courses useful. The percentages of pupils whose teachers responded that they found the courses effective or very effective have been presented in Table 4.9.

Table 4.9: Percentages and sampling errors for the teachers' perception of effectiveness of reading and mathematics in-service courses (SACMEQ II)

Division	Effectiveness of the in-service courses			
	Reading in-service courses		Mathematics in-service courses	
	%	SE	%	SE
North	38.1	11.08	13.0	7.81
Central East	41.8	14.69	48.2	15.35
Central West	17.0	7.03	9.3	5.06
South East	38.9	11.89	35.2	11.73
South West	20.4	9.05	29.5	10.57
Shire Highlands	26.4	11.09	24.6	10.49
Malawi	29.1	4.33	23.8	4.00

It can be noted from Table 4.9 that only 29.1 percent of the pupils had reading teachers who found their in-service courses effective while only 23.8 percent of the pupils had mathematics teachers who found their in-service to be effective. It must be pointed out that while on the whole the levels of provision of in-service courses were very low, the message coming from this table is that those few days were just a waste of time as teachers were not deriving any satisfaction from the courses.

Policy Suggestion 4.8: In addition to intensifying the in-service programs, it would also be ideal if proper needs assessment was done by either division or district personnel (PEAs) to ensure that appropriate areas of needs are addressed by the in-service programs.

In summary, the evidence above has shown that in terms of the professional characteristics of the Standard 6 teachers, both reading and mathematics teachers had very few years of teaching experience. Many of these also had less than the two years of normal teacher training. The evidence further showed that the academic qualifications of these teachers were low and that they also were receiving low levels of in-service training courses which were also perceived to be of little value.

General Policy Concern 8: How did Standard 6 teachers allocate their time among responsibilities concerned with teaching, preparing lessons, and marking?

The teachers were also asked to indicate how much they were teaching per week and how much time they were spending on lesson preparation and marking homework

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

In Table 4.10 below, information about the means and sampling errors for the periods and time spent on teaching per week (SACMEQ I and SACMEQ II) has been presented.

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

Division	SACMEQ I				SACMEQ II							
	Reading teacher				Reading teacher				Mathematics 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
North	33.8	2.27	19.0	1.50	32.6	3.01	19.0	1.76	32.4	3.38	18.9	1.97
Central East	30.1	2.77	17.5	1.68	39.6	2.56	23.3	1.42	38.9	3.04	22.7	1.77
Central West	24.5	2.64	15.4	1.56	25.5	2.87	14.9	1.69	21.6	2.77	12.6	1.62
South East	32.2	3.43	17.4	2.05	34.5	3.32	20.0	1.95	32.5	3.90	18.9	2.27
South West	32.8	3.10	20.2	1.76	30.2	3.61	20.0	3.90	29.0	3.72	19.3	3.90
Shire Highlands	33.4	3.12	19.4	1.88	35.0	3.61	20.4	2.11	32.5	3.80	18.9	2.22
Malawi	30.7	1.17	17.9	0.70	32.0	1.35	19.1	0.92	30.0	1.44	17.9	0.98

In terms of time spent on teaching, it can be seen from Table 4.10 that teachers teaching reading spent 32.0 periods per week teaching representing 19 hours; this was an insignificant increase from 30.7 periods per week in SACMEQ I. The Central West division consistently had pupils with teachers who spent fewer periods per week

teaching. In 2002, the pupils had mathematics teachers who were spending 30 periods per week teaching but again pupils in the Central West division had teachers who were spending the least number of periods teaching. It could be possible that the staffing levels in the urban areas were favourable such that teachers were having lighter workloads (see Chimombo 2004).

Policy Suggestion 4. 9: The evidence pointed to some staffing irregularities in the Central West division. The division manager may wish to closely examine the staffing levels of the districts in the division and explore the possibilities of reallocating teachers. There will again be need for accurate and timely data.

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

The other policy concern was about the time spent by teachers on lesson preparation. The information on the means and sampling errors for the teachers' time spent on lesson preparation (SACMEQ I and SACMEQ II) has been presented in Table 4.11 below.

Table 4.11: Means and sampling errors for the teacher time spent on lesson preparation (SACMEQ I and SACMEQ II)

Division	Time spent on lesson preparation					
	SACMEQ I		SACMEQ II			
	Reading lesson (hours)		Reading lesson (hours)		Mathematics lesson (hours)	
	Mean	SE	Mean	SE	Mean	SE
North	18.4	3.28	28.0	2.42	27.9	2.92
Central East	25.4	2.92	24.8	2.71	21.4	2.34
Central West	21.0	2.94	26.4	2.19	26.5	2.31
South East	20.0	3.03	27.4	2.11	27.5	2.41
South West	24.0	2.88	22.3	2.44	21.9	2.34
Shire Highlands	16.7	2.34	19.7	1.93	23.2	1.89
Malawi	21.1	1.23	25.1	0.96	25.1	1.02

It can be seen from Table 4.11 above that the average pupils had reading teachers who were spending 25.1 hours for the preparation of lesson plans and this was a significant

increase from 21.1 hours in 1998. Then most significant increase occurred in the Northern division while pupils in the Shire Highlands division had teachers who were spending lesser hours preparing for a lesson in both studies. As for mathematics teachers, pupils from the Central East and South West divisions had mathematics who were spending the least number of hours preparing for a lesson (21.4 and 21.9 respectively). It can also be noted that pupils in the Northern division had both reading and mathematics teachers who were spending the highest number of hours preparing for a lesson in SACMEQ II. It should be pointed out that these figures are on the high side considering the heavy workload that teachers have in schools one wonders how they manage to get that much time.

In summary, it has been noted that compared to SACMEQ I, teachers in SACMEQ II were significantly teaching more periods per week. However, the evidence points to some staffing irregularities and time spent preparing a lesson plan. The Shire Highlands had teachers who were consistently spending lesser hours preparing a lesson plan.

Policy Concern 9: What were Standard 6 teachers' views about (a) pupil activities within the classroom, (b) teaching goals, (c) teaching approaches/strategies, (d) assessment procedures, and (e) meeting and communicating with parents?

A set of activities are normally prepared by teachers for a classroom lesson. These are meant to improve the way children may understand and follow a lesson. In this study, teachers were asked to state whether they thought that some activities were 'not very important' 'important' or 'most important'.

(a) Activities of teaching reading

The percentages of reading teachers who rated the activities of teaching reading as 'most important' have been presented in Table 4.12 for both SACMEQ I and SACMEQ II.

Table 4.12: Percentages and sampling errors for the activities of teaching reading (SACMEQ I and SACMEQ II)

Activity	Activity rated as 'most important'			
	SACMEQ I		SACMEQ II	
	%	SE	%	SE
Listening to reading	10.4	2.58	8.9	2.59
Silent reading	20.7	3.56	15.6	3.16
Learning new vocabulary	32.3	4.01	27.7	4.09
Sounding words	5.2	1.85	9.1	2.56
Reading for comprehension	23.0	3.47	21.7	3.92
Taking books home to read	7.8	2.34	9.0	2.62
Reading materials in home	0.6	0.60	1.2	0.92
Reading aloud in class *			6.9	2.24

It can be noted from Table 4.12 that in SACMEQ II 27.7 percent of the pupils had reading teachers who regarded learning new vocabulary as 'most important'. This was seconded by reading for comprehension at 21.7 percent. SACMEQ I also showed the same pattern with learning new vocabulary as the most important and seconded by reading for comprehension. It is however quite worrying that reading materials in the home was not rated as the most important. One way of interpreting these results is that, teachers do not seem to regard the home as a complementing partner in the teaching/learning process.

Policy suggestion 4.10: The development of a reading culture in schools seems to be low. The teacher development unit should make sure that attempts are made at instituting training programmes (pre and in-service) that will encourage a reading culture in schools which may be extended to the pupils' homes.

(b) Activities of teaching mathematics

Just like the reading teachers, the mathematics teachers were also asked to state whether they thought that the activities were 'not very important', 'important' or 'most

important'. The percentages and sampling errors of pupils with mathematics teachers who rated the activities for teaching mathematics as 'most important' have been presented in table 4.13 for SACMEQ 11 only because mathematics was not tested in SACMEQ 1.

Table 4.13: Percentages and sampling errors for the activities of teaching mathematics (SACMEQ II)

Activity	Activity rated as 'most important'	
	%	SE
Working in pairs or groups	45.2	4.66
Working alone	12.1	3.50
Preparing projects to be shown to the class	2.5	1.23
Using practical equipment	9.5	2.65
Homework assignments	6.3	2.18
Studying and interpreting graphs	2.0	1.40
Reciting tables, formulae, etc.	4.7	1.79
Quizzes, tests, examinations, etc..	17.6	3.77

The information in Table 4.13 shows that forty five percent of pupils had teachers who rated 'working in pairs or groups' as the most important activity for teaching mathematics. 'Quizzes, tests, examinations' was endorsed by teachers of 17.6 percent of the pupils and 'working alone' was endorsed by teachers of 12.1 percent of the pupils. 'Studying and interpreting graphs' got the least priority for the teaching of mathematics.

(c) Most important teaching goal

The teachers were also asked as to what they considered to be the most important teaching goals in reading and mathematics. The results for the reading teachers have been presented in Table 4.14 for both SACMEQ I and SACMEQ II.

Table 4.14: Percentages and sampling errors for the goals of teaching reading (SACMEQ I and SACMEQ II)

Goal	Goal rated as 'most important'			
	SACMEQ I		SACMEQ II	
	%	SE	%	SE
Making reading enjoyable	11.2	2.70	9.9	2.81
Extending vocabulary	34.1	4.15	30.5	4.31
Improving word attack skills	10.0	2.60	5.0	1.85
Improving reading comprehension	30.5	4.01	16.0	3.37
Developing a lasting interest	14.3	3.06	12.4	2.84
Opening up career opportunities *			18.7	3.76
Developing of life skills *			7.4	2.41

A slight change was made in SACMEQ II by splitting the two goals of “opening up career opportunities and Developing life skills” The results from the above table indicated that extending vocabulary was regarded as the most important goal by the reading teachers. This was also the case in SACMEQ 1. In SACMEQ 11 however, 18.7% of the pupils had reading teachers who said that opening up career opportunities was one of the most important goals for the teaching of reading.

Mathematics teachers were equally asked to rate what they thought were the most important goals for the teaching of mathematics. Their responses have been presented in Table 4.15 below.

Table 4.15: Percentages and sampling errors for the goals of teaching mathematics (SACMEQ II)

Goal	Goal rated as 'most important'	
	%	SE
Basic numeracy skills	10.1	2.71
Problem solving	41.3	4.48
Different ways of thinking	20.0	3.62
Confidence in solving problems	14.9	3.56
Satisfaction from doing Mathematics	1.6	1.24
Opening up career opportunities	10.2	2.65
Developing of life skills	2.0	1.22

It can be noted from the table that 41.3 percent of the pupils had mathematics teachers who regarded problem-solving as the most important goal. The second most important goal according to the mathematics teachers was different ways of thinking (20%) followed by confidence in solving problems (14.9%).

Policy Suggestion 4. 11: The majority of the teachers seemed to indicate that they were not conversant with the goals for teaching either reading or mathematics. It is important that the Teacher Development Unit and Teacher Training Colleges should incorporate the goals of teaching mathematics in their programmes so that teachers are made aware of these goals.

(d) Strategies of teaching

The reading and mathematics teachers were also asked about the teaching strategies which were used most frequently. The percentages and sampling errors of pupils having reading teachers who said that they used these strategies often have been presented in Tables 4.16 and 4.17 for both SACMEQ I and II.

Table 4.16: Percentages and sampling errors for the strategies of teaching reading (SACMEQ I and SACMEQ II)

Approach	Percentage indicating 'often used'			
	SACMEQ I		SACMEQ II	
	%	SE	%	SE
Introducing passage before reading	60.9	4.28	65.7	4.30
Asking questions to test comprehension	91.4	2.50	88.3	2.67
Asking questions to deepen understanding	82.0	3.35	82.5	3.41
Using materials made by teacher	52.2	4.22	42.6	4.48
Reading aloud to the class	53.6	4.40	56.0	4.54
Giving positive feedback*			81.0	3.57

Table 4.17: Percentages and sampling errors for the strategies of teaching mathematics (SACMEQ II)

Approach	Percentage indicating 'often used'	
	%	SE
Using everyday problems	67.1	4.32
Teaching the whole class as a group	82.1	3.36
Teaching in a small group	16.6	3.24
Teaching individually	30.7	4.29
Teaching through question and answer technique	83.6	3.30
Giving positive feedback	78.0	3.75
Relating to everyday life situations	57.3	4.54
Basic skills training	51.7	4.64
Explaining mathematical processes	83.3	3.37
Using available local materials	78.0	3.70

It can be noted from Table 4.16 that in both SACMEQ I and II, asking questions to test comprehension had the highest percentage of pupils whose reading teachers often used it as a strategy. Likewise, using materials made by teachers had the least percentage of pupils with teachers who said that they often used it as a teaching strategy. With so many untrained teachers and a general lack of in-service, this might be an indication of the

general lack of initiative by Malawian teachers to make and use locally available resources when teaching.

As for the mathematics teachers, it can be noted from Table 4.17 that teaching through question and answer had the highest percentage of pupils with teachers who often used it as a teaching strategy (83.6%) followed by explaining mathematical processes (83.3%) and teaching the whole class as a group (82.1%). It is clear from the responses from the two groups of teachers that there were variations in the ways teachers in Malawi appreciated and used the various strategies for teaching.

Policy suggestion 4.12: It is clear from the results above that teachers do not appreciate a wide range of teaching strategies. The ministry through the teacher development unit should consider incorporating aspects of strategies for teaching in their in-service training courses.

(e) Giving of written tests

An attempt was also made to find out how often Standard 6 reading and mathematics teachers gave written tests in their subjects. Information on the percentages and sampling errors for the frequency of reading tests (SACMEQ I and SACMEQ II) has been presented in Table 4.18.

Table 4.18: Percentages and sampling errors for the frequency of reading tests (SACMEQ I and SACMEQ II)

Division	Frequency of reading tests											
	SACMEQ I						SACMEQ II					
	Less often		2/3 per month		1 + per week		Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	13.7	7.52	45.6	10.89	40.8	10.74	7.8	5.42	20.3	8.66	72.0	9.66
Central East	19.0	8.82	33.3	10.58	47.6	11.21	4.9	4.95	29.0	11.88	66.1	12.45
Central West	14.8	6.98	34.8	9.17	50.4	9.65	4.8	3.56	24.3	8.25	70.9	8.67
South East	17.6	9.59	29.4	11.46	52.9	12.55	9.1	6.36	29.0	11.39	61.9	11.81
South West	15.6	7.58	36.3	10.00	48.2	10.68	4.8	3.59	23.4	9.96	71.7	10.26
Shire Highlands	0.0	0.00	28.6	10.13	71.4	10.13	15.3	9.08	19.6	8.39	65.0	11.05
Malawi	13.9	3.10	35.4	4.24	50.7	4.42	7.3	2.20	24.2	3.93	68.5	4.24

It can be seen from Table 4.18 that in both SACMEQ I and II studies, the tendency was for reading teachers to give tests at least once a week. The frequency at which teachers gave written test had significantly improved between SACMEQ I and II with the exception of the Shire Highlands division. The Northern division however had the most significant improvement in percentage of pupils with teachers giving test at least once a week

Information on the percentages and sampling errors for the frequency of mathematics tests (SACMEQ II) has been presented in Table 4.19.

Table 4.19: Percentages and sampling errors for frequency of mathematics tests (SACMEQ II)

Division	Frequency of mathematics tests					
	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
North	9.4	6.59	47.7	11.18	42.9	11.12
Central East	8.9	6.67	12.4	7.43	78.7	9.95
Central West	12.2	6.79	32.0	8.93	55.9	9.92
South East	15.7	7.66	38.8	11.80	45.5	11.91
South West	7.9	5.65	44.0	11.40	48.1	11.41
Shire Highlands	21.0	9.52	40.6	12.00	38.4	12.06
Malawi	12.3	2.95	36.4	4.40	51.3	4.63

For mathematics teachers, the tendency was also to give written tests at least once a week. While the Central East division had the highest percentage of pupils with teachers giving written tests at least once a week (78.7%), the Shire Highlands division remained the division with pupils whose teachers were not frequently testing their pupils. It must be noted that in SACMEQ II, 12.3 percent of the pupils had teachers who were giving written mathematics tests less often as compared to 7.3 percent for reading teachers.

(f) Specified section in pupils' report

Teachers were asked whether they included a specified section for English and mathematics in pupils' report. One would expect that all teachers included mathematics in their reports since it is one of the core subjects but may be not so for reading as it is a component of English as a core subject. In Table 4.20 below, information on the percentages and sampling errors of the frequency of a specific section in pupils report for reading and mathematics has been presented.

Table 4.20: Percentages and sampling errors for the frequency of a specific section in pupil school report for reading and mathematics (SACMEQ I and SACMEQ II)

Division	SACMEQ I		SACMEQ II			
	Reading section		English section		Mathematics section	
	%	SE	%	SE	%	SE
North	13.7	7.52	62.7	10.76	68.8	10.34
Central East	38.1	10.90	60.6	14.53	77.5	10.40
Central West	33.3	9.26	83.3	6.91	86.7	6.47
South East	23.5	10.67	92.7	7.32	96.9	3.08
South West	6.3	3.68	92.9	3.96	90.8	5.12
Shire Highlands	38.1	10.89	78.8	10.07	61.5	11.77
Malawi	25.2	3.71	78.6	3.82	81.0	3.35

It can be seen from Table 4.20 that the majority of the pupils (81%) had mathematics teachers who included it on their school report but only 78.6 percent reading teachers who included reading on the school report. However, the inclusion of reading on the school report had significantly increased between SACMEQ I and II.

Policy suggestion 4.13: The results above may be indicative that the teacher training courses in Malawi do not give enough stress on some aspects of pupil evaluation. The ministry of education through the TDU should once again include aspects of pupil evaluation as one way of enhancing their skills in class management

(g) Meeting parents

Postlethwaite & Ross (1992) have shown that in many countries, the more the school head and teachers had contact with parents, the more effective the school was in promoting the reading achievement of pupils. Hence a question was asked about the frequency of teachers meeting parents. The percentages and sampling errors for the frequency of teacher meetings with parents frequently have been presented in Table 4.21 for both SACMEQ I and SACMEQ II.

Table 4.21: Percentages and sampling errors for the frequency of teachers meeting with parents (SACMEQ I and SACMEQ II)

Division	Percentages of teacher meetings with parents frequently					
	SACMEQ I		SACMEQ II			
	Reading teacher		Reading teacher		Mathematics teacher	
	%	SE	%	SE	%	SE
North	60.6	10.45	94.3	5.73	95.8	4.24
Central East	71.4	10.14	83.4	8.57	87.1	7.81
Central West	81.5	7.63	85.7	7.02	83.1	7.50
South East	64.7	12.02	96.6	3.44	91.3	6.24
South West	64.2	9.98	88.0	8.31	94.7	3.67
Shire Highlands	61.9	10.89	82.7	8.50	82.7	8.50
Malawi	68.4	4.07	88.4	2.93	88.9	2.75

It can be noted from Table 4.21 that there were no major differences between the reading and mathematics teachers in the frequency with which they were meeting with parents (88.4% and 88.9% respectively). However, in 2002, more pupils (88.4%) had reading teachers reporting meeting parents than in 1998 (68.4%). The greatest improvement in the frequency of reading teachers meeting with parents occurred in the Northern division. Further attempts were made to find out what percentage of pupils on average, had parents or guardians usually meeting with the teachers in a year. When the results were tabulated, it was noted that the frequency of parents or guardians meeting with teachers was low. Only 33.8 percent and 31.9 percent of the pupils had reading and mathematics teachers who reported that parents had initiated meetings with the teachers (see Appendix 3).

(h) Teachers asking parents to sign homework

One other way of assessing how the schools and the homes of pupils work together towards improving the education of their pupils is to see if teachers ask parents to sign the homework they give to pupils. The teachers were therefore asked if they indeed asked parents to sign the home works. The percentages and sampling errors of reading and mathematics teachers asking parents to sign homework (SACMEQ I and SACMEQ II) have been presented in Table 4.22.

Table 4.22: Percentages and sampling errors of teachers asking parents to sign homework (SACMEQ I and SACMEQ II)

Division	SACMEQ I		SACMEQ II			
	Sign reading homework		Sign reading homework		Sign mathematics homework	
	%	SE	%	SE	%	SE
North	13.7	7.52	15.8	8.70	9.7	6.73
Central East	14.3	7.86	32.6	12.51	15.5	9.09
Central West	28.2	8.65	22.5	7.72	7.9	4.02
South East	17.6	9.59	15.1	8.02	30.9	11.14
South West	20.3	7.87	19.6	9.20	33.4	10.76
Shire Highlands	9.5	6.58	20.3	9.04	13.3	7.84
Malawi	18.2	3.37	21.0	3.70	17.3	3.27

It can be noted from Table 4.22 that not many pupils had reading and mathematics teachers who asked parents to sign the homework. Only 21 percent and 17.3 percent of the pupils had reading and mathematics teachers who reported that they asked parents to sign the homework respectively. Between SACMEQ I and SACMEQ II, the percentage of pupils with reading teachers who asked parents to sign the homework had not increased significantly.

Policy suggestion 4.14: Teaching and learning ought to be an enterprise that should be a joint venture of both the school and the community. Given the new strategy for community mobilisation and sensitisation in Malawi, the District Education Managers should, through PTAs and school management committees, take measures to ensure that parents are taken on board in the education enterprise.

