

12.
Report No. 8976-ZIM

Zimbabwe: A Review of Primary and Secondary Education from Successful Expansion to Equity of Learning Achievements

(In Two Volumes) Volume 1: Main Report

June 9, 1992

Population and Human Resources Division

Southern Africa Department

FOR OFFICIAL USE ONLY



MICROFICHE COPY

Report No. 8976-ZIM Type: (SEC)
MILLS, M. / X34049 / J11147 / AF6PH

Document of the World Bank

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS
(1990 Equivalents)

US\$ 1.00 = Z\$2.44
Z\$ 1.00 = US\$.4085

FISCAL YEAR

Government Fiscal Year: July 1 - June 30

ABBREVIATIONS AND ACRONYMS

'A' Level	Advanced Level
CDU	Curriculum Development Unit
DEO	District Education Officer
EB	Examination Branch
EO	Education Officer
GDP	Gross Domestic Product
HRRC	Human Resources Research Center
LFS	Labor Force Survey
MEC	Ministry of Education and Culture
MFEPD	Ministry of Finance, Economic Planning and Development
MHE	Ministry of Higher Education
NGO	Non-Government Organization
'O' Level	Ordinary Level
PU	Planning Unit
RA	Responsible Authority
RD	Regional Director of Education
SCU	Standards Control Unit
SEDCO	Small Enterprise Development Corporation
ZIDE	Zimbabwe Institute of Distance Education
ZIMDEV	Zimbabwe Manpower Development Fund
ZIMFEP	Zimbabwe Foundation for Education with Production
ZIMSCI	Zimbabwe Science Program
ZINTEC	Zimbabwe Integrated Teacher Education Course
ZISSE	Zimbabwe Integrated System of Secondary Education
ZJC	Zimbabwe Junior Certificate
ZNCC	Zimbabwe National Craft Certificate

This report is based on the findings of a mission which worked in Zimbabwe from May 20-June 8, 1990. The mission consisted of Messrs. M. Mills (mission leader and Senior Economist), J. Middleton (Senior Evaluator), and P. Mook (Principal Education Economist); and Mesdames R. Bellow (Education Planner), M. Lockhead (Senior Education Sociologist), and K. Hyde (Consultant/Educator). The draft report was discussed with the Government in October 1990, and written comments from the Ministry of Education and Culture were sent to the World Bank in the second half of 1991. Ms. J. Chinsen provided secretarial support in the preparation of the report. Mr. R. Grawe and Mr. S. Denning are the managing Division Chief and Department Director, respectively, for the operation.

**ZIMBABWE:
REVIEW OF PRIMARY AND SECONDARY EDUCATION**

TABLE OF CONTENTS

VOLUME I

	Page
EXECUTIVE SUMMARY	i-vi
INTRODUCTION	1-2
CHAPTER I. TEN YEARS OF EDUCATIONAL EXPANSION	3-8
A. The Development of Education Since Independence	3
B. Macroeconomic Developments	8
CHAPTER II. EDUCATION AND EMPLOYMENT	9-23
A. Prospects for Employment	10
B. Meeting the Skill Needs of the Economy	13
C. Education for Continuing Learning	20
CHAPTER III. VARIATIONS IN LEARNING ACHIEVEMENTS	24-33
A. Patterns of Achievements	24
B. Causes of Differential Achievements	30
CHAPTER IV. IMPROVING LEARNING ACHIEVEMENTS	34-54
A. Improving Teacher Utilization	34
B. Ensuring Availability of Learning Materials	49
C. Improving English and Science Instruction	52
D. Alternatives to Conventional Schooling	53
CHAPTER V. MANAGING SCHOOL IMPROVEMENT AT THE REGIONAL LEVEL	55-61
A. The Regional Education Offices	55
B. Adjusting Patterns of Authority	58
C. Raising Staff Competence.....	60
D. Improving Information Systems	61
CHAPTER VI. STRENGTHENING ANALYTICAL CAPACITY CENTRALLY	62-69
A. Planning and Monitoring	62
B. Curriculum Development	64
C. Research and Evaluation	64
D. Examinations	66
CHAPTER VII. FINANCING QUALITY IMPROVEMENT	70-76
A. Equalization of Finance	70
B. Financing School Improvements	74
CHAPTER VIII. CONCLUSIONS: TOWARDS AN INTEGRATED PROGRAM OF EDUCATIONAL IMPROVEMENTS	77-83