In summary, it has been noted that compared to SACMEQ I, teachers in SACMEQ II were significantly teaching more periods. There were some staffing irregularities which need to be corrected especially when it comes to time spent preparing lesson plans. The Shire Highlands division had teachers who were consistently spending lesser hours preparing lesson plans. Not many teachers had the necessary skills for pupil evaluation and parents are in general not seen as an important partner in the education of their children.

General Policy Concern 10: 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 Grade 6 classrooms?

The quality of teaching and learning that goes on in a classroom depends upon a complex array of factors ranging from teacher preparation to school environment. A teacher can only put skills acquired during training into practice if the required resources are available. In turn, pupils will be able to appropriately interact with the teacher if they have the necessary resources at their disposal and are given conducive learning conditions. According to the PIF, the ministry of education intends to improve the quality of teaching and learning through improved and equitable resource allocation. In order to assess the situation regarding classroom furniture, the specific research question for the policy concern was:

What percentages of pupils were in classrooms with adequate sitting and writing places?

In Table 4.23: below, information on the percentages and sampling errors of pupils having sitting and writing places is presented.

TABLE 3.23: Availability of sitting and writing places

Region	SACMEQ I				SACMEQ II			
	% Having sitting Places		% Having Writing Places		% Having Sitting Places		% Having Writing Places	
	%	SE	%	SE	%	SE	%	SE
North	26.5	10.03	15.4	8.20	78.3	8.86	76.7	9.06
Central East	41.4	10.67	31.4	10.05	45.6	13.00	45.0	12.81
Central West	38.7	8.65	32.0	8.03	58.0	9.31	56.7	9.14
South East	18.4	9.39	16.8	9.13	43.5	11.35	36.3	10.42
South West	44.6	9.40	40.4	8.67	34.7	10.33	33.8	10.21
Shire Highls	33.7	12.35	31.6	12.15	75.5	11.21	74.7	11.09
Malawi	35.1	4.09	28.7	3.76	56.4	4.39	54.5	4.32

In SACMEQ II, the percentage of pupils having sitting places was 56.4. This was a significant improvement from 35.1 percent in SACMEQ I. Similarly there was a significant improvement in the availability of writing places from 28.7 percent in SACMEQ I to 54.1 percent in SACMEQ II. The greatest improvements were registered in the Northern division where sitting places were available to only 26.5 percent of the pupils in SACMEQ I and in SACMEQ II they were available to 78.3 percent of the pupils. Writing places were available to 15.4 percent of the pupils in SACMEQ I and in SACMEQ II they were available to 76.7 percent of the pupils. In contrast South West division registered a decrease (although not significant) in the proportion of pupils who had access to sitting and writing places. In SACMEQ I, 44.6 percent and 40.4 percent of Standard 6 pupils had sitting and writing places respectively while in SACMEQ II only 34.7 percent and 33.8 percent had sitting and writing places respectively. These may be explained by a small increase in pupils' population in the North and a rapid increase in pupil population in South West giving rise to overall increase in resource availability in the North and too much strain in resources in the South Western division. For equitable provision of resources it requires that resources should be made available based on the numbers of pupils in a district or division.

Policy Suggestion 4.15: Division Managers and District Education Managers must put in place mechanisms which ensure that resource distribution to schools in the Districts is based on pupils' enrolments. There must also be mechanisms to ensure that enrolment statistics coming from the schools are accurate.

What percentages of pupils were in classrooms with adequate classroom furniture for teachers (teacher table, teacher chair, and bookshelves) and classroom equipment (for example, chalkboard, dictionary, maps, book corner, and teacher guides) in standard 6 classrooms?

In Table 4.24 below, the material resources for reading and mathematics teachers at the classroom level in SACMEQ I and SACMEQ II have been presented.

Table 4.24: The amount of resources available in reading and mathematics

Availability of Classroom Resources						
SACMEQ I			SACMEQ II			
Resource	Reading Teacher		Reading Teacher		Mathematics Teacher	
	%	SE	%	SE	%	SE
A usable writing board	86.1	2.92	94.5	1.99	94.7	2.01
Chalk	96.7	1.50	96.4	1.57	94.9	1.88
A wall chart of any kind	57.5	4.25	58.2	4.54	63.1	4.46
A cupboard	18.1	3.27	51.2	4.65	48.4	4.63
One or more bookshelves	14.9	3.11	17.6	3.32	17.5	3.35
A classroom library or book corner	13.5	3.04	20.4	3.85	18.8	3.71
A teacher Table	41.3	4.29	47.9	4.58	49.1	4.70
A teachers chair	43.9	4.27	50.5	4.65	51.4	4.72

In SACMEQ II, the percentages of pupils who had reading and mathematics teachers with usable blackboards were 94.5 and 94.7 respectively. In the case of reading teachers, this represented a significant increase of 8.4 percent from SACMEQ I. Chalk was available to 96.4 percent of the pupil's teachers in SACMEQ II and there was little differences from the situation in SACMEQ I when 96.7 percent of pupils had reading teachers who indicated that chalk was readily available to them.

Similarly, in SACMEQ II 58.2 percent of the pupils had reading teachers who reported having wall charts and this represented an insignificant difference from 57.5 percent during SACMEQ I. However 63.1 percent of the pupils had mathematics teachers who had wall charts of some kind. In the case of cupboards availability, there was a significant improvement from 18.1 percent in SACMEQ I to 51.2 percent of pupils with reading teachers who had cupboards and 48.4 percent of pupils had mathematics teachers with cupboards in SACMEQ II. As for bookshelves, there was insignificant improvement from 14.9 percent of pupils to 17.7 percent of pupils with reading teachers who had bookshelves and only 17.5 percent of the pupils had mathematics teachers who reported having bookshelves.

How many books did teachers have in their classroom library or book corner?

The percent of pupils with reading teachers who had a classroom library or a book corner significantly increased from 13.5 percent to 20.4 percent between the two studies. In SACMEQ II the percentages of pupils with mathematics teachers who had a classroom library or book corner was 18.8 percent. In the case of the availability of teacher tables and teacher chairs there was also a significant increases in SACMEQ II compared to SACMEQ I. In SACMEQ II, 49.1 percent of the pupils had mathematics teachers who had teachers' tables.

Overall there were increases in provision of teacher resources. What was noteworthy was that the system still had about 5 percent of its pupils with reading and mathematics teachers without blackboards and chalk and about 50 percent of pupils with teachers without tables and chairs. The greatest increase in provision has been in cupboards. Given the importance of children being able to read widely if they are to improve their reading skills, greater efforts are required to increase the number of pupils having access to books through book corners.

Did teachers have teaching aids (for example, a map, dictionary, geometrical instruments, and teachers' guides)?

In Table 4.25 below. information on the percentages and sampling errors of reading teachers with teaching aids in the school (SACMEQ II) has been presented.

Table 4.25: Percentages and sampling errors of reading teachers with teaching aids in the school (SACMEQ II)

Division	Teaching aids									
	For teaching reading						For teaching mathematics			
	Map		English dictionary		Teacher's guide		Geometrical instruments		Teacher's guide	
	%	SE	%	SE	%	SE	%	SE	%	SE
North	51.0	11.20	81.5	8.81	91.2	6.41	27.2	9.98	83.0	8.24
Central East	43.6	14.34	47.2	14.09	76.1	15.21	7.1	5.23	65.5	16.65
Central West	24.0	8.45	34.7	8.94	87.6	6.26	13.3	6.47	80.0	7.70
South East	38.6	11.43	63.1	12.07	86.1	9.38	31.5	10.81	86.1	9.38
South West	53.4	11.58	76.4	9.60	94.4	3.91	16.3	8.26	82.7	9.43
Shire Highlands	48.4	11.89	71.5	11.54	100.0	0.00	32.1	11.89	67.0	11.35
Malawi	41.3	4.53	60.0	4.37	89.0	3.27	20.8	3.66	78.3	4.06

The commonly available teaching aid was the teachers' guide for both reading and mathematics teachers. Very few of the pupils (20.8%) had mathematics teachers who reported that they had a geometrical instrument, while only 41.3 percent of the pupils had reading teachers with a map. Clearly, schools are not fully resourced in terms of aids for the teachers.

A teacher checklist of the classroom resources available to reading teachers and mathematics teachers in Standard 6 generated teaching material indices for SACMEQ I and SACMEQ II. The main indices for the six divisions have been presented in Table 4.26 below.

Table 4.26: Classroom Resources Index

Region	SACMEQ I		SACMEQ II			
	Reading Teacher		Reading Teacher		Mathematics Teacher	
	Mean	SE	Mean	SE	Mean	SE
North	3.6	0.34	4.7	0.46	4.9	0.46
Central East	2.5	0.37	4.0	0.38	3.8	0.40
Central West	4.3	0.31	4.2	0.22	4.3	0.26
South East	3.9	0.35	4.3	0.51	4.1	0.50
South West	4.0	0.38	4.8	0.38	4.7	3.30
Shire highlands	4.0	0.32	4.3	0.29	4.3	0.30
Malawi	3.7	0.14	4.4	0.15	4.4	0.15

Out of a possible mean index of 8, the Standard 6 pupils had reading teachers (and mathematics teachers) who had a mean classroom resource index of 4.4 for SACMEQ II which was a slight improvement from the mean classroom resource index of 3.7 in SACMEQ I for reading teachers. This means that overall, the pupils' reading teachers had slightly above 50 percent of their teaching materials. The South West division registered the highest mean classroom resource index of 4.8 and the Central East division registered the lowest mean index of 4.0. The Central West division was the only one that registered an insignificant decrease from a mean classroom resource index of 4.3 in SACMEQ I to a mean classroom resource index of 4.2 in SACMEQ II. It appears then that the ministry of education was still finding difficulties in allocating resources to Standard 6 reading and mathematics teachers.

Policy Suggestion 4.16: The ministry of education should spell out clearly the minimum resource requirements for teachers to have and ensure that these are met so that targets and benchmarks are recognised and met in all efforts to improve the quality of teaching.

The main finding from the policy concern above is that Standard 6 had teachers who had access to very few resources in their classrooms. The provision of teaching aids was also very low. In sum the ministry still has a lot to do to make sure that as many teachers as possible have all the necessary resources so that the quality of teaching can improve.

Policy Concern 11: What professional support (in terms of education resource centres, inspections, advisory visits, and school head inputs) was given to Standard 6 teachers?

The next few sections of the report examine the kind of professional support that is given to teachers in terms of advice given by head teachers, use of resource centre, advisory services and support by the head teachers.

(a) Professional Support given to teachers by head teachers

One of the innovations that have taken place in Malawi's education system has been in the area of teacher training and management. In an attempt to meet the high demand for teachers created by the introduction of the FPE policy, the ministry of education employed many temporary teachers who were to be trained under the innovative MIITEP. Under MIITEP, head teachers were expected to play a more active role in supervising the teachers, as well as giving them advice as part of the school-based component of the innovative training programme. A question was included in SACMEQ to assess the frequency at which head teachers were giving advice to teachers. The percentages and sampling errors for the frequency of advice to teachers from school heads (SACMEQ I and SACMEQ II) have been presented in Table 4.27 below.

Table 4.27: Percentages and sampling errors for the frequency of advice to teachers from school heads (SACMEQ I and SACMEQ II)

Division	Percentage of teachers receiving advice 'sometimes' or 'often'					
	SACMEQ I *		SACMEQ II *			
	Reading teacher *		Reading teacher *		Mathematics teacher *	
	%	SE	%	SE	%	SE
North	90.9	6.30	95.5	4.52	95.3	4.77
Central East	85.7	7.86	94.3	5.72	100.0	0.00
Central West	100.0	0.00	96.6	3.43	92.4	5.27
South East	88.2	8.10	100.0	0.00	98.7	1.30
South West	56.3	10.41	100.0	0.00	100.0	0.00
Shire Highlands	100.0	0.00	97.5	2.47	97.6	2.46
Malawi	87.3	2.67	97.2	1.46	96.7	1.63

It can be seen from Table 4.27 that 97.2 percent and 96.7 percent of the pupils had reading and mathematics teachers respectively who reported having received some advice from the school head. All the reading teachers from the Northern region and all the reading and mathematics teachers from the South West division said that they received advice from their head teachers. There is no doubt from the results in the table that head teachers were indeed playing an increasing role in helping teachers in their professional development.

(b) Availability of education resource centres for teachers

In Table 4.28 below information about the percentages and sampling errors for the availability of education resource centres for teachers (SACMEQ II) has been presented.

Table 4.28: Percentages and sampling errors for the availability of education resource centres for teachers (SACMEQ II)

Division	Reading teacher						Mathematics teacher					
	None available		Have not visited		Have used		None available		Have not visited		Have used	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	7.7	5.50	20.0	8.79	72.2	9.76	3.2	3.17	23.5	9.71	73.3	9.95
Central East	2.8	2.85	23.2	11.39	74.0	11.61	3.3	3.36	9.7	7.07	87.0	7.85
Central West	0.0	0.00	28.9	8.83	71.1	8.83	0.0	0.00	28.8	8.90	71.2	8.90
South East	23.9	10.76	4.5	4.48	71.7	11.13	23.9	10.76	14.3	8.17	61.8	11.79
South West	12.4	8.47	22.7	9.68	64.9	11.40	15.4	8.75	30.8	10.30	53.8	11.32
Shire Highlands	7.3	7.30	12.6	7.56	80.1	9.78	7.3	7.30	6.0	4.21	86.7	8.07
Malawi	8.0	2.48	19.9	3.65	72.1	4.18	7.9	2.46	20.5	3.64	71.6	4.10

It can be noted from the table that only 8 percent and 7.9 percent of the pupils had reading and mathematics teachers respectively who reported that they did not have a resource centre. Another 19.9 percent and 20.5 percent of the pupils had reading and mathematics teachers respectively who reported that they had not visited the resource centre. It can be seen then that 72.1 percent and 71.6 percent of the pupils had reading and mathematics teachers respectively who reported that they used the resource centre.

(c) Visit by staff of the education resource centre

The teachers were also asked whether they had been visited by staff from the resource centre. The percentages and sampling errors for schools which were visited by staff of the education resource centre and the purpose for the visit (SACMEQ II) have been presented in Tables 4.29 and 4.30 respectively below.

Table 4.29: Percentages and sampling errors for schools visited by staff of the education resource centre (SACMEQ II).

Division	Have visited	
	%	SE
North	94.8	3.75
Central East	79.9	10.70
Central West	57.4	9.66
South East	62.2	12.16
South West	72.9	11.14
Shire Highlands	88.3	6.74
Malawi	74.3	3.90

It can be noted from Table 4.29 that many of the pupils (74%) had teachers who reported that they had been visited by staff from the resource centre. This ranged from 57.4 percent in the Central West division to 94.8 percent in the Northern division. School heads were also asked to indicate the number of schools served by their resource centres. This ranged from 8.9 schools per resource centre in the South West division to 18.4 schools in the Central East division. The average number of schools per resource center was 13.7 schools. It can be concluded from these findings that the introduction of teacher development centres in Malawi is rendering good services to the schools. It is also important to examine the purposes for using the resource centers.

(d) Purposes for using the resource centre

In Table 4.30 below, information about the percentages and sampling errors of reading teacher's purposes for using the resource centre (SACMEQ II) have been presented.

Table 4.29. Percentages and sampling errors of reading teacher's purposes for using the resource centre (SACMEQ II)

Division	Reading teacher									
	Don't use		Borrow material		Make material		Training		Speak with teachers/staff	
	%	SE	%	SE	%	SE	%	SE	%	SE
North	21.7	9.49	50.4	11.20	61.9	10.63	54.9	11.10	67.2	10.12
Central East	23.8	11.73	45.4	13.36	48.7	13.95	36.8	12.28	55.8	14.43
Central West	28.9	8.83	55.9	9.68	30.1	9.80	49.8	9.93	61.4	9.44
South East	5.9	5.93	36.3	11.07	39.5	11.87	40.8	11.46	57.4	12.12
South West	25.9	10.88	33.7	11.29	42.0	11.77	22.8	9.79	39.0	11.53
Shire Highlands	13.6	8.12	60.0	11.92	54.4	12.16	25.0	10.20	74.0	10.86
Malawi	21.7	3.95	47.8	4.63	44.7	4.63	40.2	4.48	59.3	4.59

It can be noted from Table 4.30 that the most frequently cited reason for using the resource centre was to speak with fellow teachers or staff of the centre (59.3%) seconded by to borrow materials (47.8%) and then training (40.2%). Only 21.7 percent of the pupils had teachers who reported that they did not use the resource centre. The South West division had in general the least percentage of pupils with teachers using the resource centres. When the responses from the mathematics teachers were examined, it was observed that the pattern was the same as that of the reading teachers (speaking, borrowing, and training). Again the South West division had the least percentage of pupils with teachers using the resource centres (see Appendix 4).

Policy suggestion 4.17: In a fast changing school environment, the role of the resource centres in the district can not be over-emphasised. However, it seems that not all schools were maximising their usage. The district education managers should make sure that both PEAs and schools are encouraged to use the TDCs.

(e) Teachers' descriptions of the actions of the advisor

Just like many other countries, Malawi has been trying to change the role of the inspectorate section so that the inspector performs more of advisory role than inspection or fault finding. Consequently, the name of the inspector was changed to primary education advisor. To check on how much change has taken place in this direction,

teachers were asked to give a description of the actions of the primary education advisors. Their responses have been presented in Table 2.31 below.

Table 4.31: Teachers' descriptions of the actions of the advisor (SACMEQ II)

Description of the actions	Percentage of teachers agreeing							
	Reading teacher				Mathematics teacher			
	Inspector		Advisor		Inspector		<u>Advisor</u>	
	%	SE	%	SE	%	SE	%	SE
Pedagogical role								
Bring new ideas	66.9	4.41	87.2	2.89	67.3	4.46	83.3	3.09
Clarify educational objectives	61.2	4.47	83.7	3.23	65.3	4.44	80.5	3.51
Recommend new teaching materials	62.3	4.64	84.6	3.13	62.3	4.60	82.2	3.36
Contribution to my classroom teaching	20.9	3.67	21.3	3.55	21.7	3.64	23.9	3.86
Explain curriculum content	47.8	4.49	68.8	4.13	53.0	4.60	71.6	3.95
Suggest improving teaching methods	63.5	4.57	88.5	2.86	64.6	4.46	85.0	3.15
Critical versus advisory role								
Comes to advise	68.5	4.43	89.6	2.66	68.5	4.38	88.1	2.74
Comes to criticise	18.4	3.55	24.0	3.99	21.1	3.80	22.4	3.85
Finds faults and report them to the employer	15.7	3.09	15.9	3.47	17.3	3.35	18.9	3.71
Professional development role								
Provides information for teacher self-development	48.2	4.52	66.4	4.20	48.9	4.48	66.7	4.15
Encourage professional contacts with other teachers	62.1	4.59	80.5	3.61	60.1	4.51	79.1	3.58
Provides in-service training to teachers	35.5	4.33	52.0	4.57	36.2	4.42	54.1	4.66

Since there are no inspectors in Malawi, this report only concentrated on the teachers' responses about the advisors. When the responses from the teachers were examined, it could be observed that there existed a consistent pattern of responses for the roles played by the PEAs (pedagogical, critical versus advisor and professional roles).

In terms of pedagogical roles of the PEAs, most pupils had reading teachers (87.2%) and mathematics teachers (83.3%) who considered their PEA as someone who brought new ideas, seconded by those who thought that PEAs recommended new teaching materials

and those who thought that their PEAs clarified education objectives. However, very few pupils had reading (21.3%) and mathematics (23.9%) teachers who said that their PEAs contributed to classroom teaching. This might be an indication of the fact that although the PEAs were visiting schools with a changed role, there was very little that came from their actions, which contributed to classroom teaching. In terms of whether teachers saw the role of the PEAs as being critical or advisory, it can be observed again that most of the pupils had reading teachers (89.6%) and mathematics teachers (88.1%) who saw the role of the PEA as indeed being advisory.

As for the professional development role of the PEAs, most pupils had teachers (80.5% reading and 79.1% mathematics) who said that the PEAs were encouraging professional contact with other teachers while 66.4 percent and 66.7 percent of the pupils had reading and mathematics teachers respectively who said that their PEAs provided information for teachers' self-development. Only half of the teachers thought that their PEAs were performing the role of in-service training.

Policy suggestion 4.18: The responses from the teachers are indicating that not much emphasis is put into changing classroom practice by the PEAs. It would be desirable if TDU organized appropriate orientation to PEAs so that they focus more on helping the teachers (many of whom are untrained) in effectively managing their classrooms.

General Policy Concern 12: What factors had most impact upon teacher job satisfaction?

The motivation of teachers is a critical factor for any programme designed to improve the quality of education. In the SACMEQ countries, there has been considerable interest on this issue - especially with respect to those factors that contribute most to job satisfaction. It is widely believed that satisfied teachers will tend to work harder for the benefit of the pupils and are less likely to leave the teaching profession.

There are of course many things that can contribute towards the improvement of teachers' satisfaction with their work. Teachers in this study were asked to respond to 16 possible reasons for satisfaction with their jobs. These reasons have been grouped under

five headings below as: living conditions, school facilities/equipment, relationships with others, career advancement, and the educational outcomes of pupils. The percentages and sampling errors of pupils having teachers who said that the source of satisfaction was ‘very important’ have been presented in Table 4.32.

Table 4.32. Percentages and sampling errors for sources of teacher job satisfaction (SACMEQ I and SACMEQ II)

Source of satisfaction	Percentage of teachers indicating reason as ‘very important’					
	SACMEQ I		SACMEQ II			
	Reading teacher		Reading teacher		Mathematics teacher	
	%	SE	%	SE	%	SE
Living conditions						
Travel distance to school	69.4	3.91	75.1	3.91	76.8	3.85
Availability of teacher Housing	86.8	3.03	91.7	2.44	90.9	2.60
Quality of teacher housing	83.0	3.23	79.9	3.72	82.7	3.58
School facilities/equipment						
Quality of school buildings	70.5	4.00	79.3	3.66	77.3	3.91
Quality of classroom furniture	63.2	4.24	60.2	4.51	62.8	4.40
Relationships with others						
Quality of school manpower and administration	86.0	3.02	95.2	1.87	94.0	2.09
Amicable relations with staff	86.8	2.93	87.8	3.33	87.0	3.41
Good relation with community	82.8	3.22	81.1	3.83	79.5	3.95
Career advancement						
Expanded opportunities for promotion	77.1	3.47	86.2	2.92	88.6	2.77
Opportunities for professional development	87.3	2.89	92.5	2.37	94.5	1.85
Level of teacher salary	80.3	3.49	91.8	2.43	88.7	2.87
Educational outcomes of pupils						
Seeing pupils learn	83.0	3.30	89.8	2.78	86.9	3.16

It can be seen from Table 4.32 that 92.5 percent and 94.5 percent of the pupils had reading and mathematics teachers respectively who said that the presence of opportunities for professional development contributed to teachers' job satisfaction. Other things which teachers also thought contributed to job satisfaction were quality of school manpower and administration, amicable relationships among staff and availability of teachers' houses. However, when the teachers' responses were examined in terms of their ranking of the reason for being very important (see Appendix 5), level of teachers' salary was ranked first seconded by opportunities for professional development and then seeing pupils learn. Thus, in terms of importance, salary comes above everything else.

It can be noted from the results above that head teachers were playing an increased role in supporting teacher development at the school level. The establishment by the Ministry of education of TDCs in every zone has improved the accessibility of TDCs to teachers. However, not all schools were maximizing their usage and despite changed roles of PEAs, there was little that was being done by PEAs to influence classroom practice.

Conclusion

In summarizing this chapter, it can be noted that Standard 6 pupils in Malawi were mainly taught by relatively young teachers and that very few of them were females in 2002. The socio-economic conditions of these teachers as measured by possessions at home were also very low and their living conditions were not acceptable. In terms of the professional characteristics of the Standard 6 teachers, both reading and mathematics teachers had very few years of teaching experience. Many of these also had less than the two years of normal teacher training. The evidence further showed that the academic qualifications of these teachers were low and that they also were receiving low levels of in-service trainings which were also not effective.

The findings have further showed that Standard 6 teachers had access to very few resources in their classrooms. The provision of teaching aids was also very low. In sum the ministry still has a lot to do to make sure that as many teachers as possible have all the necessary resources so that the quality of teaching can improve. Compared to

SACMEQ I, teachers in SACMEQ II were significantly teaching more periods per week. However, the evidence points to some staffing irregularities and time spent preparing a lesson plan. The Shire Highlands had teachers who were consistently spending lesser hours preparing a lesson plan.

It was also noted that compared to SACMEQ I, teachers in SACMEQ II were significantly teaching more periods. There were some staffing irregularities which need to be corrected especially when it comes to time spent preparing a lesson plan. The Shire Highlands had teachers who were consistently spending lesser hours preparing lesson plans. Not many teachers had the necessary skills for pupil evaluation and parents are in general not seen as an important partner in the education of their children. The results have also showed that head teachers were playing an increased role in supporting teacher development at the school level. The establishment by the Ministry of Education of TDCs in every zone has improved the accessibility of resource centres to teachers. However, not all schools were maximizing their usage and despite changed roles of PEAs, there was little that was being done by PEAs to influence classroom practice.

Chapter 5

School Heads' Characteristics and their Viewpoints on Educational Infrastructure, the Organization and Operation of Schools, and Problems with Pupils and Staff

Introduction

School Heads form an important link between ministerial national policy and its implementation and actual practice in the schools. To do this, they need to have certain minimum amount of experience as teachers together with appropriate preparation or orientation in school management and policy issues. They should be able to relate policy to the school improvement plans they make and all other activities such as coordinating, directing, overseeing, advising, making decisions and reporting. They should be able to provide leadership in conformity with existing policies. As such, school heads need certain minimal qualities for them to carry out their roles effectively. They also provide first hand information on how schools are running and how best improvements or innovations can be implemented. In this chapter the major questions to be answered are:

- What were the personal characteristics of school heads (for example, age and gender)?
- What were the professional characteristics of school heads (in terms of academic, professional, experience, and specialized training)?
- 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?
- 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)?

General Policy Concern 13: What were the personal characteristics of school heads (for example, age and gender)?

Two research questions guided the analysis of the above general policy concern. These were about the age and gender distribution of the school heads. What then were the characteristics of primary school heads in Malawi in 2002 and were these different from 1998?

What was the age distribution of school heads?

The mean ages and gender of school heads in SACMEQ I and SACMEQ II have been presented in Table 5.1 below.

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

Division	SACMEQ I				SACMEQ II			
	Age (years)		Gender (female)		Age (years)		Gender (female)	
	Mean	SE	%	SE	Mean	SE	%	SE
North	41.9	1.97	0.0	0.00	39.9	1.11	9.6	7.08
Central East	36.9	1.27	12.0	6.63	41.8	1.34	22.5	15.18
Central West	39.9	1.15	10.0	5.57	41.3	1.16	12.6	6.33
South East	39.6	1.91	4.8	4.76	40.8	1.75	5.7	5.75
South West	38.8	1.33	16.7	7.77	40.1	1.09	25.0	10.25
Shire Highlands	41.9	1.59	4.2	4.17	43.8	1.65	14.9	10.08
Malawi	39.8	0.63	8.2	2.27	41.2	0.54	14.7	3.65

The statistics in Table 5.1 have been reported in terms of the pupils. Thus, the average pupil in Standard 6 had a head teacher who was 41.2 years old in 2002. This was not a significant increase from 39.8 years in SACMEQ I. Only the Northern Division registered a decrease (although not significantly) in the mean age of head teachers from

41.9 years to 39.9 years. The highest increase of 4.9 years was in the Central Eastern Division which was a significant one.

What was the gender distribution of school heads?

The policy on gender suggests that women should occupy at least 30 percent of management positions in government. It can be seen from the SACMEQ I and SACMEQ II results in Table 5.1 above that the situation was far from being achieved. Overall only 14.7 percent of the pupils had head teachers who were female in SACMEQ II although this was not a significant increase from 8.2 percent in SACMEQ I. There were also wide variations in the distribution of female head teachers among the divisions. However it is noteworthy that in Central Eastern division, the percentage increased from 12.0 to 22.5 and in the South Western division the percentage of pupils with female head teachers was 25 up from 16.7 percent in 1998. These two Divisions have made big improvements but still fall short of the 30 percent minimum. These results indicated that there was little consistency among divisions in the efforts to engage women in leadership positions. Thus, only lip service is paid to the gender policy.

Policy Suggestion 5.1: Ministry of education should make a deliberate effort to involve women in at least 30 percent of headship and other leadership positions at the school level. The District Education Managers through the Primary Education Advisors should take the lead in this.

The results in this section have shown that the average ages of head teachers had increased between 1998 and 2002 but that while the percent of pupils in schools with female teachers had increased, it still fell short of the recommended 30 percent. There were also marked variations in the distribution of female teachers.

General Policy Concern 14: What were the professional characteristics of school heads (in terms of academic, professional, experience, and specialized training)?

The Head teacher is often said to be the driving force of a school. Studies of school effectiveness (Dalin et al. 1994) have linked the leadership skills of the head teacher with quality learning and teaching. It can be argued that school heads with more academic

education, experience as teachers and those who have received specialized management training to be head should run their schools better than those without. In Malawi, most head teachers are appointed to their positions without any orientation and sometimes without appropriate experience. In order to answer the above policy concern properly, it has broken down into the following specific research questions:

- 1) How many years of academic education had school heads completed?
- 2) How many years of teacher training had school heads completed?
- 3) How many years of teaching experience had school heads completed?
- 4) How many years of experience had school heads had as either a school head or an acting school head – in the current school and all together?
- 5) Have school heads received specialized training in school management?
- 6) What percentages of the school staff had post-secondary academic education?
- 7) What average years of teacher training were received by the school staff?

How many years of academic education had school heads completed?

The mean teaching experience and training of school head teachers are given in Table 5.2 and 5.3 below for SACMEQ I and SACMEQ II respectively.

Division	School head academic education	
	Mean	SE
North	12.0	0.26
Central East	12.2	0.39
Central West	11.9	0.19
South East	12.0	0.22
South West	11.8	0.21
Shire Highlands	12.5	0.23
Malawi	12.1	0.11

It can be noted from Table 5.3 that in 2002, the average Standard 6 pupil had a head teacher who had 12.1 years of academic education. There were insignificant differences among the division in terms of years of head teachers' academic education. In 2002 (SACMEQ II), school heads were asked to report on the level of academic education they had reached. This information has been presented in Table 5.3.

Table 5.3: Level of academic education of school heads (SACMEQ II)

Division	Level of academic education									
	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
North	0.0	0.00	26.6	10.08	73.4	10.08	0.0	0.00	0.0	0.00
Central East	0.0	0.00	58.5	13.03	41.5	13.03	0.0	0.00	0.0	0.00
Central West	0.0	0.00	22.6	7.96	73.7	8.45	3.7	3.71	0.0	0.00
South East	0.0	0.00	61.2	11.69	38.8	11.69	0.0	0.00	0.0	0.00
South West	0.0	0.00	25.6	9.83	74.4	9.83	0.0	0.00	0.0	0.00
Shire Highlands	0.0	0.00	50.2	12.23	49.8	12.23	0.0	0.00	0.0	0.00
Malawi	0.0	0.00	38.1	4.36	61.0	4.40	0.9	0.93	0.0	0.00

The information in the table indicated that while none of the pupils had head teachers who just completed primary school; the majority (61.0%) of the Standard 6 pupils had head teachers who had completed senior secondary education. A good proportion (38.1%) of the pupils had head teachers who had completed junior secondary education. These results were indicative of the staffing problems in the primary schools and it means that anybody can be head of a school in Malawi. Indeed, problems of teacher shortage at all levels in Malawi meant that no teacher with tertiary education could teach at primary school level.

How many years of teaching experience had school heads completed?

In Table 5.4, information has been presented on the number of years that head teachers, in the year 2002, had been in their current position, and the number of years of teacher training for both SACMEQ I and SACMEQ II.

Table 5.4: Means and sampling errors for the teaching experience and training of the school heads (SACMEQ I and SACMEQ II)

Division	SACMEQ I				SACMEQ II					
	Experience		Teacher Training(years)		Experience		Teacher Training (years)		Specialised Training weeks)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
North	17.3	1.37	1.9	0.06	14.7	1.28	1.8	0.11	10.3	2.59
Central East	12.7	1.39	1.7	0.11	16.1	1.89	2.0	0.16	14.4	3.55
Central West	15.2	1.38	2.2	0.09	14.4	1.19	1.7	0.15	11.6	2.55
South East	14.9	1.89	2.0	0.11	14.7	2.09	1.8	0.12	13.2	
South West	14.6	1.59	1.9	0.06	16.0	1.19	2.1	0.14	7.8	
Shire Highland	18.4	1.66	1.9	0.10	18.3	1.74	1.9	0.10	15.6	3.91
Malawi	15.4	0.63	1.9	0.04	15.5	0.62	1.9	0.06	11.9	1.20

The average Standard 6 pupils had a head teacher who had 15.5 years of teaching experience. There was almost no change between SACMEQ I and SACMEQ II. In fact, the mean number of teaching years for head teachers decreased in four of the divisions. Shire Highlands Division consistently had pupils with more experienced head teachers at around 18.4 years in SACMEQ I and 18.3 years in SACMEQ II and South Eastern Division registering the lowest mean years of experience at 14.4 years. As mentioned above, in Malawi, there is no minimum number of years of experience for a teacher to become a head teacher. This may be because in Malawi there is a wide diversity of schools and teachers and setting a minimum number of years of teaching experience for head teachers may make it difficult to have head teachers in certain schools. Whatever the case, it seems desirable to set such a minimum benchmark for the purposes of consistency and setting a career path for aspiring teachers.

Policy Suggestion 5.2: The Ministry should set the minimum numbers of academic education and indeed teaching years for teachers to be promoted to headship positions.

How many years of teacher training had school heads completed?

In Malawi, primary teacher training programmes have, over the years, ranged between one year and three years in length. It can be noted from Table 5.2 that the average Standard 6 pupil had a head teacher with 1.9 years of teacher training. Again, this was the same between SACMEQ I and SACMEQ II and there were no major variations among the divisions.

Have school heads received specialized training in school management?

In terms of specialised training, the average Standard 6 pupil had a head teacher who had received 11.9 weeks of specialised training. The duration of the courses ranged from a mean of 7.8 weeks in South West division to 15.6 weeks in Shire Highlands division. As observed with in-service training for teachers in Chapter 4, funding for such specialised training has mostly depended on development partners and this cast doubt about the sustainability of such training courses.

Policy Suggestion 5.3: The Ministry of Education should include school management issues in its teacher training curriculum to provide basic survival kits for newly appointed head teachers. Head teachers should also be given specialized training and this should be on continuous basis.

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

A question was asked concerning the number of years in which head teachers had acted as school heads at the current school and altogether. The results have been presented in Table 5.5 below.

Table 5.5: Means and sampling errors of school heads' years of experience as a school head (SACMEQ I and SACMEQ II)

Division	SACMEQ I (1998)				SACMEQ II (2002)			
	This school		Altogether		This school		Altogether	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
North	3.8	0.59	6.8	1.11	2.9	0.50	5.6	0.96
Central East	3.1	0.43	4.5	0.84	3.1	0.50	7.2	1.52
Central West	4.4	0.60	7.3	0.95	3.2	0.47	6.3	1.06
South East	3.5	0.58	7.5	1.68	4.0	0.90	8.5	1.21
South West	2.7	0.46	6.0	1.20	2.9	0.55	6.6	1.14
Shire Highlands	4.2	0.80	7.7	1.62	4.3	0.51	9.5	1.60
Malawi	3.7	0.24	6.6	0.49	3.3	0.24	7.1	0.50

On average, Standard 6 pupils in Malawi in 2002 had a head teacher who had stayed at the same school for 3.3 years. This was an insignificant decrease from 3.7 years in 1998. The variations among the divisions were also not quite significant. Altogether, in 2002 the heads had been heads for 7.1 years on average and this was an insignificant increase from 6.6 years in 1998.

What average years of teacher training were received by the school staff?

A question was also included in the head teacher's questionnaire about the teacher training of the school heads and whether they had attended postsecondary academic education. The results have been presented in Table 5.6 below.

Table 5.6: Percentages, means and sampling errors for the qualifications of the school staff (SACMEQ II)

Division	Post-secondary academic education		Teacher training (years)	
	%	SE	Mean	SE
North	0.0	0.00	1.3	0.09
Central East	0.0	0.00	1.3	0.10
Central West	2.0	1.83	1.2	0.11
South East	5.0	3.46	1.5	0.09
South West	1.8	1.29	1.6	0.12
Shire Highlands	0.0	0.00	1.6	0.11
Malawi	1.5	0.70	1.4	0.04

It can be noted that only 1.5 percent of the Standard 6 pupils had a school staff who had, on average, attended post-secondary education. There were no such staffs in three of the six divisions. In terms of teacher training, it can be noted from the table that the average Standard 6 pupil had school staffs who had only 1.4 years of teacher training. There was little variation among the divisions. These results may have indicated that most of the school staffs in Malawi's primary schools were either the MITTEP (see Chapter 1) trained teachers or they were not trained at all.

In this section, it has been noted that the majority of the Standard 6 pupils had heads who had 12 years of education; an indication that they only had secondary level education. The heads had in general 15 years of experience. The policy suggestion arising from this was that the Ministry should set a minimum number of years of academic education and teaching experience before teachers are appointed to be heads. Proper training and orientation is also necessary before teachers are entrusted with managing a school.

General Policy Concern 15: 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?

A good school environment is expected to impact positively on pupils. School conditions are further enhanced by the provisions of specialised school buildings, playing fields, equipment and public services such as water, electricity and telephones. In order to analyse the above policy concern, several specific questions concerning equipment, water supply, general condition of school buildings, provision of toilets and classroom space have been raised.

What items of equipment (telephone, fax, photocopier) and general facilities (library, staff room, store room) did schools have?

In Table 5.7 below, information for four categories of general school facilities (school buildings, school grounds, general services and equipment) has been displayed. What should be noted at the onset is that schools in Malawi do not have modern technological equipment such as computers, photocopiers, television sets and video cassette recorders.

Only 36.2 percent of the pupils were in schools which had libraries. This was a significant increase from 26.4 percent in SACMEQ I. Again only 38.7 percent and 30.6 percent of the pupils were in schools which had a head teachers' office and a staff room respectively. It was worrying to note that the percent of pupils in schools with a head teacher's office dropped (though not significantly) from 43.3 in SACMEQ I. The reasons for this were not known. The percentage of pupils in schools with a staff room significantly increased from 20.2 in SACMEQ I to 30.6 percent in SACMEQ II. The percent of pupils in schools with a storeroom increased from 32.2 percent in SACMEQ I to 34.5 percent in SACMEQ II. There were insignificant increases in the percentage of pupils in schools with halls and cafeterias. In general, it would appear that Malawi schools are not well endowed with specialised school buildings such as head teacher's offices, libraries, storerooms, staff rooms halls and cafeterias.

Policy Suggestions 3.4: The Ministry should place appropriate guidelines for constructing a new school to include a head teachers' office, a staff room, a school library, and store room. The head teacher's office should be a priority since it can also serve as a storeroom.

Table 5.7: Percentages and sampling errors for schools with general facilities (SACMEQ I and SACMEQ II)

Facility	Percentage with facility			
	SACMEQ I		SACMEQ II	
	%	SE	%	SE
School buildings				
School library	26.4	3.64	36.2	4.59
School hall	4.4	1.65	5.5	2.06
Staff room	20.2	3.33	30.6	4.25
School head's office	43.3	3.93	38.7	4.45
Store room	32.2	3.83	34.5	4.34
Cafeteria	0.7	0.68	0.9	0.91
School grounds				
Sports area/ playground	86.8	2.84	94.2	2.07
School garden	66.1	3.92	66.5	4.43
General services				
Piped water/ well or bore-hole	75.2	3.57	72.8	4.05
Electricity	6.3	2.07	7.7	2.50
Telephone	7.5	2.15	8.9	2.57
Equipment				
First-aid kit	4.7	1.72	9.8	2.67
Fax machine	1.4	1.01	4.5	2.57
Typewriter	10.6	2.60	4.7	1.96
Duplicator	6.3	2.02	3.9	1.67
Radio	8.5	2.29	10.4	2.59
Tape recorder	2.8	1.40	2.0	1.23
Overhead projector	0.0	0.00	1.5	1.14
Television set	0.0	0.00	0.0	0.00
Video-cassette recorder	0.0	0.00	0.0	0.00
Photocopier	0.0	0.00	0.0	0.00
Computer	0.0	0.00	0.0	0.00

In the case of school grounds 86.8 percent of the pupils in 1998 were in schools having sports fields or playgrounds and this significantly increased to 94.2 percent in 2002. In SACMEQ I, 66.1 percent of the pupils were in schools which had school gardens. In SACMEQ II, the figure was 66.5 percent.

It can also be noted from the table that only 7.7 percent of the pupils in SACMEQ II were in schools which had electricity. This was an insignificant increase from 6.3 percent in SACMEQ I. Similarly in SACMEQ II, only 8.9 percent of the pupils were in schools owning telephones as compared to 7.5 percent of schools during SACMEQ I although this increase was not significant. While most of the technology in schools may require electricity, it would appear that the Ministry's Supplies Unit has not yet decided that electricity is a basic requirement in schools and so does not provide them. Facilities such as fax machines, type writers, duplicators, radios tape recorder or overhead projectors which were available to few schools were more likely to have been donations than regular provisions. Even more surprising was the indication that only 9.8 percent of the pupils were in schools with First Aid Kits in SACMEQ II representing an insignificant increase from 4.7 percent in SACMEQ I. The results of the analysis indicated that the majority of the pupils were in schools that did not have some items of basic equipment. The differences between SACMEQ I and SACMEQ II were, in general, not significant.

What kind of water supply did schools have?

It can be noted from Table 5.5 above that even more surprising is the proportion of pupils in schools which had piped water or wells or boreholes. In SACMEQ II only 72.8 percent of the pupils were in schools whose heads indicated they had safe drinking water representing a decrease (although not significant) from 75.2 percent during SACMEQ I. The fact that 25 percent of pupils were still in schools without safe drinking water must be a worrying one for the ministry.

Policy Suggestion 5.5: The methods advisory section of the ministry should support schools in planning for the most essential items and examine intervention strategies in order to have the basic facilities provided. The Ministry should make it mandatory for all schools to have First Aid Kits, and water supply system with safe drinking water.

What was the general condition of school buildings?