LIST OF TEXT TABLES

	Page
1.1 Primary Education in Zimbabwe, 1980-1989	3
1.2 Secondary Education in Zimbabwe, 1980-1989	5
1.3 Government Expenditure on Education, 1981/82 - 1989/90	7
2.1 Capacity of Post-School Training Institutions	15
2.2 Estimated Building and Instructional Costs of New General and ZNCC Classes Per Student Period	19
3.1 Success Rates of Candidates for Grade 7, ZJC and 'O' Level Examinations, 1980-1989	25
3.2 Per Capita Pass Rates for Grade 7, ZJC and 'O' Level Examinations, 1980-1989.	27
3.3 Average Student Achievement by Secondary School Type	28
3.4 Selected 'O' Level Results: Pass Rates by Gender, 1984 - 1988	29
3.5 Proportion of Grade 7 Cohorts Reaching Grade 7, 1986-1989	30
3.6 Frequency of Resource Availability by Type of Secondary School	32
4.1 Projected Primary Teachers and Estimated Salary Costs, 1990-2000 ...	37
4.2 Cost of Primary Teachers with Double Shifting, 1990-2000	38
4.3 Projected Secondary Teachers and Estimated Salary Costs, 1990-2000 Assuming a 0.3 percent Annual Enrollment Growth Rate	39
4.4 Projected Secondary Teachers and Estimated Salary Costs, 1990-2000 Assuming a 2.7 percent Annual Enrollment Growth Rate	40
4.5 Cost of Secondary Teachers with Double Shifting, 1990-2000	41
4.6 Cost of Primary Teachers with Increased Class Size, 1990-2000	43
4.7 Summary of Selected Main Findings of Teacher Cost Projection Model..	45
4.8 Instructional Materials in Central Storage, 1989	50
4.9 Estimated Annual Cost Per Student of Providing Instructional Materials	51
6.1 Average Government Expenditure Per Subject Entry, 1984 and 1989	67
6.2 Examination Expenditures by Source of Funds, 1989	68
7.1 Government Expenditure on Secondary Education by Type of School (excluding Boarding Subsidies), 1989	72
7.2 Proposed Changes in Government Subsidies to Secondary Day Schools	74
7.3 Estimated Costs of Strengthening Regional Offices	76

LIST OF FIGURES AND BOXES

	Page
Figure 1.1 Projected Primary Enrollment, 1990-2000	4
Figure 1.2 Projected Secondary Enrollment, 1990-2000	6
Figure 2.1 Structure of the Labor Force, 1987	10
Figure 2.2 Paid Employment by Industry, 1989	10
Figure 2.3 Prospects for Wage Employment	12
Box 2.1 Applied Content in 'O' Level Syllabi	22
Box 5.1 Mashonaland West Provincial Office	56
Box 5.2 Supervision Resources in Mashonaland West	58

EXECUTIVE SUMMARY

(i) Zimbabwe achieved a most dramatic expansion of primary, and especially secondary, education in the first decade of its independence. Primary enrollments rose from 1.2 million children in 1980 to 2.2 million in 1989, and secondary enrollments rose from 74,000 to 671,000. At the secondary level the rate of expansion was faster than ever experienced anywhere else in the world. The supply of teachers also expanded significantly, and major innovations were made in the system of teacher training and in various aspects of the curriculum especially at the primary level. These developments reflected the high priority accorded to education both by the Government and also by local communities throughout the country.

(ii) By the end of the 1980s, however, concerns had arisen about low levels of learning achievements (especially in the recently-established secondary schools), and about the unattractive prospects for many school-leavers due to slow economic growth and constrained wage employment relative to the expansion of secondary and tertiary education. These prompted the Government to request that a collaborative review of primary and secondary education be carried out by the World Bank. The following are the main findings of the review.

Education and Employment

(iii) While youth unemployment is a major and increasing problem in Zimbabwe, the main requirement for reducing it has to be economic growth. The stimulation of economic growth requires policy reforms in macro-economic management, trade liberalization and domestic regulations. Of particular importance in Zimbabwe will be a change of governmental policies towards the informal sector. Ways also need to be found to raise the productivity of farmers in the communal land areas. The role of the education sector in reducing unemployment can only be a relatively modest one.

(iv) More skills training is undoubtedly needed, but it is best done after secondary school. Tracer studies, exam results so far and the financial constraints facing the Government suggest that the pilot school vocationalization program is unlikely to be cost-effective. Practical subjects can be provided within secondary schools to meet educational objectives, but they are unlikely to improve employability significantly and are costly to implement well. Also, resources used for practical subjects are necessarily provided at the expense of other subjects, and it would be particularly undesirable if in Zimbabwe they were to reduce resources available for English, mathematics and science.

(v) The main contribution of the education system to increasing productive employment should be to ensure that as many school leavers as possible have good understandings of English, mathematics and science.

Variations in Learning Achievements

(vi) The average achievement of students in secondary school may have declined since independence. However, this would hardly be

surprising in view of the rapid expansion of secondary school student numbers. Furthermore, there has not been a decline in achievements when they are compared to the relevant age cohort of the population. If 'O' level exam passes are measured against the relevant age cohort of the entire population (rather than against the number of children in school or candidates attempting exams), then there has actually been a marked improvement in results. For the grade 7 and ZJC exams, the trends are less clear.

(vii) Nevertheless, there are significant variations in learning achievements across schools, and to some extent between girls and boys. The variations across schools are mainly caused by differential resources available to students and teachers in different types of schools. In order for the poorly-performing schools to be brought up to better achievement levels, therefore, it will be necessary for them to have more resources.

(viii) The poorly performing schools are also adversely affected by having less frequent supervisory visits, less experienced headmasters and teachers, and greater constraints on the distribution of learning materials to them.

(ix) While girls have relatively good access to secondary and especially primary level education, a significant drop-out problem arises after the first few years of primary school and especially during secondary school, probably due to the cost of education to parents. Also, girls' levels of achievements tend to be below those of boys. However, the differential between the learning achievements of boys and girls has been narrowing.

Policies to Improve Learning Achievements in Secondary Schools

(x) A key variable in determining levels of learning achievements in secondary schools relates to the availability of trained teachers. However, the relationship is a complex one, and much can be done within schools to compensate for the lack of trained teachers. Furthermore, although Zimbabwe has the capacity to train more teachers and to upgrade existing untrained teachers, the main constraint is the financial capacity to pay their salaries. Existing training policies are financially inconsistent with the projected growth of the budget, and a cost-effective strategy would be to slow down the rate of training new teachers and make greater use of existing trained teachers - along with other measures to improve the continuity, stability and effectiveness of the untrained teachers.

(xi) Supplementary elements of the strategy to raise learning achievements could include policy changes to improve incentives for staff to work in rural areas, to strengthen English and science instruction, and to improve distribution mechanisms for learning materials.

(xii) As a complement to conventional secondary schools, the existing system of study groups (using distance education materials and mentors rather than teachers) could be extended to cover more rural

areas. Rather than substitutes for existing secondary schools, however, consideration could be given to establishing such study groups within or in the vicinity of existing schools - as a less expensive alternative for parents to choose if wanted. This approach would also be less expensive for the Government.