In addition to having teaching and learning resources, a conducive school environment enhances the quality of education. School buildings should not pose hazards to the teachers and learners. Teachers and learners too need to work in conditions which will not hamper their interactions. Safety, health and comfort are the basic considerations taken into account when constructing schools. In this study head teachers were asked to describe the general conditions of their schools in terms of the needed repairs and the availability of toilets. The percentages of buildings that need repair and toilet provision in the divisions have been presented in Table 5.8 below.

Table 5.8: General condition of buildings and toilet facilities (SACMEQ I and SACMEQ II)

Division	SACMEQ I				SACMEQ II			
	Need repair		Toilet provision		Need repair		Toilet provision	
	%	SE	Mean	SE	%	SE	Mean	SE
North	65.2	10.16	86.1	31.70	63.3	10.79	63.8	10.83
Central East	76.0	8.72	109.3	15.38	64.1	12.30	122.1	14.97
Central West	66.7	8.75	127.9	28.45	51.2	9.91	132.4	20.01
South East	42.9	11.07	111.1	23.28	58.5	11.63	109.3	13.81
South West	66.7	9.83	153.9	21.66	54.5	11.58	138.9	26.24
Shire Highlands	62.5	10.09	118.4	35.69	62.0	11.67	94.5	10.07
Malawi	64.1	3.98	117.8	11.06	58.2	4.57	111.6	7.41

Overall, 58.2 percent of pupils were in schools whose buildings needed repair in SACMEQ II compared to 64.1 percent during SACMEQ I. This was not a significant decrease. While the percentages of buildings needing repair were generally high, there

were also considerable variations among the division in the conditions of school buildings. Furthermore, the percentages of pupils in schools needing repair decreased in five of the six divisions. It was only in the South East division where the percentage of pupils in schools needing repairs increased (though not significantly) from 42.9 percent during SACMEQ I to 58.5 percent in SACMEQ II.

Policy Suggestion 5.6: Ministry of Education building unit should establish minimum construction standards which only allow safe, strong and child friendly school structures, and which do not need constant repair to avoid draining budgetary resources.

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

Toilets, as part of the basic essential facilities in schools, are often a problem in many countries. It can be seen from the above table that this was even more problematic in Malawi. In general, there were 111.6 pupils to a toilet in 2002. Although there were decreases in the number of pupils per toilet in five divisions, these provisions were still low. The North registered better provision of toilets in both studies. These low levels in provision of toilet facilities have a lot of implication on attendance and dropping out of school especially in the case of girls and in the case of those areas prone to water borne diseases.

Policy Suggestion 5.7: Ministry of Education Building Unit should set a minimum number of toilets per given number of pupils and mechanism for enforcing this should be devised.

What was the classroom space available for pupils?

The classroom space available for pupils can be an indication of the learning environment. In this study, the number of square metres per pupil was calculated by dividing the total square metres available by the total school enrolment. The results have been presented in Table 5.9 below.

Table 5.9: Means and sampling errors of the classroom space available for pupils (SACMEQ II)

Division	Classroom space	
	Mean	SE
North	1.1	0.13
Central East	0.8	0.27
Central West	1.7	1.29
South East	3.3	2.77
South West	0.5	0.14
Shire Highlands	0.6	0.05
Malawi	1.4	0.51

The old education act of 1962 stated a classroom space requirement of one square metre per pupil. Although this target seemed to have been reached by the national average, there were serious classroom space shortages in the divisions of Central East, South West and Shire Highlands. Further, it should be pointed out that the national figure of 1.4 obscures serious classroom shortages at the school level where about a third of all classes are held outside under trees and one questions its validity.

Policy suggestion 5.8: The ministry should review and where necessary publish in one document benchmark standards for the educational environment that are deemed to be reasonable for the proper functioning of primary schools. The review of the Education Act needs to be urgently finalized.

It has been noted in this section that the majority of the pupils were in schools, which did not have specialized school buildings such as the head teacher's offices and libraries. The majority of the pupils were also in schools that did not have some basic equipment. The provision of toilet facilities was also very low. There would appear to be a need for the Ministry to institute the necessary mechanism so that appropriate benchmarks can be established and followed.

General Policy Concern 16: 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)?

What amount of teaching did school heads undertake?

Apart from carrying out administrative work, head teachers in Malawi also undertake teaching. This is mainly due to the acute shortage of teachers, especially qualified teachers. Data were therefore collected from school heads as to the time they allocated themselves for teaching. Information on the means and sampling errors of teaching loads of head teachers have been presented in Table 5.10 below.

Table 5.10: Means and sampling errors for amount of school head teaching per week (SACMEQ I and SACMEQ II)

Division	School head teaching minutes per week			
	SACMEQ I		SACMEQ II	
	Mean	SE	Mean	SE
North	720.0	99.24	1030.6	129.68
Central East	664.2	106.60	637.9	114.24
Central West	528.8	74.23	524.7	80.16
South East	570.5	129.88	583.5	98.85
South West	499.0	108.99	439.5	121.95
Shire Highlands	562.7	119.17	438.5	67.17
Malawi	592.2	42.27	613.1	42.13

In SACMEQ II, the average pupil was in a school where the school head taught for 613.1 minutes. Taking one teaching period to be 30 minutes long, it means that in SACMEQ I pupils were in schools where head teachers had a mean of 19.7 periods a week and 20.4 periods a week in SACMEQ II. In the Northern Division head teachers have consistently had heavier teaching loads than their counterparts in the others Divisions. There were marked variations in the amount allocated to teaching by head teachers. However, the

differences between SACMEQ I and SACMEQ II were not all significant. These figures clearly indicate that head teachers in Malawi spend a considerable proportion of their time teaching and it is likely that this affects the way they apply themselves to administrative and managerial duties.

Policy Suggestion 5.9: Considering the demands on head teachers as administrators, the ministry’s advisory section would do well to suggest a minimum and perhaps maximum number of teaching periods for head teachers.

The above analysis has showed that head teachers in Malawi primary schools could teach up to 20 periods per week and that there were marked variations among the divisions in the time allocated to teaching by the head teachers.

What level of importance did school heads attach to activities such as community contacts, monitoring pupil progress, administrative tasks, etc.?

The perceptions of school heads on the importance of various tasks have been presented in Table 5.11. The results of the analysis presented in the table showed the percentage of pupils with heads who rated the various tasks as very important.

Table 5.11: The importance of various school head tasks (SACMEQ I and SACMEQ II)

Task	Percentage rating as ‘very important’			
	SACMEQ I		SACMEQ II	
	%	SE	%	SE
Contact with community	78.3	3.44	80.0	3.60
Using progress Records *	93.5	2.02		
Monitoring pupils progress **			97.1	1.32
Administrative tasks	93.0	2.12	96.6	1.48
Discuss educational objectives with the teaching staff	96.6	1.53	87.5	2.91
Professional development (Teachers)	91.1	2.37	88.7	2.87
Professional development (School Heads)**			97.0	1.43

* Only in SACMEQ I

** Only in SACMEQ II

It can be noted from the table that during SACMEQ I, 78.3 percent of the pupils were in schools whose heads rated contact with community as very important. This rating increased to 80.0 in SACMEQ II. This was not a significant increase. However, there were significant increases in the ratings by school heads on the importance of administrative tasks and discussion of objectives with teaching staff. In SACMEQ II, 97.1 percent and 97.0 percent of the pupils were in schools whose heads rated monitoring pupils' progress and professional development of schools heads as very important.

Policy Suggestion 5.10: The Teacher development Unit should undertake a needs assessment of head teachers' professional development for informed policy formulation and implementation.

What was the incidence of school activities such as a school magazine, public speaking day, "open days", etc.?

In each school, there were activities over and above teaching that were meant to be conducive to the learning process. In the field of education, there were selected activities that from other research were known to help the pupil to read more. In a study by Elley (1992), it was found that in schools where the learners produced a school magazine or journal or had a debating society, other things being equal, learners in such schools had a higher reading performance than in schools without such activities. Equally, it was felt that where there were frequent meetings between parents and teachers in whatever form then the learners' performance would be enhanced. The percentages and sampling errors of learners in schools where these various activities occurred have been given in Table 5.12.

Table 5.12: Percentages and sampling errors for the school activities (SACMEQ I and SACMEQ II)

Activity	Percentage of school activities			
	2.2.1 SACMEQ I		SACMEQ II	
	%	SE	%	SE
School Magazine	18.4	3.24	18.8	3.84
Public Speaking Day	53.5	4.13	46.5	4.60
Open-Door Policy	78.0	3.43	77.5	3.76
Formal Debates or Debating Contests	67.8	3.95	63.4	4.45

It can be seen that the overall performance of the above activities by schools in the SACMEQ I and SACMEQ II was very low. In fact, with the exception of school magazine, there was a general decrease in the overall percent of pupils in schools with the activities but a very significant decrease occurred in the conduct of public speaking days. The low percent of pupils in schools with their own school magazine was an indication that schools devoted most- if not all- of their time to teaching the examinable subjects and very little, if at all, to extra- curricular activities.

Policy suggestion 5.11: The Teacher development Unit should come up with a selected list of special activities as a normal feature of the school life in primary schools

How many school days were lost in the last school year due to non-school events?

In Malawi, it is common practice for pupils to lose some school days due to non-school events. These include late start of the term, organization of examinations, school festivals, national celebrations, natural disasters and funerals. In Table 5.13 below, information on the means and sampling errors for the number of official school days lost in SACMEQ I and SACMEQ II have been presented.

Table 5.13: Means and sampling errors for number of official school days lost (SACMEQ I and SACMEQ II)

Division	Average of official school days lost			
	SACMEQ I		SACMEQ II	
	Mean	SE	Mean	SE
North	6.9	2.57	4.3	0.94
Central East	2.5	0.77	4.0	0.60
Central West	2.9	0.90	5.6	0.85
South East	3.1	1.09	6.4	1.73
South West	4.5	1.31	6.2	1.37
Shire Highlands	4.7	1.27	5.8	1.16
Malawi	4.1	0.60	5.4	0.46

Overall, the average pupils was in schools which lost an average of 5.4 days in SACMEQ II while the mean numbers of days lost in SACMEQ I was 4.1. This represented a significant increase in the number of days lost. Out of the six divisions, Central East, Central West and South East divisions had significant increases in the number of days lost between SACMEQ I and SACMEQ II. This indicated that there were more activities demanding the suspension of lessons in 2002 than in 1998. Only the Northern Division registered a decrease in the number of days lost although not significantly.

Policy Suggestion 5.12: The ministry should set up a task force to develop strategies to overcome the number of official school days lost in an academic year.

What were the frequency and purposes of school visits by Primary Education Advisors?

A question was asked of the school heads about how many times a PEA had visited the school and for what purpose in the last three years. The methods advisory in Malawi is expected to visit schools at least regularly (at least once a term). In table 5.14 below, the percentages of pupils in schools that received at least one visit have been presented.

Table 5.14: Means and sampling errors of the frequency of school visits by PEAs over 3 years (SACMEQ II)

Division	Numbers of inspections over 3 years	
	Mean	SE
North	14.0	2.10
Central East	10.5	1.87
Central West	14.8	2.24
South East	12.2	2.04
South West	20.7	4.24
Shire Highlands	16.0	2.92
Malawi	14.7	1.10

It can be noted from the table that the average pupil was in a school that was visited about 15 times representing at least one and half visit per term. The most visited schools were in the South West division and the least visited schools were in the Central East division. It is however useful to know for what purposes the visits were made. This information has been presented in Table 5.15 below.

Table 5.15: Percentages and sampling errors for purpose of school visits by PEAs (SACMEQ II)

Purpose of inspection	Inspection took place in past 3 years	
	%	SE
Full inspection and advisory	89.1	3.23
Routine inspection	86.0	3.04
Inspect teachers – <u>not</u> for promotion	53.6	4.58
Inspect teachers – <u>for</u> promotion	18.8	3.83
Assist teachers	70.4	4.14
Advise the school head	73.9	3.97
Address crisis/problem	48.8	4.55
Courtesy call	71.7	4.20

The results indicated that nearly 90 percent of the pupils were in schools that were visited during the last three years for purposes of full inspection or routine inspection. Only 18.8

percent of the pupils were in schools where there had been an inspection to assess teachers for promotion. About half of the pupils were in schools which were visited for addressing a crisis. It can also be noted that while the role of the inspector had been changed so that they played more of advisory role, less than three quarters of the pupils were in schools which had been visited for purposes of advising the head.

Policy suggestion 5.13: The methods advisory department of the ministry of education should institute training programs for PEAs to improve their effectiveness. A system of analyzing inspection and advisory reports and utilizing them should be put in place.

It can be summarized from above that as far as head teachers in Malawi were concerned, the most important school activity was monitoring pupils' progress followed by performing administrative duties. There were very few extra-curricular activities if any in the schools and these were at low frequency. Further, schools were losing a lot of school days.

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

In some research studies (Dalin 1994) there has been evidence to show that the community's cooperation with schools is very important not only in the life of the community in general but also for learners. Indeed, the concept of community participation was also well emphasized in the Policy and Investment Framework and has been enhanced by the formulation of the community mobilization and sensitization strategies. The data in Table 5.16 provided a measure of interest of parents and community in the school of their locality.

It can be seen from the table that the major contribution from the parents/community was in the form of building and maintaining school buildings. These results confirmed findings from other studies (Chimombo and Kadzamira 2001) that found that the major contribution of communities was in the form of labour and in kind. The results also indicated that parents and communities made very little monetary contributions to the schools although 30 percent of the pupils were in schools where parents assisted teachers

in teaching without pay. Forty percent of the pupils were in schools where parents and community contributed towards extra-curricular activities of the schools.

Table 5.16: Parent/community contributions to the school (SACMEQ II)

Type of contribution	Pupils in school with community contributing to	
	%	SE
Building of school facilities	77.1	3.74
Maintenance of school facilities	79.1	3.65
Construction/maintenance and repair of furniture/equipment	38.5	4.56
The purchase of textbooks	8.8	2.74
The purchase of stationery	15.9	3.45
The purchase of other school supplies	29.1	4.16
Payment of examination fees	7.2	2.22
Payment of the salaries of additional teachers	0.9	0.62
Payment of an additional amount of the salary of teachers	0.5	0.47
Payment of the salaries of non-teaching staff	16.8	3.42
Payment of an additional amount of the salary of non-teaching staff	4.7	1.92
Extra-curricular activities	40.3	4.40
Assisting teachers in teaching without pay	30.0	4.19
Provision of school meals	2.9	1.53

Policy suggestion 5. 14: It would appear that as the Ministry of education implements its community mobilization and sensitisation strategy, the main focus should be on the change of attitudes from a concentration on provision of labour to encouraging the parents and communities to become active participants in the life of the schools.

What were the main behavioural problems of pupils?

Schools are responsible not only for ensuring that learners learn but also that they are socialized. Results from SACMEQ I (1998) indicated that some schools had problems with learner absenteeism. It should be noted that the data have been presented in terms of the percentage of learners in schools where the heads said that the problem was NOT a problem and NEVER occurred. The inverse of NEVER is that it occurred sometimes or

often. In Table 5.17 (a) below, information about pupil behavioural problems in terms of absenteeism has been presented.

Table 5.17(a): Pupil behavioural problems (SACMEQ I and SACMEQ II)

Frequency of pupil behavioural problem*	Indicating *'not a problem'/'never' occurs			
	SACMEQ I*		SACMEQ II*	
	%	SE	%	SE
Absenteeism	6.6	2.06	0.6	0.57

It can be noted from Table 5.17(a) that between SACMEQ I and SACMEQ II, there was a significant decrease in the percentage of pupils in schools saying that absenteeism never occurred. The results indicated that 99.4 percent of the pupils were in schools where the head teachers indicated that absenteeism occurred. This means that the incidence of absenteeism is very high in Malawi primary schools.

During SACMEQ II, 18 possible problems were identified for learner behaviour and ten for teacher behaviour. The results of the analysis have been presented in Table 5.17 (b).

Table 5.17(b): Pupil behavioural problems (SACMEQ II)

Frequency of pupil behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late at school	0.9	0.91
Skipping classes	19.9	3.42
Dropping out of school	4.4	1.83
Classroom disturbance	31.1	4.39
Cheating	21.2	3.65
Use of abusive language	23.3	3.74
Vandalism	58.9	4.54
Theft	23.3	3.93
Intimidation of pupils	33.9	4.42
Intimidation of teachers/staff	49.9	4.55
Physical injury to staff	88.1	3.03
Sexual harassment of pupils	64.4	4.49
Sexual harassment of teachers	92.6	2.44
<u>Drug abuse</u>	75.5	3.87
Alcohol abuse	68.3	4.20
Fights	5.7	2.29
Health problems	0.7	0.67

The results of the analysis gave an indication that the major challenges facing schools in Malawi had to do with health problems, arriving late at school, and dropping out of school. All these problems are related as health problems are bound to cause absenteeism and late arrival at school which in turn are bound to cause dropping out of school.

Furthermore, it can be seen that there were relatively few problems with teacher harassment and physical injury to staff. However, the fact that 64.4 percent of the pupils were in school where head teachers said that there was never a problem with pupil sexual harassment meant that 35.6 percent of the pupils were in schools in which the head teachers recorded that harassment sometimes or often occurred. Other challenges had to do with fights, skipping classes, cheating and theft. From the above analysis, it is clear that there were severe pupil behavioural problems in Malawi schools. It is urgent that a

separate study be conducted on these issues. At the same time, it would seem that the Ministry should take immediate action about health problems.

Policy suggestion 5.15: The Ministry should commission a study to determine the exact nature of problems experienced in schools and suggest steps that can be taken to eliminate these problems.

What were the main behavioural problems of teachers?

The head teachers were also asked about behavioural problems associated with teachers in their schools. The results have been presented in Tables 5. 18 (a) and (b) below.

Table 5.18(a): Teacher behavioural problems (SACMEQ I)

Frequency of teacher behavioural problem	Indicating 'not a problem'	
	%	SE
Absenteeism	26.1	3.64
Sexual harassment of teachers by other teachers	66.8	3.90
Laziness	32.7	3.92

Although the question asked during SACMEQ I was different from that asked in SACMEQ II, it can be noted that in SACMEQ I, 26.1 percent of the pupils came from schools in which head teachers reported that teacher absenteeism never occurred while it was 25.9 percent of the pupils in SACMEQ II. Although not significant, the results indicated that there was a slight increase in the incidence of teacher absenteeism.

Table 5.18(b): Teacher behavioural problems (SACMEQ II)

Frequency of teacher behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late at school	4.9	1.92
Absenteeism	25.9	4.19
Skipping classes	70.0	4.16
Intimidation or bullying of pupils	66.9	4.43
Sexual harassment of teachers	93.2	2.31
Sexual harassment of pupils	83.6	3.28
Use of abusive language	62.4	4.61
Drug abuse	91.2	2.58
Alcohol abuse	69.4	4.35
Health problems	10.0	2.96

The results in the table indicated that lateness of teachers was the leading problems with only 4.9 percent of the pupils being in schools where lateness was never a problem. This was followed by health problems of teachers with only 10 percent of the pupils coming from schools in which the problem had never occurred. Other challenging teacher related problems were use of abusive language, intimidation or bullying of pupils and alcohol abuse. The results of this analysis have indicated that there is need for a better understanding of problems of teacher absenteeism, lateness and poor health.

Policy suggestion 5.16: The Ministry should carry out a small study to examine the impact of absenteeism, lateness and health problems of teachers on the loss of contact hours and it should suggest steps to remedy this problem.

It can be noted from above that there were serious pupil behavioural problems in Malawi primary schools which needed to urgently be addressed. The analysis has also showed that there were equally teacher related problems of absenteeism, lateness and poor health. All need to be looked into.

Conclusion

The results in this chapter have showed that the average pupil in Standard 6 had a head teacher who was 41.2 years old in 2002. This was not a significant increase from 39.8 years in SACMEQ I. While the percent of pupils in schools with female teachers had also increased, it still fell short of the recommended 30 percent. There were also marked variation in the distribution of female teachers. It was also noted that the majority of the pupils had heads who had 12 years of education and 15 years of experience in general. The policy suggestion arising from this was that the Ministry should set minimum number of years of academic education as well as minimum and maximum teaching experience before teachers are appointed to become heads. Proper training and orientation is also necessary before teachers are entrusted with managing a school.

The analysis in this chapter has also showed that the majority of the pupils were in schools, which did not have specialized school buildings like the head teacher's office and libraries. The majority of the pupils were also in schools that did not have some basic equipment. Provision of toilet facilities was also very low. There was need for the Ministry to institute the necessary mechanism so that appropriate benchmarks were established and followed.

As far as head teachers in Malawi were concerned, the most important school activity was monitoring pupils' progress followed by performing administrative duties. There were very few extra-curricular activities if any and these were also at low frequency. Further, schools were losing a lot of schools days. There were also serious pupil behavioural problems in Malawi primary schools, which needed to be urgently addressed. The analysis has also showed that there were equally teacher related problems of absenteeism, lateness and poor health. In general, schooling conditions in Malawi primary schools were very poor meaning that the system still needed massive resources to reach acceptable levels of resourcing in most schools. Even more disturbing was the indication that 27.2 percent of the pupils were in schools, which did not have safe drinking water.

Chapter 6

Equity in the Allocation of Human and Material Resources among Divisions and among Schools within Divisions

Introduction

One of the goals of education is to ensure equity in access and participation, and equality in terms of human and material resource distribution both among divisions and schools within the divisions. This is aimed at ensuring that all children of school going age have an equal opportunity to quality learning. The quality of teaching and learning that goes on in a classroom depends upon a complex array of factors ranging from teacher preparation to school environment. A teacher can only put skills acquired during training into practice if the required resources are available. In turn, pupils will be able to interact with the teacher if they have the necessary resources at their disposal and are given conducive learning conditions. Having achieved universal primary enrolment, one of the important goals for the ministry of education in Malawi is now to achieve equality in the provision of educational activities. According to the PIF, the ministry of education intends to improve the quality of teaching and learning through improved and equitable resource allocation. In this chapter, the distributions of human and material resources among divisions and among schools within divisions for SACMEQ I and SACMEQ II have been presented.

Two approaches to the measurements of equity

There are two approaches to the measurement of equity: variation among divisions and variations among schools within division. When describing differences in resource allocation, it is important to know whether variations in resource inputs are more pronounced among divisions or whether they are larger among schools within divisions. This will help locate the level at which decisions must be made in order to address any uneven distribution of resources.

[a] Variations among Divisions

The coefficient of intra-class correlation, denoted by rho, is used to divide the variation of resource inputs into two components: [a] among divisions and [b] among schools within divisions. Rho can range from nearly zero to one. When used in this way, rho is the ratio that measures the percentage of total variation among schools that can be attributed to variation among divisions.

To illustrate the meaning of rho, consider two hypothetical school systems A and B. Assume that in school system A, resources are allocated equally or nearly to all schools. When one calculates the average resource levels for the divisions in the system, one finds that they are more or less the same – except perhaps for minor chance deviations. For such a school system, the value of rho would be close to zero because of the small variation among divisions. In this situation most of the variations would be among schools within divisions. On the other hand in school system B, suppose that because of administrative decisions, historical factors, or geographical differentiation of social class groups, etc, there are large variations among divisions. In this case, the value of rho would be close to unity. The majority of the variations among schools would be due to variations among divisions and there would be little variation among schools within divisions.

The above examples are two extremes to illustrate the interpretation of rho. It is common practice to express rho as a percentage. For examples, a rho value of say 0.20, means that 20 percent of the variations is among divisions and 80 percent among schools within divisions.

[b] Variation among schools within Divisions

It is also possible to quantify the differences among schools within a particular division by making a comparison with the variations among schools at the national level. This can be achieved by using the formula below:

$$\frac{\text{Variation among schools Within divisions} = \text{Standard deviation for schools in a division}}{\text{Standard deviation for schools in the nation}} * 100$$

The standard deviation of an indicator for a particular division measures the amount of variation among schools within division, whereas the standard deviation of an indicator for the whole country measures the amount of variation among schools for the nation. The ratio of the standard deviation of an indicator for a division to that for the nation, expressed as a percentage, provides a measure of the degree of equity within a division compared with the national picture.

To illustrate the interpretation of this ratio, consider two hypothetical Divisions A and B. Assume that the levels of resources are measured by an indicator that has a ratio value of 50 percent for Division A and 150 for Division B. This would mean that the variation in resource levels among schools in Division A is 50 percent less than the variation in resource levels among schools for the whole nation; and the variation in Division B is 50 percent higher than for the nation. It can be said that there has been equitable allocation among schools within Division A. In contrast the Ministry should be concerned about Division B because there is clear evidence of major inequities among schools in Division B when compared with differences among schools for the whole country.

The first policy concern for this chapter is:

General Policy Concern 17: Have human resources (for example, qualified and experienced teachers and school heads) been allocated in an equitable fashion among divisions and among schools within divisions?

The only one research question arising from the above policy concern was:

Were qualified and experienced Grade 6 teachers and school heads distributed equitably among divisions and among schools within divisions?

The indicators that were used as a measure of human resource allocation in this chapter were the qualification and experience of Standard 6 teachers and school heads and the pupil-teacher ratio. The variations among schools within divisions and the rho value for human resource allocation have been presented in Tables 6.1 and 6.2 for SACMEQ I and SACMEQ II respectively.

Table 6.1: Equity of human resource allocation as assessed by (a) variation among schools within divisions, and (b) variation among divisions (SACMEQ I)

Human resources	Variation among schools within divisions						Variation among divisions (rho x 100)
	1	2	3	4	5	6	
Reading teacher prof. qualif.	77.9	107.6	93.1	111.4	91.5	116.2	1.0
Reading teacher experience	119.8	108.9	84.3	134.3	65.1	83.5	0.0
School head prof. qualif.	61.5	119.9	109.2	106.3	60.3	106.7	5.4
School head experience	86.9	90.3	97.9	111.9	100.7	105.2	2.9
Inspectors/advisors visits	137.0	106.3	92.4	40.3	62.1	104.0	7.1
Pupil/teacher ratio	69.6	113.9	83.1	82.5	124.0	101.6	5.5

Table 6.2: Equity of human resource allocation as assessed by (a) variation among schools within divisions, and (b) variation among divisions (SACMEQ II)

Human resources	Variation among schools within divisions						Variation among divisions (rho x 100)
	1	2	3	4	5	6	
Reading teacher prof. qualif.	75.3	110.5	115.2	80.7	105.3	99.0	0.0
Reading teacher experience	114.0	47.6	126.7	43.5	90.7	124.6	0.0
Math. teacher prof. qualif.	101.3	124.5	100.7	87.1	84.3	105.2	0.0
Math. teacher experience	131.1	46.9	94.3	53.4	82.5	148.9	0.0
School head prof. qualif.	81.0	117.5	121.9	78.9	103.3	80.7	0.0
School head experience	77.3	98.7	100.6	123.8	82.7	114.6	0.0
Inspectors/advisors visits	116.5	111.7	75.2	71.6	108.1	72.9	14.3
Pupil/teacher ratio	107.5	107.0	69.2	93.9	114.3	54.0	17.6

It can be seen in general that the values of rho were relatively low for both sets of data. This was an indication that there was little variation in human resource allocation that could be attributed to differences among divisions. In SACMEQ I, large variations

among schools within divisions were found in the South East division for reading teacher experience, in the Northern division for advisory visits and in the South West division for pupil teacher ratio. In SACMEQ II, large variations were found in the Central West and Shire Highlands divisions for reading teacher experience, in the Central East division for maths teacher professional qualifications, in the Shire Highlands and Northern divisions for maths teacher experience and in the South East for school head professional qualification and experience. It can be observed that variations in school head experience have persisted in the South East division.

It can be seen that there was not much variation among the divisions for human resource inputs. However, the general input of resources in Malawi primary schools was low as witnessed by the results in the previous three chapters. As observed in SACMEQ I, this meant that whatever few resources were available were distributed more or less equally among the divisions. The government of Malawi still needs to have adequate financial resources to transfer teachers and school heads from one school to the other and to ensure that PEA visits to schools are equally distributed.

Policy suggestion number 6.1: All division managers should take action to ensure a more equitable distribution of human resources among schools. More problems were in the South East division and since this is not an easy task, the ministry of education should consider putting together a package that will help attract teachers and school heads to lesser popular areas.

Policy suggestion number 6.2: The division offices should develop and maintain a database of human resources in each school in their jurisdiction with respect to staff experience, professional qualification and PEA's visits to schools. This policy suggestion was also made in SACMEQ I.

The results in this section have showed that there were little variations in human resource allocation that could be attributed to differences among divisions. However, there were large variations in the way human resources were distributed among schools within divisions.

General Policy Concern 18: Have material resources (for example, classroom teaching materials and school facilities) been allocated in an equitable fashion among divisions and schools within divisions?

The adequacy and condition of physical facilities, infrastructure, as well as other material resources in a school are critical determinants of learners' achievement levels. Children spend most of their time in schools and therefore the school environment needs to be learner friendly. If children have to spend most of their time in schools where toilet facilities are either missing or not in good condition for example, this may discourage them from attending school. A question was therefore asked to assess the equity of material resource allocation among divisions and among schools within divisions. The specific research question arising from the above policy concern was:

Were (a) general school infrastructure, (b) classroom equipment, and (c) classroom teaching materials distributed equitably among divisions and among schools within divisions?

The variations among schools within divisions and the rho value for material resource allocation have been presented in Tables 6.3 and 6.4 for SACMEQ I and SACMEQ II respectively.

Table 6.3: Equity of material resource distribution to schools as assessed by (a) variation among schools within divisions, and (b) variation among divisions (SACMEQ I)

Material resources	Variation among schools within divisions						Variation among divisions (rho x 100)
	1	2	3	4	5	6	
Classroom furniture index	101.7	89.6	101.8	97.5	91.4	95.3	7.9
Toilets per pupil	114.5	58.0	115.4	78.4	80.0	131.8	0.0
Classroom library	86.9	118.9	125.2	71.7	87.4	88.9	0.0
Classroom space per pupil	106.4	73.4	86.0	75.9	143.9	86.9	3.5
Teacher housing quality	91.6	104.9	102.3	102.4	94.0	113.8	0.0
School resources index	65.1	75.0	108.2	108.4	124.4	89.3	5.7

Table 6.4: Equity of material resource allocation as assessed by (a) variation among schools within divisions, and (b) variation among divisions (SACMEQ II)

Material resources	Variation among schools within divisions						Variation among divisions (rho x 100)
	1	2	3	4	5	6	
Classroom furniture index by reading teacher	116.4	116.1	82.6	116.4	91.4	82.0	0.0
Classroom furniture index by mathematics teacher	120.7	108.8	88.3	118.6	87.6	77.2	0.0
Toilets per pupil	48.0	67.7	143.8	61.8	122.4	51.3	8.3
Classroom library by reading teacher	124.4	91.6	84.7	91.6	123.4	57.1	5.1
Classroom library by mathematics teacher	129.2	83.6	89.1	79.8	122.1	59.3	6.2
Classroom space per pupil	7.5	14.3	129.3	195.7	51.7	2.7	0.0
Reading teacher housing quality	95.0	87.9	114.4	98.7	98.7	100.6	0.0
Mathematics teacher housing quality	114.7	76.9	114.8	87.4	87.2	100.1	0.0
School resources index	106.6	65.9	100.1	92.9	129.7	76.3	4.1

When the variation among schools within division was examined in SACMEQ I, it was clear that there were problems in the divisions of Central West for classroom library and South West for classroom space and school resources and in the Shire highland division for toilets per pupil.

The analysis in SACMEQ II showed that there were problems in the Northern division for classroom library for both reading and maths teachers, in the Central West for toilets per pupil and classroom space, in the South East division for classroom space and South West for toilet per pupil, classroom library for both reading and maths teachers and school resource index. It should be pointed out that there were less variations in toilet per pupil for the Northern and Shire highlands divisions, classroom library for the Shire Highland division and classroom space for pupils in the Northern and Shire highland divisions compared with the national picture. This reinforced the observation that whatever few resources were available in Malawi primary schools were distributed equally.

Policy suggestion number 6.3: The dearth of materials in Malawi primary schools has persisted between SACMEQ I and SACMEQ II. While the good job being done by the Supplies Unit is commended, the ministry of education is strongly urged to continue the search for more resources to cover these deficits. At the moment, little or no resources in schools means that very little learning is taking place in the primary schools.

Policy suggestion number 6.4: All division managers with the exception of the Central East division should examine inequalities in the distribution of certain material resources among their schools and bring forward proposals to rectify the situation as soon as possible. These problems have persisted in the Central West, South West and Shire Highland divisions.

Conclusion

This chapter has explored the concept of equity of resource allocation for certain material and human resources along the two dimensions of equity among divisions and among schools within divisions. The main finding is that there was very little variation among divisions in the allocation of both human and material resources. However, there were large variations among schools within divisions both in 1998 and 2002. Government policy should move towards recognizing and remedying the diversities in resource allocation especially in classroom library.

Chapter 7

The Reading and Mathematics Achievement Levels of Standard 6 Pupils and their Teachers

Introduction

In any system of education, probably the most important aspect is "whether or not the pupils are learning", or stated in a slightly more nuanced way "the extent the pupils have learned what they were meant to learn". In the earlier chapters of this report, an examination has been made of the home backgrounds of pupils, the classrooms in which they were learning, the teachers they had, and finally of the conditions of the schools they attended. But, in the end, the important question is "how well did the pupils learn"? The evidence from the above chapters has demonstrated that the overall provision of resources to schools in Malawi was very poor. What could be the impact of this low level provision of resources on the achievement levels of pupils? In this chapter, a proxy measure for learning has been examined - the pupils' and teachers' achievement in reading and mathematics measured towards the end of their time in Standard 6. For the pupils, this is in a way, the culmination of learning that has taken place up to the end of Standard 6. In this chapter, the results of the achievement levels by pupils and teachers and variations and of the important sub-groups have been presented.

In order to structure the chapter, the following major questions have been posed and answered.

- What did the tests measure?
- What were the test scores in reading and mathematics and what were the differences in test scores in both reading and mathematics between subgroups by gender, socio-economic level and school location?
- What percentages of pupils reached the minimum and desirable levels in reading and mathematics and what were the differences between subgroups by gender, socioeconomic levels and school location?

- What percentages of pupils reached the different levels of skills in reading and mathematics and what were the differences between subgroups by gender, socio-economic levels and school location?
- How did the Malawi pupils compare in achievement with pupils in other Southern African countries?

What did the tests measure?

The results to be reported in this chapter were based on a test that was administered to the Standard 6 pupils and their teachers. The detailed construction of the tests was presented in Chapter 2. It is sufficient to repeat here that the tests were developed by teams of specialists from the SACMEQ ministries of education following the specifications of the curriculum in all the countries. They ensured that the test items measured both the existing curricula as well as any changes foreseen for the immediate future. Where appropriate, test passages and items were used from SACMEQ I so that the two test measures (from 1998 and 2002) would have items in common and hence the pupils from both times of testing could be compared on the same scale. The items were subjected to several reviews by panels in each of the countries. They were trailed on judgment samples of pupils and the psychometric properties of the items were calculated using Item Response Theory (one parameter or Rasch procedure). The tests were shown to have high reliabilities and validities. **Three** uses were made of the test items: the specification of hierarchical skill levels, the creation of competence benchmarks and the creation of scaled cores.

Skill levels

The skill levels were described in detail in Chapter 2. There were eight skill levels for each subject area. The levels were hierarchical and it means that they can be used to see the skills that the pupils have and have not attained. These levels have been reproduced in Table 7.1 below.

Table 7.1: Reading and Mathematics skill Levels

Level	Reading	Mathematics
Level 1	Pre reading: Locates familiar words in a short (one line) text. Matches words to pictures. Uses letters to help identify unknown words. Follows short, familiar instructions.	Pre numeracy: Counts illustrated objects. Recognizes basic numbers and shapes. Carries out simple single operations of addition and subtraction
Level 2	Emergent reading: Reads familiar words. Identifies some new words. Uses simple, familiar prepositions and verbs to interpret new words. Matches words and phrases. Uses pictures for clues. Reads short simple texts with simple repetitive patterns	Emergent numeracy: Links simple verbal, graphic and number forms with single arithmetic operations on whole numbers up to two digits. Recognizes common shapes or figures in two-dimensions. Estimates accurately lengths of simple shapes
Level 3	Basic reading: Uses context, simple sentences structures to match words and short phrases. Uses phrases within sentences as units of meaning.	Basic numeracy: Recognizes three-dimensional shapes and number units. Uses a single arithmetic operation in two or more steps. Deals with place value and effects of a single operation.
Level 4	Reading for meaning: Interprets new words by referring to word parts. Interpret sentences and paragraph level texts. Matches phrases across sentences. Uses information outside the text to confirm opinion. Able to locate information in longer text passages.	Beginning numeracy: Interprets a visual or verbal prompt in order to count, recognize shape, number and time. Uses a single familiar basic (add, subtract, multiply or divide) in simple arithmetic, measurement and data tasks
Level 5	Inferential reading: Interprets and makes inferences from different types of more complex texts. Extracts information from unusually formatted text. Interprets maps, tables and graphs. Makes judgment about the author's intended purpose	Competent numeracy: Carries out multiple and different arithmetic operations using visual or verbal prompts where the order of operations is important. Converts basic measurement units. Understands the order of magnitude of simple fractions
Level 6	Analytical reading: Combines several pieces of information from a range of locations in complex and lexically dense text or documents. Analyses detailed text or extended documents for underlying message. Identifies meaning from different styles of writing.	Mathematically skilled: Conducts multiple steps with a range of basic operations in a strict sequence using an analysis of a short verbal or visual prompt. Deals with three-dimensional perspective. Applies operations to units of time. Uses basic operations (addition and subtraction) on mixed numbers, multiplies larger numbers
Level 7	Critical Reading: Uses the structures of text to identify author's assumptions/aims/views and evaluates them. Offers a critical analysis of text.	Concrete Problem Solving: Can perform complex and detailed mathematical skills that require detailed knowledge of mathematics not supplied in the task. These tasks involve abstraction of verbal, visual and tabular information into symbolic forms and algebraic solutions. Understands use of extended verbal or graphic prompt (involving an analysis of steps) to identify correct sequence of calculations. Uses range of arithmetic operations on mixed number systems. Applies external knowledge or rules for problem solving. Converts and operates on units of measurement including time, distance and weight.
Level 8	Insightful Reading: Identifies the author's motives, biases, beliefs and suggestions in order to understand the main theme of the text. Interprets analogy and allegory and deeper significance and cohesiveness of ideas in the text.	Abstract Problem solving: Identifies nature of problem, translates the information given into a mathematical approach and then identifies strategy for solving problems. Can readily apply the strategy and solve the problem. This is higher order numeracy involving mathematical insight

Benchmarks of minimum and desirable, and functional levels

Using the benchmarks developed in SACMEQ I for minimum and desirable levels of achievement, it was possible to calculate what percentage of pupils in each country had met these benchmarks. The SACMEQ benchmarks used in this study were the average of the SAQMEQ I countries' different benchmarks. Two benchmark levels were also established. They were based on the pupil's ability to cope with reading and mathematics tasks encountered in society. A second benchmark was based on an estimation of a pupil's ability to cope with the reading and mathematics tasks in the next grade of education, Standard 7. The two benchmarks helped to identify three groups of pupils: namely, pre functional, functional and independent.

A group of pupils were described as pre functional because they had not yet reached a benchmark demonstrating reading or mathematics required for everyday activities in Malawian society. The label used in the tables is "pre functional"; it does not mean that a pupil is illiterate or non-numerate. There are basic skills that these pupils can demonstrate, but the skill level is not yet deemed by experts to be at a sufficient level to enable the person to be an effective member of the Malawian society.

A second group of pupils was identified as those who could demonstrate the kinds of skills needed to cope with life in Malawi. They were found to be above the pre-functional benchmark but had not yet reached the independent benchmark. These pupils were designated as "functional" in terms of their capacity to participate in Malawian society. However it was deemed that this group would need some remedial assistance to be able to cope with the reading and mathematics required at Standard 6 level.

The third group of pupils, whose performances were above functional, were described as demonstrating the kinds of skills that were desirable in order to learn independently at the next level of schooling, without needing remedial assistance. The label¹ used in the tables

¹ The experts in SACMEQ I had made two rating for each item in the tests. The first was the probability that a pupil would need to be able to master this item if he or she was to be able to cope with life in society. The second was the probability that a pupil, who had adequate skills to cope with Grade 7 learning, could obtain the correct answer to each item. Thus the two cut-off points resulted in three groups of pupils; those

was 'independent.'" It must be remembered that these benchmarks for SACMEQ II were decided by SACMEQ I panels. They were applied to the Malawi data.

Scaled Scored (the 500 scores)

A scaled score was used to analyse and interpret differences in performance between groups. In order to do this, each country's achievement data were scaled to a mean of 500 and a standard deviation of 100. Further to this, the countries' means were also placed on a scale where all countries data were used. Each country's data set was given a weight of one thus ensuring that countries were not weighted according to the number of pupils tested in the country. The mean of all countries was fixed at 500 and the standard deviation at 100.

Pupils' scores on each test and sub domain of items were converted to a new, neutral common scale allowing estimates of relative educational importance of differences between groups. Thus there was a scale with a mean of 500 and a standard deviation of 100. This is a frequently used conversion of scores. The scaled score is used to examine differences between sub groups in the sample. In education, differences of 0.2 standard deviations are often considered to be large and educationally important. With very large samples such as in this study, very small differences can be statistically significant and this is often mistaken for educational importance. Using the scale with a mean of 500 and a standard deviation of 100 provides a simple way of interpreting differences. Scores below 500 are below the national average and scores over 500 are above the national average. Differences between groups of more than 20 points deserve to be examined in detail for possible explanation as they may be of some educational importance.

There were two main policy concerns that guided the explorations in this chapter. The first one was:

who did not reach the minimum level, those reaching the minimum but not the desirable level and those reaching the desirable level.

General Policy Concern 19: What were the levels (according to Rasch scores and descriptive levels of competence) and variations (among schools and divisions) in the achievement levels of Standard 6 pupils and their teachers in reading and mathematics – for Malawi?

In order to address the above policy concern, it was broken down into several specific research questions. As seen above, the first research question was:

What were the overall mean Rasch scores of pupils and their teachers in reading and mathematics?

It was already reported that the test results of the analysis on achievement have been reported in developmental or criterion referenced terms. This is because criterion referenced interpretations of performances have meanings for the kind of assistance needed by pupils, teachers and curriculum developers as the new curriculum is ushered into the system and the schools. The development assessment strategy illustrated in this chapter provides powerful diagnostic and substantive information about pupils' performance and related curriculum. The overall scores for reading and mathematics for pupils and teachers have been presented in Table 7.2 below.

Table 7.2: Means and sampling errors for the reading and mathematics test scores of pupils with all items (SACMEQ I and SACMEQ II)

Division	Pupil performance on all items					
	SACMEQ I		SACMEQ II			
	Reading		Reading		Mathematics	
	Mean	SE	Mean	SE	Mean	SE
North	443.5	4.54	416.6	6.39	419.9	5.65
Central East	457.0	3.38	405.9	5.38	418.4	8.34
Central West	465.5	6.44	435.1	4.70	436.7	3.68
South East	468.5	3.83	438.4	5.90	434.1	4.95
South West	467.1	6.27	444.9	5.62	451.0	4.47
Shire Highlands	482.9	6.38	429.5	5.00	436.1	4.64
Malawi	462.6	2.42	428.9	2.37	432.9	2.25

It can be seen from the table that Malawi's pupils performed far below the mean for all of the SACMEQ countries. The performance of these pupils on all the items had significantly decreased between SACMEQ I and SACMEQ II. This was also true for all the divisions. This is an indication of the overall declining quality of education being offered in Malawi primary schools as a result of the FPE policy. It can also be seen that the pupils performed better in mathematics than in English. Across the divisions, this was true for the Northern, Central East, Central West and Shire Highlands divisions. Since English is the medium of instruction, this overall poor performance in English means that the pupils had problems in learning the other subjects as well.

The above results indicate that most pupils were being promoted without mastering the appropriate reading skills. Due to lack of diagnostic facilities and underdeveloped remedial services in schools, it seems that these pupils have been allowed to move through the primary school system without the necessary care and attention to their learning.

Policy suggestion 7.1: The ministry of education through the Malawi Institute of Education should investigate why the reading skills of Standard 6 pupils in Malawi were so poor and deteriorating further.

It was agreed during the planning of SACMEQ II study that Standard 6 teachers should also be tested on the same tasks as those taken by the pupils in both reading and mathematics. The Means and sampling errors for the reading and mathematics test scores of teachers have been presented in Table 7.3 below.

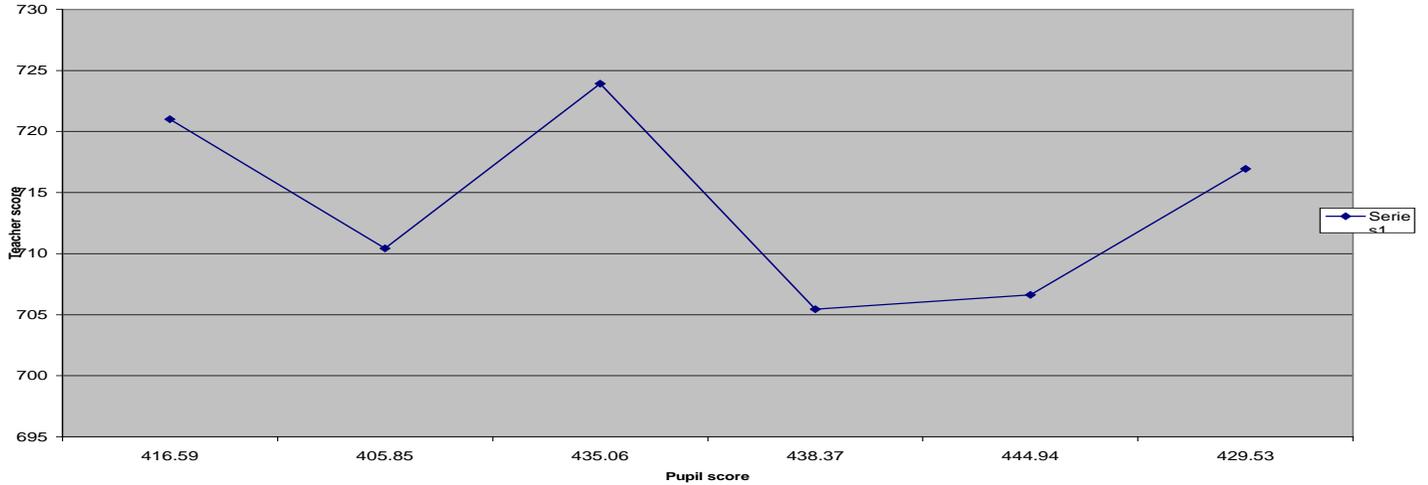
Table 7.3: Means and sampling errors for the reading and mathematics test scores of teachers (SACMEQ II)²

Division	Teacher performance on all items			
	Reading		Mathematics	
	Mean	SE	Mean	SE
North	721.0	13.91	783.0	22.95
Central East	710.4	12.23	819.1	37.67
Central West	723.9	9.65	758.2	12.37
South East	705.5	19.90	768.4	21.73
South West	706.6	12.70	795.5	15.86
Shire Highlands	716.9	20.61	745.1	21.11
Malawi	715.4	5.81	776.0	8.72

The information in Table 7.3 indicates that teachers in Malawi performed well above the mean for all the SACMEQ countries in both English and mathematics. The highest performance in reading was by teachers from the Central West division while in mathematics, it was by teachers from the Central East division. There were very large variations among the divisions in the performance of teachers in both reading and mathematics. These variations are also depicted by the graph of correlation between regional teacher and regional pupils' means in figure 1 below.

² Because the scores had been 're-scaled' with 14 countries, the Mean scores cannot be compared with the tables of MINEDAF paper.

Figure 1: A graph of correlations between regional teachers and Regional pupil means



There is no clear pattern in this graph. With the exception of the Shire Highlands division where a high teacher achievement is associated with relatively high pupils score, the correlations are irregular and do not depict any patterns.

What percentage of pupils reached the minimum and desirable levels of literacy?

In Table 7.4 below, the percentages of Standard 6 pupils in Malawi who reached the minimum and desired levels of mastery in reading have been presented. These percentages have been given along with the values of the relevant sampling errors which provide information with which to place error limits around the sample estimates of the population characteristics.

Table 7.4: Percentages and sampling errors of pupils reaching minimum and desirable reading levels of mastery (SACMEQ I and SACMEQ II)

Division	SACMEQ I				SACMEQ II			
	Pupils reaching minimum level of mastery		Pupils reaching desirable level of mastery		Pupils reaching minimum level of mastery		Pupils reaching desirable level of mastery	
	%	SE	%	SE	%	SE	%	SE
North	8.3	2.77	0.0	0.00	4.8	1.75	0.3	0.33
Central East	15.3	2.50	0.3	0.32	3.1	1.56	0.0	0.00
Central West	20.6	3.99	2.2	1.50	9.8	2.16	0.4	0.27
South East	22.2	3.37	0.4	0.39	11.8	2.22	0.0	0.00
South West	23.4	4.25	1.3	0.87	13.9	3.16	1.3	0.55
Shire Highlands	32.5	5.69	3.8	1.53	7.5	2.09	0.0	0.00
Malawi	19.4	1.62	1.3	0.45	8.6	0.95	0.3	0.12

It can be seen from Table 7.4 that in the SACMEQ I study, 19.4 percent of the pupils reached the minimum level of mastery in reading while in SACMEQ II, only 8.6 percent of them reached the minimum level of mastery in reading. This meant that up to 80.6 percent of the pupils in SACMEQ I and 91.4 percent of the pupils in SACMEQ II did not reach the minimum level of mastery in reading prescribed by reading specialists in Malawi and the other SACMEQ countries. In terms of the percentage of pupils reaching the desirable levels of reading mastery, it can be seen that while only 1.3 percent of the pupils reached the desirable level of mastery in SACMEQ I, fewer (0.9%) did so in SACMEQ II. As observed in SACMEQ I, this is a very deplorable state of affairs and is an indication of the magnitude of the schooling problems the Malawi education system is facing. The worrying thing is that the performance has significantly deteriorated between SACMEQ I and SACMEQ II; again an indication of the overall lowering standards of education in Malawi's primary schools.

There were several factors that might have contributed to the poor performance of the pupils. The evidence in Chapters 3, 4 and 5 was all pointing to the appalling environment

in which children in Malawi were learning. These poor conditions were likely to contribute to the low levels of performance for Standard 6 pupils.

As mentioned in SACMEQ I, a further analysis is required to provide clues as to which parts of the reading and this time mathematics curricula are being poorly addressed by the existing teaching instructions. Suggestions should be made about improved teaching materials and/or teaching practices for these problems.

Policy suggestion 7.2: There is need for the Ministry of education to institute a research study to examine the areas of the reading and mathematics curricula that were not mastered by the Standard 6 pupils and then give suggestions as to how the situation can be improved.

The analysis above has shown that the overall performances of pupils in both SACMEQ I and SACMEQ II were very poor and that the performances have significantly decreased. Teachers performed above the mean for all the countries. Many pupils were not reaching the minimum skills and the number of pupils not doing so has significantly increased between SACMEQ I and SACMEQ II.

General Policy Concern 20: What were the reading and mathematics achievement levels of important sub-groups of Grade 6 pupils and their teachers (for example, pupils of different genders, socio-economic levels, and locations)?

The reading data was analyzed further by classifying pupils into three sub-groups of sex, socio-economic levels and locations. The results of the analysis have been presented in Table 7.5 below.

Table 7.5: Percentages and sampling errors of pupils reaching minimum and desirable reading levels of mastery by sub-groups (SACMEQ I and SACMEQ II)

Sub-groups	SACMEQ I				SACMEQ II			
	Pupils reaching minimum level of mastery		Pupils reaching desirable level of mastery		Pupils reaching minimum level of mastery		Pupils reaching desirable level of mastery	
	%	SE	%	SE	%	SE	%	SE
<i>Gender</i>								
Boys	22.8	1.87	1.5	0.56	10.5	1.21	0.5	0.20
Girls	15.6	2.03	1.0	0.48	6.6	1.09	0.1	0.10
<i>Socio-economic</i>								
Low SES	16.7	1.46	1.0	0.35	6.1	0.95	0.3	0.13
High SES	24.8	2.61	1.9	0.91	13.6	1.66	0.5	0.26
<i>School location</i>								
Isolated/Rural	17.1	1.53	0.7	0.24	6.5	0.97	0.2	0.12
Small town	17.5	3.83	0.7	0.48	8.1	1.83	0.0	0.00
Large city	40.5	9.14	6.4	4.23	20.5	4.34	1.7	0.74
Malawi	19.4	1.62	1.3	0.45	8.6	0.95	0.3	0.12

What were the gender differences in reading and mathematics achievement for pupils?

It can be observed from Table 7.5 that in both SACMEQ I and SACMEQ II, a higher percentage of boys (22.8% and 10.5%) than girls (15.6% and 6.6%) reached the minimum level of mastery. The results showed that there were significant differences in reading at the minimum mastery level. While both boys and girls performed badly, their performances significantly decreased between the two studies.

What were the socioeconomic differences in reading and mathematics achievement for pupils?

A list of possessions in the home as described in chapter three was used as a surrogate measure of the socio-economic circumstances of the homes from which the pupils came. It can be seen from Table 7.5 that in SACMEQ I, only 16.7 percent of the pupils from the

low Socio-economic status reached the minimum level of mastery while 6.1 percent did so in SACMEQ II. As for pupils in the high socio-economic status level, it can be seen that while 24.8 percent of the pupils reached the minimum mastery level in SACMEQ I, only 13.6 percent did so in SACMEQ II. It can clearly be observed that while relatively more pupils from the high socio-economic levels reached the minimum mastery levels than those from low socio-economic levels in both studies, there were significant decreases in performance by socio-economic level between SACMEQ I and SACMEQ II studies.

What were the school location differences in reading and mathematics achievement for pupils?

The third sub-group was in terms of school location. It can be seen from the table that the major difference in terms of percentage of pupils reaching the minimum mastery level was whether a pupil was in a large city or not. Pupils in large cities stood a better chance of reaching the minimum mastery levels than those in other areas. However, between SACMEQ I and SACMEQ II, there were significant decreases in the percentage of pupils reaching the minimum mastery level across the three school locations.

From the information in Table 7.5 it could be seen that very few pupils reached the desirable mastery levels across the different sub-groups and that the percentage of pupils reaching the desirable levels significantly decreased between SACMEQ I and SACMEQ II. As already pointed out throughout this report, this was an indication of the overall declining standards of education in Malawi primary schools.

What percentage of teachers reached the minimum and desirable mastery levels?

Analyses were also undertaken to estimate the percentage of Standard 6 teachers that reached the pupil minimum and desirable reading levels of mastery reached. This was for SACMEQ II only since teachers were not tested in SACMEQ I. The results of the analyses have been presented in Table 7.6 below.

Table 7.6: Percentages and sampling errors of teachers reaching minimum and desirable reading levels of mastery (SACMEQ II)

Division	Teachers reaching minimum level of mastery		Teachers reaching desirable level of mastery	
	%	SE	%	SE
North	100.0	0.00	94.1	5.93
Central East	97.2	2.83	97.2	2.83
Central West	100.0	0.00	96.0	4.03
South East	92.7	7.32	92.7	7.32
South West	100.0	0.00	96.0	4.02
Shire Highlands	100.0	0.00	97.6	2.36
Malawi	98.6	1.13	95.6	1.96

Given that the standards were those defined for pupils it would be expected that ALL teachers would reach the minimum and desirable levels of mastery. It can be seen from the table that 98.6 percent of the teachers in Malawi reached the minimum mastery level while 95.6 percent reached the desirable level. All the teachers from the Northern, Central West, South West and Shire highlands divisions reached the minimum mastery level. The highest percentage of teachers reaching the desirable level of reading mastery was from the Shire Highland and Central East divisions. Overall, there were very little variations among the divisions especially at the minimum level of mastery.

In summary, it can be observed that while in general very few pupils reached the minimum mastery level, more boys than girls were reaching this level. The results also showed that across the socio groups, the percentage of pupils reaching the various levels significantly decreased. The majority of the teachers (98.6%) reached the minimum reading mastery level.

Policy suggestion 7.3: The ministry of education through the planning unit should use the SACMEQ data sets to investigate the personnel and school characteristics associated with the performance of pupils from the different socio-economic levels and schools' locations.

What were the overall percentages of pupils and their teachers across the various levels of competence in reading and mathematics?

The percentages of pupils reaching the eight different skill levels of reading have been presented in Tables 7.7 and 7.8 for SACMEQ I and SACMEQ II respectively. As pointed out earlier, these achievement levels can also be regarded as instructional levels. For instance, those pupils who are functioning at level 3 but not at level 4 are in position to begin to learn the knowledge and skills embodied in level 4 and to consolidate the work represented by the skills listed in level 3. At the national level, this type of information can be used to guide curriculum planners.

Table 7.7: Percentages and sampling errors for literacy levels of pupils (SACMEQ I)

Division	Percentage of pupils reaching the reading competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	4.6	1.23	12.2	2.27	45.7	3.41	31.2	3.23	5.3	1.36	1.0	0.72	0.0	0.00	0.0	0.00
Central East	3.2	0.99	8.7	1.46	34.6	3.63	41.5	3.09	10.6	1.98	1.1	0.68	0.3	0.32	0.0	0.00
Central West	2.1	0.73	9.8	2.37	31.1	2.74	39.5	3.24	13.1	2.26	2.2	1.02	2.2	1.50	0.0	0.00
South East	1.8	0.85	6.0	1.60	27.3	3.87	47.5	2.72	16.3	3.15	0.8	0.53	0.4	0.39	0.0	0.00
South West	3.7	0.80	8.1	1.59	31.9	3.11	36.6	2.76	15.2	2.75	3.6	1.23	0.2	0.21	0.6	0.46
Shire Highlands	1.4	0.61	3.7	1.45	23.6	4.16	46.3	3.84	17.5	3.76	4.7	2.01	2.8	0.99	0.0	0.00
Malawi	2.9	0.38	8.7	0.86	33.1	1.41	39.5	1.35	12.5	1.03	2.1	0.43	1.0	0.41	0.1	0.09

Table 7.8: Percentages and sampling errors for literacy levels of pupils (SACMEQ II)

Division	Percentage of pupils reaching the reading competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	19.1	3.35	35.0	3.59	29.7	3.25	12.0	2.69	3.3	1.12	0.5	0.52	0.3	0.33	0.0	0.00
Central East	20.9	4.14	45.0	3.74	26.4	3.58	5.2	2.44	2.1	1.04	0.4	0.40	0.0	0.00	0.0	0.00
Central West	6.7	1.61	33.4	3.92	35.7	3.42	17.5	2.86	4.5	1.53	1.9	0.57	0.2	0.17	0.0	0.00
South East	6.7	2.27	29.1	3.71	33.2	2.70	25.2	4.52	5.1	1.12	0.8	0.59	0.0	0.00	0.0	0.00
South West	7.5	2.02	23.1	2.39	38.7	2.74	20.5	2.87	7.8	1.67	1.8	0.76	0.7	0.40	0.0	0.00
Shire Highlands	9.1	2.15	33.7	3.67	36.8	3.16	16.5	3.97	2.9	1.16	1.1	0.66	0.0	0.00	0.0	0.00
Malawi	11.3	1.08	33.2	1.58	33.6	1.36	16.2	1.38	4.3	0.58	1.2	0.24	0.2	0.09	0.0	0.00

If level 4 is taken as the point where children can read independently, then the Malawi results showed that 71.1 percent of the pupils had not mastered that level. The situation had deteriorated from 42.7 percent of the pupils in SACMEQ I not being able to read independently. The highest percentage of pupils without independent reading skills was from the Central East division (92.3%) followed by the Northern division (83.2%). While there was one division with some 0.6 percent of pupils who were able to interpret analogy and allegory and deeper significance and cohesiveness of ideas in the text (level 8) in 1998, there was no single division in 2004. The evidence showed that more and more pupils have drifted into lower literacy levels. These results demonstrate the degree of the shortcomings in the teaching and learning processes in Malawi primary schools. This indeed meant that the majority of the pupils proceed to higher levels without good mastery of relevant skills.

Analysis was also undertaken on the percentage of pupils reaching the eight different mathematics levels. The percentage of pupils at the various mathematics competence levels have been presented in Table 7.9.

Table 7.9: Percentages and sampling errors for numeracy levels of pupils (SACMEQ II)

Division	Percentage of pupils reaching the mathematics competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	18.3	2.74	63.6	2.55	16.1	2.47	1.6	1.10	0.3	0.33	0.0	0.00	0.0	0.00	0.0	0.00
Central East	19.7	5.16	60.1	3.48	19.3	4.70	0.6	0.61	0.3	0.30	0.0	0.00	0.0	0.00	0.0	0.00
Central West	9.6	1.90	62.6	2.21	25.4	2.14	2.3	0.91	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
South East	12.0	1.49	64.0	3.88	21.5	3.20	2.4	1.32	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
South West	6.1	1.59	55.6	3.17	34.4	3.80	3.5	1.03	0.5	0.46	0.0	0.00	0.0	0.00	0.0	0.00
Shire																
Highlands	9.7	2.63	64.9	3.41	23.7	3.24	1.7	0.83	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Malawi	12.4	1.16	61.9	1.23	23.5	1.32	2.1	0.41	0.2	0.10	0.0	0.00	0.0	0.00	0.0	0.00

The information in the table indicated that compared with the reading test, Standard 6 pupils had more problems with the mathematics test. It can be seen that up to 97.8 percent of the pupils did not possess skills beyond basic numeracy and none of them had skills beyond competent numeracy (level 5). This meant that no pupil in Malawi could conduct multiple steps with a range of basic operations, they were not mathematically skilled and had no problem solving skills. The major concern arising from these results is the extent to which the graduates from the primary schools, given these deficiencies, can be useful to the Malawi society.

Policy suggestion 7.4: The ministry of education should use the SACMEQ reading and mathematics skill levels to understand the deficiencies in the teaching of reading and mathematics in Malawi and use that understanding to devise appropriate means for remedying these deficiencies.

The analysis was also extended to the percentage of teachers reaching the eight different reading levels. These percentages have been presented in Tables 7.10 and 7.11 for SACMEQ I and SACMEQ II respectively.

Table 7.10: Percentages and sampling errors for literacy levels of teachers (SACMEQ II)

Region	Percentage of teachers reaching the reading competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
North	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	5.9	5.93	30.8	10.53	63.3	11.02
Central East	0.0	0.00	0.0	0.00	0.0	0.00	2.8	2.83	0.0	0.00	3.5	3.54	34.1	15.09	59.7	14.72
Central West	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	4.0	4.03	41.7	10.02	54.2	10.01
South East	0.0	0.00	0.0	0.00	0.0	0.00	7.3	7.32	0.0	0.00	0.0	0.00	24.5	10.11	68.2	11.30
South West	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	4.0	4.02	5.0	5.05	32.1	10.85	58.9	11.51
Shire Highlands	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	2.4	2.36	0.0	0.00	50.1	11.89	47.6	11.93
Malawi	0.0	0.00	0.0	0.00	0.0	0.00	1.4	1.13	0.9	0.67	3.3	1.71	35.9	4.57	58.4	4.67

From the information in Table 7.10, it can be seen that teachers possessed higher reading skills than their pupils. They were all beyond basic reading. In fact, only 1.4 percent of them were at level 4, 0.9 percent were at level 5 and 3.3 percent were at level 6. The majority of them (35.9% and 58.4%) were at critical reading and insightful reading levels respectively. There were of course large variations among the divisions in the percentage of teachers reaching the various levels.

The percentage of teachers reaching the different mathematics competence levels have been presented in Table 7.11 below.

Table 7.11: Percentages sampling errors for numeracy levels of teachers (SACMEQ II)

Division	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE								
North	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	18.2	9.64	0.0	0.00	48.2	11.14	33.6	10.65
Central East	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	8.5	6.82	9.0	6.93	34.7	13.76	47.8	16.46
Central West	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	9.6	5.71	7.4	4.83	68.0	9.24	15.1	6.96
South East	0.0	0.00	0.0	0.00	0.0	0.00	6.9	6.92	0.0	0.00	17.9	8.76	46.6	12.17	28.6	11.54
South West	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	12.6	7.18	44.8	11.81	42.7	11.94
Shire Highlands	0.0	0.00	0.0	0.00	0.0	0.00	6.3	4.61	0.0	0.00	22.6	10.84	52.4	12.90	18.7	10.32
MALAWI	0.0	0.00	0.0	0.00	0.0	0.00	1.8	1.16	6.9	2.50	10.5	2.66	51.3	4.79	29.4	4.48

It can be seen in Table 7.11 that all of the teachers were above basic numeracy. The majority of them (51.3%) were mathematically skilled followed by 29.4 percent who possessed problem-solving skills. The evidenced showed that just like the pupils, the teachers also faced more difficulties in dealing with the mathematics test than they did with the English test. And just like the English test, there were also large variations in the percentage of teachers reaching the various numeracy levels across the divisions.

Policy suggestion 7.5: As the ministry of education reviews the primary curriculum under PCAR, there is need for the setting up of a task force to examine the primary mathematics curriculum to establish the cause of the poor performance in mathematics.

The results in this section have shown that the majority of the pupils (up to 71.1 % in SACMEQ II) were not reaching independent mastery reading skills and that the proportion of those not doing so had significantly increased between SACMEQ I and II. Further, the results showed that pupils (and to some extent teachers) had more problems reaching the numeracy levels. However, the results also showed that the performance of teachers in those two subjects was much better than that of pupils. One can conclude from these results that the major problem in Malawi's teaching and learning of reading and mathematics is with the pupils, and this may mean that since most teachers were untrained, the main problem was with the teachers' inability to teach effectively and detect deficiencies in pupils as they learn.

What percentages of pupil reached the different levels of skills in reading and mathematics and what were the differences between subgroups by gender, socio-economic levels and school location?

Achieving gender equity in education is one of the concerns of the Ministry of Education in Malawi. This is of course in line with the EFA and Millennium Development Goals. According to the PIF, gender equity is to be promoted by making the school environment supportive of the needs of both boys and girls. In Tables 7.12 and 7.13 below, information about the percentages of pupils reaching the different reading levels by subgroups has been presented for SACMEQ I and SACMEQ II respectively.

It can be seen from the tables that with the exception of levels 2 and 3, there were larger percentages of boys than girls reaching the other levels. For both boys and girls, the percentage of pupils drifting into lower competency levels significantly increased between SACMEQ I and SACMEQ II.

In terms of socio-economic status, more pupils from the low socio-economic status were in the first two levels but beyond level 2, there were more pupils from the high socio-economic status. This is an indication that pupils from high socio-economic status stood a better chance of achieving higher reading competency levels. As for school location, the information in the table shows that more pupils from the isolated/rural areas and small town achieved the first three reading competency levels than those from large cities. However, from level 4 and above, there were more pupils from large cities than there were from small towns. Other studies (Kadzamira and Chibwana 1999, and Chimombo and Chonzi 1999) found that it was pupils from low socio-economic status who were more prone to dropping out of school.

Table 7.12: Percentages and sampling errors for literacy levels of pupils by sub-groups (SACMEQ I)

Sub-groups	Percentage of pupils reaching the reading competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
<i>Gender</i>																
Boys	2.2	0.45	9.2	1.15	29.6	1.71	40.4	1.71	14.4	1.25	3.0	0.59	1.2	0.51	0.1	0.08
Girls	3.7	0.65	8.1	1.01	36.9	2.05	38.6	2.09	10.5	1.36	1.2	0.58	0.7	0.36	0.2	0.17
<i>Socio-economic</i>																
Low SES	3.3	0.59	10.0	1.37	34.7	1.90	38.3	1.89	11.5	1.10	1.4	0.36	0.8	0.28	0.0	0.00
High SES	2.1	0.63	6.9	0.95	28.4	2.05	42.6	2.01	15.0	1.57	3.4	0.85	1.4	0.85	0.3	0.21
<i>School location</i>																
Isolated/Rural	3.0	0.46	9.4	1.04	34.3	1.59	39.8	1.54	11.5	1.20	1.4	0.36	0.6	0.19	0.0	0.00
Small town	2.6	0.80	8.7	2.17	34.7	3.99	39.7	3.22	11.8	2.38	2.0	1.22	0.5	0.36	0.0	0.00
Large city	2.9	1.48	3.9	1.85	21.7	5.20	36.1	6.21	21.2	3.90	8.2	2.62	4.8	4.05	1.2	0.88
Malawi	2.9	0.38	8.7	0.86	33.1	1.41	39.5	1.35	12.5	1.03	2.1	0.43	1.0	0.41	0.1	0.09

These results run counter to the principles of the FPE and poverty alleviation. While the FPE was introduced with the aim of getting more pupils especially from the rural areas into school as a means of alleviating poverty, the evidence shows that it was the poor and those from the remote areas who were not achieving much.

Table 7.13: Percentages and sampling errors for literacy levels of pupils by sub-groups (SACMEQ II)

Sub-groups	Percentage of pupils reaching the mathematics competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
<i>Gender</i>																
Boys	11.2	1.37	58.6	1.63	27.3	1.76	2.8	0.65	0.2	0.14	0.0	0.00	0.0	0.00	0.0	0.00
Girls	13.7	1.44	65.4	1.67	19.4	1.51	1.3	0.39	0.1	0.15	0.0	0.00	0.0	0.00	0.0	0.00
<i>Socio-economic</i>																
Low SES	14.5	1.54	61.9	1.45	22.0	1.57	1.3	0.35	0.3	0.15	0.0	0.00	0.0	0.00	0.0	0.00
High SES	8.3	1.19	61.7	2.19	26.5	1.96	3.6	0.77	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
<i>School location</i>																
Isolated/Rural	13.8	1.56	63.0	1.48	21.6	1.71	1.5	0.41	0.1	0.11	0.0	0.00	0.0	0.00	0.0	0.00
Small town	12.0	2.25	63.1	2.28	22.9	2.50	1.6	0.79	0.4	0.36	0.0	0.00	0.0	0.00	0.0	0.00
Large city	5.3	1.92	53.9	4.68	34.8	3.45	6.0	1.98	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Malawi	12.4	1.16	61.9	1.23	23.5	1.32	2.1	0.41	0.2	0.10	0.0	0.00	0.0	0.00	0.0	0.00

Analysis was also done on the percentage of pupils reaching the different numeracy levels by the different sub-groups. The information about the percentage of pupils reaching the different numeracy levels have been presented in the Appendix 6. The results showed that the pattern was more or less the same as that observed for the reading levels. The only exception for numeracy levels was that there were some 0.3 percent of pupils from the low socio-economic status who reached level 5 while there were none from the high socio-economic status and also that there were some 0.1 percent of the

pupils from the rural and some 0.4 percent of the pupils from the small towns who reached level 5 of the numeracy skills.

Policy Suggestion 7.6: The ministry of education through the planning unit should use the SACMEQ data to investigate the personnel and school characteristics associated with those pupils in lower and rural areas scoring high in numeracy and those in the higher socio-economic group and large cities not performing well in numeracy.

The analysis above has shown that many pupils did not reach independent reading skills and that between SACMEQ I and SACMEQ II, more and more pupils had drifted into lower competency levels. Both pupils and teachers had problems in handling the mathematics test than they did with the reading test. There were large variations among the divisions in the percentage of teachers reaching the various competency levels. The evidence also showed that boys and pupils from higher socio-economic levels and large cities stood a better chance of reaching higher reading competency levels.

What were the percentages of between and within school variance associated with pupil Rasch scores in reading and mathematics?

The pupils and teachers' scores in reading and mathematics were also assessed in terms of variation between divisions and variations among schools within divisions. The results of the analysis have been presented in Table 7.14 below.

Table 7.14: Pupils and teachers scores in reading and mathematics assessed by (a) variation among schools within divisions, and (b) variation among divisions (SACMEQ I and SACMEQ II)

Sub-groups	Variation among schools within divisions						Variation among divisions
	1	2	3	4	5	6	(rho x 100)
<i>Reading test</i>							
SACMEQ I pupils	55.2	126.7	70.6	54.6	87.3	110.3	13.9
SACMEQ II pupils	102.2	103.3	90.8	84.3	80.8	87.8	15.6
SACMEQ II teachers	115.6	82.6	91.6	106.3	120.9	93.5	0.0
<i>Mathematics test</i>							
SACMEQ II pupils	125.3	90.9	98.6	78.8	79.6	82.6	13.9
SACMEQ II teachers	125.5	80.9	104.2	99.5	109.7	83.4	1.7

It can be seen from Table 7.14 that the rho values were relatively low for both sets of data, indicating that there was little variation in pupils and teachers' scores in reading and mathematics. In SACMEQ I, there were large variations in reading scores for the Central East division. For SACMEQ II, there were large variations in teachers reading scores in the South West division and in both pupils' and teachers' mathematics scores in the Northern division. These results seem to indicate that pupils from the different divisions were performing poorly with little variations.

How did the Malawi pupils compare in achievement with pupils in other Southern African countries?

As mentioned earlier in this chapter, it was possible to put all the pupils onto the same scale and then calculate a mean for each country such that the mean of all countries was 500 for SACMEQ II. The SACMEQ I results were then scaled against the overall mean of 500 for SACMEQ II. In Table 7.15 below, information about the Means and sampling errors for the reading and mathematics test scores of learners with all items SACMEQ II) for all the SACMEQ countries has been presented.

Table 7.15: Means and sampling errors for the reading and mathematics test scores of learners with all items (SACMEQ II)

Country	Learner performance on all items			
	Reading		Mathematics	
	Mean	SE	Mean	SE
Botswana	521.1	3.47	512.9	3.15
Kenya	546.5	4.97	563.3	4.64
Lesotho	451.2	2.93	447.2	3.24
Malawi	428.9	2.37	432.9	2.25
Mauritius	536.4	5.51	584.6	6.32
Mozambique	516.7	2.29	530.0	2.08
Namibia	448.8	3.13	430.9	2.94
Seychelles	582.0	3.10	554.3	2.68
South Africa	492.3	9.00	486.1	7.19
Swaziland	529.6	3.74	516.5	3.41
Tanzania	545.9	5.03	522.4	4.20
Uganda	482.4	6.12	506.3	8.17
Zambia	440.1	4.47	435.2	3.54
Zanzibar	478.2	1.49	478.1	1.26
SACMEQ	500.0	4.12	500.0	3.93

It can be seen from the table that in both reading and mathematics, pupils in Malawi were the lowest achievers. Kenya, which has the same kind of education system (standard 8) performed far much better than Malawi. The message is clear here: there are serious problems in Malawi education system which are causing pupils not to perform well.

It was also possible to analyse the achievement of pupils by levels across the SACEQ II countries. The percentages and sampling errors for literacy levels of pupils reaching the reading competency levels for all the SACMEQ II countries has been presented in Table 7.16 below.

Table 7.16: Percentages and sampling errors for literacy levels of pupils (SACMEQ II)

Country	Percentage of pupils reaching the reading competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Botswana	2.8	0.29	7.7	0.57	15.7	0.83	23.0	0.89	24.1	0.88	14.0	0.83	9.5	0.70	3.2	0.75
Kenya	1.0	0.27	4.6	0.66	10.8	1.02	20.4	1.24	25.3	1.09	19.2	1.18	13.6	1.18	5.1	0.81
Lesotho	5.6	0.67	23.8	1.49	33.8	1.14	24.2	1.34	8.7	0.82	2.5	0.38	1.3	0.31	0.3	0.15
Malawi	11.3	1.08	33.2	1.58	33.6	1.36	16.2	1.38	4.3	0.58	1.2	0.24	0.2	0.09	0.0	0.00
Mauritius	6.6	0.62	12.1	0.91	13.7	0.84	14.5	0.81	14.7	0.84	12.1	0.80	16.0	1.03	10.3	1.10
Mozambique	2.3	0.32	3.9	0.45	11.2	0.73	28.8	1.07	32.7	1.49	16.1	1.23	5.0	0.60	0.1	0.08
Namibia	12.8	0.77	30.6	1.03	26.6	0.82	14.3	0.78	6.0	0.48	3.6	0.29	3.9	0.51	2.2	0.41
Seychelles	3.0	0.44	7.4	0.67	8.8	0.74	12.8	0.86	14.6	0.91	15.0	0.93	21.8	1.07	16.7	0.93
South Africa	12.2	1.21	18.8	1.26	19.1	1.26	16.0	1.29	9.4	0.99	7.0	0.81	10.9	2.32	6.6	1.10
Swaziland	0.3	0.12	1.7	0.38	10.9	0.93	31.7	1.61	31.4	1.39	15.3	1.10	6.9	0.82	1.8	0.65
Tanzania	2.8	0.41	5.5	0.66	9.4	0.94	18.9	1.14	21.4	0.95	20.6	1.13	18.8	1.62	2.7	0.46
Uganda	7.2	0.82	18.3	1.61	21.8	1.41	21.5	1.35	14.8	1.31	8.2	1.14	5.3	1.00	2.9	0.91
Zambia	19.9	1.47	27.8	1.24	20.9	0.94	14.2	0.98	7.9	0.79	5.6	0.87	2.9	0.63	0.9	0.33
Zanzibar	6.0	0.52	13.8	0.83	21.4	0.98	27.0	1.04	20.5	0.98	9.3	0.68	1.9	0.34	0.0	0.00
SACMEQ	6.7	0.64	14.9	0.95	18.4	1.00	20.3	1.13	16.8	0.96	10.7	0.83	8.4	0.87	3.8	0.55

It can be seen Table 7.16 that Malawi was fourth in terms of the percentage of pupils at the lowest competency level but had the largest percentage of pupils at the second lowest level and second largest at the third competence level. In both tests, Malawi had the least percentages of pupils reaching the higher competence levels (level 5 and upwards). The situation was particularly grave for the mathematics test. It must be remembered that Malawi has had to face the pressure of the demands for resources (human and material) after the introduction of the FPE policy. As observed in chapters 3, 4, and 5, the resourcing levels were very low and this was inducing associated low levels of achievement. However, the fact that there were three other countries with higher percentage of pupils at level one demonstrates the overall challenge faced by developing (and poor) countries as they try to respond to the EFA agenda.

The percentages and sampling errors of pupils reaching the numeracy competency levels for all the SACMEQ II countries has been presented in Table 7.17 below.

Table 7.17: Percentages and sampling errors for numeracy levels of pupils (SACMEQ II)

Country	Percentage of pupils reaching the mathematics competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Botswana	3.3	0.45	25.8	1.10	35.8	0.92	19.6	0.83	10.2	0.67	3.8	0.49	1.2	0.37	0.2	0.13
Kenya	0.6	0.17	10.1	0.90	30.7	1.59	25.7	1.07	17.9	1.02	10.4	1.03	3.3	0.48	1.3	0.36
Lesotho	8.6	0.90	57.3	1.70	26.8	1.35	5.9	1.38	1.0	0.32	0.3	0.14	0.1	0.08	8.6	0.90
Malawi	12.4	1.16	61.9	1.23	23.5	1.32	2.1	0.41	0.2	0.10	0.0	0.00	0.0	0.00	0.0	0.00
Mauritius	2.4	0.32	18.2	1.11	21.8	1.03	16.7	0.83	12.2	0.82	11.2	0.72	10.4	0.81	7.0	0.93
Mozambique	0.4	0.11	12.6	0.86	41.7	1.35	32.1	1.27	11.4	0.86	1.7	0.40	0.1	0.04	0.0	0.00
Namibia	19.6	0.83	57.0	1.10	14.9	0.77	3.5	0.36	2.0	0.33	2.1	0.44	0.7	0.22	0.1	0.06
Seychelles	2.6	0.41	20.0	1.03	24.2	1.11	19.7	1.03	13.8	0.89	13.3	0.86	5.0	0.56	1.5	0.31
South Africa	7.8	0.77	44.4	2.32	23.8	1.37	8.8	0.96	6.1	1.47	5.8	1.09	2.1	0.46	1.3	0.48
Swaziland	0.8	0.33	21.3	1.22	44.3	1.10	21.8	1.13	8.6	0.79	2.4	0.38	0.7	0.26	0.2	0.22
Tanzania	2.8	0.43	22.7	1.32	35.0	1.35	21.4	1.05	9.9	0.90	6.2	0.80	1.6	0.39	0.4	0.12
Uganda	5.4	0.73	33.4	2.17	31.6	1.68	12.3	1.19	6.0	0.96	5.5	1.05	5.2	1.55	0.6	0.24
Zambia	16.8	1.16	54.4	1.34	21.5	1.31	5.0	0.61	1.8	0.53	0.4	0.22	0.0	0.05	0.0	0.05
Zanzibar	3.0	0.39	41.1	1.17	41.1	1.20	10.0	0.72	3.7	0.34	1.0	0.15	0.1	0.07	0.0	0.02
SACMEQ	6.2	0.58	34.3	1.33	29.8	1.25	14.6	0.92	7.5	0.71	4.6	0.56	2.2	0.38	1.5	0.27

In terms of mathematics, Malawi was the third after Namibia and Zambia in terms of the percentage of pupils at the lowest competency level. Malawi also had the largest percentage of pupils at the next lowest competency level. It can further be seen that Malawi was the only country without pupils reaching the last three competency levels. In fact, apart from Zambia, Zanzibar and Mozambique, all the other countries had pupils who had reached all the eight competency levels. From the Malawi results the difficulty in maintaining an appropriate balance between quantity and quality in the drive towards achieving education for all can be seen.

It was also possible to estimate a measure of the quality of education being offered by the SACMEQ countries by using the literacy levels and the percentage of non-readers at Standard 6. These two measures were combined to give an overall ranking in the quality of education offered. The quality indicators have been presented in Table 7.18 below.

Table 7.18: QUALITY indicator from SACMEQ II Study

	QUALITY INDICATORS				QUALITY RANK
School System	Literacy		Non-Readers		
	Mean	Rank	%	Rank	
Kenya	546	13	5.5	13	14
Seychelles	582	14	10.3	10	13
Swaziland	530	10	2.0	14	12
Tanzania	546	12	8.3	11	11
Mozambique	517	8	6.3	12	10
Mauritius	536	11	18.8	8	9
Botswana	521	9	10.5	9	8
Uganda	482	6	25.5	6	7
Zanzibar	478	5	19.8	7	6
South Africa	492	7	31.1	4	5
Lesotho	451	4	29.3	5	4
Namibia	449	3	43.4	3	3
Zambia	440	2	47.5	1	2
Malawi	429	1	44.5	2	1
SACMEQ	500		21.6		

With the lowest mean of 429, Malawi was the least in terms of literacy ranking seconded by Zambia and Namibia. In terms of the percentage of non-readers, Zambia topped the list with 47.5 percent of the Standard 6 pupils not being able to read. Malawi was second at 44.5 percent and Namibia third at 43.4 percent. The results have showed that the poor teaching and learning conditions in Malawi's schools were inducing associated low levels of achievement for Malawi pupils. Compared to other countries, Malawi pupils' were the lowest achievers. Although not with the largest proportion of pupils at the lowest mastery level, Malawi had the largest concentration of pupils in the pre-functional levels of reading mastery. Overall, Malawi was the least provider of quality primary schooling in the SACMEQ countries.

Conclusion

The analyses presented in this chapter have showed that the overall performances of pupils in both SACMEQ I and SACMEQ II were very poor and that the performance in reading has significantly decreased. Many pupils were not reaching the minimum skills and the number of pupils not doing so has significantly increased between SACMEQ I and SACMEQ II. While, in general, very few pupils reached the minimum mastery level, more boys than girls were reaching this level. Across the socio-economic groups, the percentage of pupils reaching the various levels had significantly decreased.

The results also showed that the majority of the pupils (up to 71.1 % in SACMEQ II) were not reaching independent mastery reading skills and that the proportion of those not doing so had significantly increased between SACMEQ I and II. Further, pupils (and to some extent teachers) had more problems reaching the numeracy levels. However, the performance of teachers in those two subjects was much better than that of pupils. One possible conclusion from these results is that the major problem in Malawi's teaching and learning of reading and mathematics is with the pupils, and this may mean that since most teachers were untrained, the main problem was with the teachers' inability to teach effectively and detect deficiencies in pupils as they learn.

Both pupils and teachers had more problems in answering the items in the mathematics test than they did with the items in the reading test. There were large variations among the divisions in the percentage of teachers reaching the various competency levels. The evidence also showed that boys and pupils from higher socio-economic levels and large cities stood a better chance of reaching higher reading and mathematics competency levels. Compared with the pupils from the other countries, Standard 6 pupils from Malawi were the lowest achievers. The poor teaching and learning conditions in Malawi's schools were contributing to an associated low level of achievement for Malawi pupils. Malawi is offering the lowest level of quality of education in the SACMEQ countries. In all, the results presented in this chapter demonstrate the challenge faced by developing countries when they try to respond to internationally declared targets.

Chapter 8

An Agenda for Action

Introduction

This chapter seeks to bring together the research-based policy suggestions that have been made throughout this report. In undertaking this synthesis every effort has been taken to produce an 'agenda for action' that is both meaningful and feasible for the Ministry of Education in Malawi. However, it is both important to note that this chapter should not be seen as an evaluative comment on the Malawian education system but rather as a beginning point for constructive discussion for future educational policy options.

Malawi has a complex pluricultural society and as a result its education system tends to be bounded by unique sets of social, economic and political environments. All questions of educational reform therefore need to be on sound information. For this reason the analyses in the proceeding chapters have been based on data emanating from a national survey of primary schools in Malawi. The analyses yielded detailed information on the conditions and the functioning of primary schools. By relating the results to the local context, it has been possible to highlight the successes of the system and to identify areas in need of improvement. The research findings have shown the importance of many of the initiatives of the Ministry such as the development of structures to link the school with the home, the revision of the scheme of service for teachers, and the continued upgrading of school buildings. It was also seen that the Ministry had been successful in achieving a good level of literacy and an equitable distribution of physical resources in primary schools. The results of this study also confirmed some of the concerns of the Ministry such as those relating to textbook provision, the improvement of the learning environment in the classroom, and the level of mathematics achievement in general. In addition some of the weaknesses of the system in terms of teacher motivation, school organisation, and school climate were highlighted. This style of research provides a good example of the way in which educational research data can inform policy and of the way

in which research findings can be made readily accessible to policy-makers for future actions.

The general picture of primary schools depicted by the results proved to be quite encouraging. It could be seen that although primary schools in Seychelles were generally quite effective there were still some critical issues such as streaming and equity areas that clearly needed attention. These issues will need attention in order to improve further the quality of primary education in Malawi. In Chapters 3 to 7 a range of policy suggestions were made in order to generate discussion and stimulate action.

Classification of policy suggestions

A total of policy suggestions emerged from the analyses. In order to facilitate discussions concerning these suggestions, and to assist decision-makers in devising a plan of action that can result in coherent strategies from the various divisions, sections and units of the Ministry of Education, the policy suggestions were grouped under five main categories.

These were: the establishment consultative arrangements with staff; community members and experts; reviews of existing planning and policy procedures; further small-scale data collections for planning purposes; the initiation of large-scale educational research studies; and, investment in infrastructure and resources. This classification was based on the operational implications that these suggestions have for the Ministry of Education.

1. Consultation with staff, community and experts

This group contained six suggestions about various consultative arrangements which the Ministry of Education will need to make with different stakeholders in education. They involved meetings and discussions that would promote an open and on-going dialogue aimed at generating strategies for productive action. This could be achieved by arranging initial meetings, forming special discussion groups, or using existing fora.

2. *Review of existing planning and policy procedures*

Six policy suggestions were grouped together under this heading. They concerned both specific policy reviews and general policy development. The policy concerns that were related to homework, role of head teachers and school activities could be dealt with at system level, whereas the staffing policy and streaming policy concerns needed both a system-level and a national approach.

3. *Data collection for planning purposes*

A total of six suggestions were contained within this group. They were intended to point out gaps that exist in the system where more specific information is needed. They involved fairly small-scale investigations that would extend the knowledge of the Ministry of Education on issues such as homework, the provision of extra tuition, and the characteristics of certain groups of learners.

4. *Educational research*

Five major investigations were suggested in this group. Projects relating to evaluation studies, curriculum research, observation studies and monitoring reviews will be set up and implemented by the Ministry of Education. These were large-scale research projects that would assess the effectiveness of various aspects of the system and provide decision-makers with substantial information on its functioning.

5. *Investment in infrastructures and resources*

In this group seven policy suggestions were collected that required the Ministry to provide funds for training, development of facilities, and procurement of resources. Although in-service courses may not require a heavy investment, courses for head teachers that would take place overseas probably would. In some cases there may be a need to re-allocate resources but in other circumstances a major programme for the repair of buildings and the provision of facilities will need to be established.

Cost and duration of the proposed policy suggestions

After much discussion estimates of the cost and time required to implement the proposed policy suggestions were made. Thus, in the following table these have been included. The definitions have been produced below:

COSTS: Low: requiring minimal costs

Medium: requiring a considerable amount of resources

High: requiring a lot of resources

DURATION: Short-term: easy to implement and within a short period (6-9 months)

Long-term: one to three years and in some cases continuous.

Table 8.1: Policy suggestions

<i>1. Consultation with staff, community and experts</i>	Relevant department	Cost	Duration
Policy Suggestion 3.1. The ministry of education should through school management committees and PTAs intensify the messages about the importance of starting schooling earlier and such efforts should especially focus more on the rural areas of the Central East division.	Basic education directorate	Medium	Ongoing
Policy Suggestion 3.4. As the ministry implements the new strategy for community mobilization and sensitization, there is need for more public awareness and sensitization to ensure that families are aware of the dangers of frequent absenteeism.	District Education Managers	Medium	Ongoing

<p>Policy suggestion 4.14: Teaching and learning ought to be an enterprise that should be a joint venture of both the school and the community. Given the new strategy for community mobilisation and sensitisation in Malawi, the District Education Managers should, through PTAs and school management committees, take measures to ensure that parents are taken on board in the education enterprise.</p>	<p>District Education Managers</p>	<p>Medium</p>	<p>Ongoing</p>
<p>Policy suggestion 5. 14: It would appear that as the Ministry implements its community mobilization and sensitisation strategy, the main focus should be on the change of attitudes from a concentration on provision of labour to encouraging other family members to become active participants in the life of the schools.</p>	<p>District Education Managers</p>	<p>Low</p>	<p>Ongoing</p>
<p>2. Review of existing policy and planning procedures</p>			
<p>Policy Suggestion 3.2: While appreciating the commendable work done by the ministry of education in the drive towards promoting girls' education, it would appear that much more continued effort is needed by the ministry to promote girls' education especially in the South West division.</p>	<p>Education Division Managers</p>	<p>Low</p>	<p>Short term</p>
<p>Policy suggestion 3.3: The ministry of education should find ways of curbing the increasing repetition in schools. Serious attempts must be made to understand the factors surrounding repetition and how these can be tackle to reduce it. Particular attention need to be given to efforts aimed at reducing repetition by Division managers of the Shire Highlands, Central East and Central West divisions.</p>	<p>Teacher Development Unit</p>	<p>Low</p>	<p>Ongoing</p>
<p>Policy suggestion 3.5: It is important that all teachers give homework to their pupils in all subjects and correct it. The teacher training institutions should ensure that all teachers in the pre-service programmes have been oriented to the importance of giving homework to pupils. This will enable them identify mastery levels of curriculum content for individual pupils which can guide them in putting in place remedial actions for the weak pupils.</p>	<p>TTC</p>	<p>Low</p>	<p>Long-term</p>

<p>Policy Suggestion 3.8 The general policy concerns from these findings are that there is a great need for clarification about the practice of extra tuition in Malawi. The ministry should undertake a study to determine the reasons for the extra tuitions and how they are organized.</p>	<p>Planning Unit</p>	<p>Medium</p>	<p>Short term</p>
<p>Policy Suggestion 3.16: The ministry of education should spell out clearly the minimum resource requirements for teachers to have and ensure that these are met so that targets and benchmarks are recognised and met in all efforts to improve the quality of teaching.</p>	<p>EMAS</p>	<p>High</p>	<p>Short term</p>
<p>Policy Suggestion 4.2: The Ministry should further review the existing arrangements for recruiting, posting and allocating teachers to classes to improve gender equity. Head teachers could be given in-service training as part of the efforts aimed at improving their management skills.</p>	<p>District Education Managers</p>	<p>Medium</p>	<p>Long term</p>
<p>Policy Suggestion 4.3: The evidence showed that teachers were generally not happy with their living conditions. The Ministry of education needs to review the working conditions of teachers so as to improve in some areas such as teachers' living conditions.</p>	<p>Human Resource Development</p>	<p>High</p>	<p>Long term</p>
<p>Policy suggestion 4.5: It can be noted from the evidence above that the ministry of education has not been able to attract the right type of people for the teaching profession. The ministry through the human resource department should therefore try to improve the general conditions of service for teachers so that more able form 4 graduates are attracted.</p>	<p>Human Resource Development</p>	<p>High</p>	<p>Long term</p>
<p>Policy Suggestion 4. 9: The evidence seemed to point to some staffing irregularities in the Central West division. The division manager may wish to closely examine the staffing levels of the districts in the division and explore the possibilities of reallocating teachers. There will again be need for accurate and timely data.</p>	<p>Education Division Managers</p>	<p>Low</p>	<p>Short term</p>

<p>Policy suggestion 4.10: The development of a reading culture in schools seems to be low. The teacher development unit should make sure that attempts are made at instituting training programmes (pre and in-service) that will encourage a reading culture in schools which may be extended to the pupils' homes.</p>	<p>Teacher Development Unit</p>	<p>Medium</p>	<p>Long-term</p>
<p>Policy suggestion 4.11: The majority of the teachers seemed to indicate that they were not conversant with the goals for teaching either reading or mathematics. It is important that the Teacher Development Unit and Teacher Training colleges should incorporate the goals of teaching mathematics in their programmes so that teachers are made aware of these goals</p>	<p>Teacher Development Unit</p>	<p>Low</p>	<p>Long-term</p>
<p>Policy suggestion 4.12: It is clear from the results above that teachers do not appreciate a wide range of teaching strategies. The ministry through the teacher development unit should consider incorporating aspects of strategies for teaching in their in-service training courses.</p>	<p>Teacher Development Unit</p>	<p>Low</p>	<p>Long term</p>
<p>Policy suggestion 4.13: The results above may be indicative that the teacher training courses in Malawi do not give enough stress on aspects on pupil evaluation. The ministry of education through the TDU should once again include aspects of pupil evaluation as one way of enhancing their skills in class management</p>	<p>Teacher Development Unit</p>	<p>Low</p>	<p>Long term</p>
<p>Policy suggestion 4.17: In a fast changing school environment, the role of the resource centres in the district can not be over-emphasised. However, it seems that not all schools were maximising their usage. The district education manaegrs should make sure that both PEAs and schools are encouraged to use the TDCs.</p>	<p>District Education Managers</p>	<p>Low</p>	<p>Short term</p>
<p>Policy Suggestion 5.1: Ministry of education should make a deliberate effort to involve women in at least 30 percent of headship and other leadership positions at the school level. The District Education Managers through the Primary Education Advisors should take the lead in this.</p>	<p>District Education Managers</p>	<p>Low</p>	<p>Long term</p>

<p>Policy Suggestion 5.2: The Ministry should set the minimum numbers of academic education and indeed teaching years for teachers to be promoted to headship positions.</p>	<p>Human Resource Development</p>	<p>Low</p>	<p>Short term</p>
<p>Policy Suggestion 5.6: Ministry of Education building unit should establish minimum construction standards which only allow safe, strong and child friendly school structures, and which do not need constant repair to avoid draining budgetary resources.</p>	<p>Human Resource Development</p>	<p>Low</p>	<p>Short term</p>
<p>Policy Suggestion 5.7: Ministry of Education Building Unit should set a minimum number of toilets per given number of pupils and mechanism for enforcing this should be devised.</p>	<p>EDMU</p>	<p>Low</p>	<p>Short term</p>
<p>Policy Suggestion 5.9: Considering the demands on head teachers as administrators, the ministry's advisory section would do well to suggest a minimum and perhaps maximum number of teaching periods for head teachers.</p>	<p>EDMU</p>	<p>Low</p>	<p>Short term</p>
<p>Policy suggestion 5.11: The Teacher development Unit should come up with a selected list of special activities as a normal feature of the school life in primary schools</p>	<p>Teacher Development Unit</p>	<p>Low</p>	<p>Short term</p>
<p>Policy Suggestion 5.12: The ministry should set up a task force to develop strategies to overcome the number of official school days lost in an academic year.</p>	<p>Human Resource Development</p>	<p>Medium</p>	<p>Long term</p>
<p>Policy suggestion 5.13: The methods advisory department of the ministry of education should institute training programs for PEAs to improve their effectiveness. A system of analyzing inspection and advisory reports and utilizing them should be put in place.</p>	<p>Methods Advisory Service</p>	<p>Medium</p>	<p>Long-term</p>
<p>Policy suggestion number 6.1: All division managers should take action to ensure a more equitable distribution of human resources among schools. More problems were in the South East division and since this is not an easy task, the ministry of education should consider putting together a package that will help attract teachers and school heads to lesser popular areas.</p>	<p>Education Division Managers</p>	<p>High</p>	<p>Long term</p>

3. Data Collection for Planning Purposes

Policy Suggestion 4.1: The wide variations in teacher supply may mean that the Ministry of education is not able to effectively manage its teachers’ stock. The Ministry therefore should try to strengthen EMIS so that accurate data is available to be able to identify gaps and needy areas in terms of teacher supply. This may require a change of orientation in terms of how the EMIS data is analyzed and presented.

Planning Unit Medium Short term

Policy Suggestion 4.15: Division Managers and District Education Managers must put in place mechanisms which ensure that resource distribution to schools in the Districts is based on pupils’ enrolments. There must also be mechanisms to ensure that enrolment statistics coming from the schools are accurate.

EDM/DEMs Medium Long term

Policy suggestion 5.8: The ministry should review and where necessary publish in one document benchmark standards for the educational environment that are deemed to be reasonable for the proper functioning of primary schools. The review of the Education Act needs to be urgently finalized.

Human Resource Development Low Short term

Policy suggestion number 6.2: The division offices should develop and maintain a database of human resources in each school in their jurisdiction with respect to staff experience, professional qualification and PEA’s visits to schools. This policy suggestion was also made in SACMEQ I.

Education Division Managers Low Long term

4. Educational Research

Policy suggestion 4.8: In addition to intensifying the in-service programs, it would also be ideal if proper needs assessment was done by either division or district personnel (PEAs) to make sure that appropriate areas of needs are addressed by the in-service programs.

District Education Managers Medium Long term

Policy Suggestion 5.10: The Teacher development Unit should undertake a needs assessment of head teachers’ professional development for informed policy formulation and implementation.

Teaching Development Unit Medium Long term

<p>Policy suggestion 5.15: The Ministry should commission a study to determine the exact nature of problems experienced in schools and suggest steps that can be taken to eliminate these problems.</p>	<p>Planning Unit</p>	<p>Medium</p>	<p>Short term</p>
<p>Policy suggestion 5.16: The Ministry should carry out a small study to examine the impact of absenteeism, lateness and health problems of teachers on the loss of contact hours and it should suggest steps to remedy this problem.</p>	<p>Planning Unit</p>	<p>Medium</p>	<p>Short term</p>
<p>Policy suggestion 7.1: The ministry of education through the Malawi Institute of Education should investigate why the reading skills of Standard 6 pupils in Malawi were so poor and deteriorating further.</p>	<p>Malawi Institute of Education</p>	<p>Medium</p>	<p>Short term</p>
<p>Policy suggestion 7.2: There is need for the Ministry of education to institute a research study to examine the areas of the reading and mathematics curricula that were not mastered by the Standard 6 pupils and then give suggestions as to how the situation can be improved.</p>	<p>Planning Unit</p>	<p>Medium</p>	<p>Short term</p>
<p>Policy suggestion 7.3: The ministry of education through the planning unit should use the SACMEQ data sets to investigate the personnel and school characteristics associated with the performance of pupils from the different socio-economic levels and schools' locations.</p>	<p>Planning Unit</p>	<p>Low</p>	<p>Short term</p>
<p>Policy suggestion 7.4: The ministry of education through MIE should use the SACMEQ reading and mathematics skill levels to understand the deficiencies in the teaching of reading and mathematics in Malawi and use that understanding to devise appropriate means for remedying these deficiencies.</p>	<p>MIE</p>	<p>Low</p>	<p>Short term</p>
<p>Policy suggestion 7.5: As the ministry of education reviews the primary curriculum under PICAR, there is need for the setting up of a task force to examine the primary mathematics curriculum to establish the cause of the poor performance in mathematics.</p>	<p>MIE</p>	<p>Low</p>	<p>Short term</p>

Policy Suggestion 7.6: The ministry of education through the planning unit should use the SACMEQ data to investigate the personnel and school characteristics associated with those pupils in lower and rural areas scoring high in numeracy and those in the higher socio-economic group and large cities not performing well in numeracy.

Planning Unit Low Short term

5. Investment in infrastructures and resources

Policy suggestion 3.6 While the effort by CIDA to equip schools with the essential textbooks is commended, the low level provisions as reported by the pupils, is a mystery. It would be better if such efforts were accompanied by the institutionalisation of mechanisms to check what is happening with the books especially in the urban districts. Issues of durability of the books may be at stake here.

Supplies Unit Medium Long term

Policy suggestion 3.7. The provisions for basic classroom materials are generally very low. Amidst FPE, the demand for such provisions has become enormous. It is important that the ministry of education comes up with clear guidelines on norms for these provisions to which divisions and district education managers must adhere to. Many cases of absenteeism and eventual dropping out are mostly associated with lack of these basic materials and learning materials (see Chimombo et al. 1999, Chimombo et al. 2001).

Human Resource Development High Long term

Policy suggestion 4.4: After the introduction of FPE, Malawi seems to be struggling in providing the schools with adequate level and quality of teachers. The Teacher Development Unit with the support of the Ministry of Education should consider finding appropriate mechanisms for the training of all untrained teachers.

TDU High Long term

<p>Policy Suggestion 4.6: Given the many untrained teachers in the education system, it is disturbing that these teachers were also not exposed to adequate in-service training. The Ministry of Education needs to strengthen and intensify the use of its TDCs for in-service programs in order to improve the skills of teachers in a fast changing teaching environment. Priority needs to be given to the untrained teachers.</p>	TDU	High	Long term
<p>Policy suggestion 4.7: The Ministry of Education should identify donors to provide resources for in-service training throughout the country, which is quite low at the moment and almost non existent in some areas.</p>	EMAS	High	Long term
<p>Policy suggestion 4.18: The responses from the teachers are indicating that not much emphasis is put into changing classroom practice by the PEAs. It would be desirable if TDU organized appropriate orientation to PEAs so that they focus more on helping the teachers (many of whom are untrained) in effectively managing their classrooms.</p>	TDU	Medium	Long term
<p>Policy suggestion 5.3: The Ministry of Education should include school management issues in its teacher training curriculum to provide basic survival kits for newly appointed head teachers. Head teachers should also be given specialized training and this should be on continuous basis.</p>	TDU/TTC	High	Long term
<p>Policy Suggestions 5.4: The Ministry should place appropriate guidelines for constructing a new school to include a head teachers' office, a staff room, a school library, and store room. The head teacher's office should be a priority since it can also serve as a storeroom.</p>	Planning Unit/EDMU	High	Long term
<p>Policy Suggestion 5.5: The methods advisory section of the ministry should support schools in planning for the most essential items and examine intervention strategies in order to have the basic facilities provided. The Ministry should make it mandatory for all schools to have First Aid Kits, and water supply system with safe drinking water.</p>	EMAS	High	Long term

Policy suggestion 6.3: The dearth of materials in Malawi primary schools has persisted between SACMEQ I and SACMEQ II. While the good job being done by the Supplies Unit is commended, the Ministry of Education is strongly urged to continue the search for more resources to cover these deficits. At the moment, little or no resources in schools means that very little learning is taking place in the primary schools

Planning Unit	High	Long term
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Policy suggestion number 6.4: All division managers with the exception of the Central East division should examine inequalities in the distribution of certain material resources among their schools and bring forward proposals to rectify the situation as soon as possible. These problems have persisted in the Central West, South West and Shire Highland divisions.

Supplies Unit	Low	Long term
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Concluding Remarks

This report was prepared as the Malawi component of the second cross-national educational policy research project undertaken by the 15 Ministries of education that form the Southern African Consortium for Monitoring Educational Quality (SAQMEQ). This project, known as the SAQMEQ II project, was designed and implemented as a collaborative venture undertaken by national teams of educators in the countries concerned and experts from the International Institute for Educational Planning (IIEP).

The production of the report evolved through a series of capacity-building training activities that included intense training workshops conducted by the IIEP in Paris (2000). The outstanding success of SACMEQ II Project illustrated the effectiveness of SACMEQ's unique co-operative 'working style' whereby expertise and knowledge are exchanged, and concerns and experiences are shared at an international level. The authors of this report hope that the report will provide the impetus for Malawi to undertake a national debate concerning the issues that were raised as "Agenda for Action" in the final chapter of this report.

By participating in both SACMEQ I and II the results from Malawi offer an opportunity to gauge how things have changed over time. In general, the results from Malawi SACMEQ studies demonstrate the clash between the quantity of education – the ideal of universal access and quality, such as measurable improvements in pupil performance and teacher knowledge and skills. In the Malawian case, this ideal has been over-powered by the reality of sheer numbers. The lesson here is that if EFA is to be achieved, educational quality and quantity need to be aligned with policies and interventions which will ensure that pupils coming out of the system are of minimum quality (Chimombo, 2004; p:14). In commenting about the SACMEQ results for Malawi, IIEP (2004; p:9) observed that the EFA challenge for Malawi will be to (a) maintain participation rates, (b) improve quality (by directing efforts into raising the low average pupil reading score), and (c) maintain equity (by ensuring a continuation of small variations in pupil reading scores – both between and within schools). The deteriorating standards demonstrated by SACMEQ studies in Malawi illustrate the huge challenges on route to EFA.

This emerging evidence from the Malawi SACMEQ studies also demonstrate that it is easier to achieve reforms which secure increased access to schooling than it is to enhance robust improvements in schooling quality. Indeed, as observed by Chimombo (1999), countries like Malawi lack the necessary economic vitality to provide the necessary resources (human and material) in order to deliver an education of minimum quality. Consequently, the provision of quality basic education to all remains a dream for most of Malawi's pupils. Authorities in Malawi need to wake up to the realities of the situation in the schools and make appropriate actions that should begin to reverse the trend of deteriorating achievement levels. Unless appropriate action is taken, it is difficult to see how Malawi can realize her dream of alleviating poverty for the majority of her population.

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