Implementation of Change

(xiii) Having come through a decade of massive expansion of the schooling infrastructure, the administration of the education system now needs to be reorientated to a period of improving learning achievements. This would require adjustments at the regional and central levels. For the former, building up more effective schools would require four elements: (i) measures to decentralize management further, especially from the head office to the regional, and indeed district, levels; (ii) improved supervision of schools; (iii) better management within schools; and (iv) targeting of resources by regional offices to individually selected schools.

(xiv) At the central level, to support the work of the regional offices, the strategy of strengthening learning achievements in schools would require creating stronger capacity for policy analysis and planning, for monitoring, for research and evaluation, and for examination development and testing.

Financing Quality Improvements

(xiv) In view of the need for the Government to reduce the fiscal deficit through expenditure restraint rather than increased revenue, the Government's budget will remain highly constrained over the next few years and the education sector is unlikely to receive a larger share. Appropriate policies towards teacher training and deployment will be crucial to reducing pressure on the budget, and to ensuring an appropriate balance between salary and non-salary expenditures.

(xv) A very high priority will also need to be given to ensuring that existing resources are utilized as efficiently as possible. However, the existing pattern of resource allocation by the Government is highly inequitable: the schools with educationally less at-risk children have more governmental resources per capita (as well as considerably more parental resources per capita).

(xvi) The main strategy to improve learning achievements needs to involve changes in the presently inequitable allocation of governmental resources within the education sector. Although in the longer-term it may be desirable to move to a system of positive discrimination, tailoring governmental contributions towards the needs of different schools and communities, this would require a considerably strengthened monitoring and administrative capacity within the Ministry of Education and Culture. In the shorter-term, it is suggested that consideration be given to a system whereby (i) some additional resources be provided to selected high priority expenditure items (particularly increased supervision and support for school improvement), and (ii) the existing per capita grant approach be extended to cover the entire governmental

contribution (for teachers and materials) for secondary education. The proposed approach would thus equalize the expenditures per student by the Government. In this way the present under-achieving schools would receive increased financial support, while parents and communities would be expected to cover the additional costs of schooling at the better resourced schools. The latter would entail raising school fees as well as mobilizing more voluntary financial contributions, and it would also encourage cost containment measures.

Government Comments

In response to the draft report, the Ministry of Education and Culture provided written comments to the World Bank. In summary, the Ministry emphasized that it was in agreement with most of the report, and especially the perspective on the development of education in the country since Independence and the remaining challenges to be faced. On a number of issues, however, the Ministry had a slightly different view or emphasis to the sector report. On the question of the possible vocationalization of the school curriculum, for example, the Ministry believes that some training may need to be done at low cost within schools as well as much after school, in view of the large numbers of school-leavers and the presently limited training opportunities for them after school. However, the Ministry recognizes the many constraints that it faces in trying to introduce vocational courses within schools and believes that a "pre-vocationalization" approach may be more valid and appropriate. Regarding strategies to improve learning achievements in schools, the Ministry is not convinced that it is desirable to find ways of increasing the utilization of existing trained teachers, but rather it strongly agrees with the recommended need to provide greater support to untrained (as well as trained) teachers. To reduce costs the Ministry is also considering a variety of other options, including reducing the primary school cycle from 7 to 6 years, making the Zimbabwe Junior Certificate a terminal examination, shifting more resources to distant education, and instituting increased cost recovery from students and pupils. As far as the management of school improvements is concerned, the Ministry endorses the recommendation for increased decentralization of decision-making authority, and also wishes to explore further the suggested ways of improving the deployment of teachers in rural areas. The Ministry accepts the need for reforming the system of school financing and moving over time to a resource equalization approach. Finally, at the central level, the Ministry agrees with the views of the report that analytical capacity needs to be strengthened.

INTRODUCTION

1. Over the past decade, Zimbabwe has rapidly expanded primary and secondary education. At independence in 1980, there were only about 1.2 million children enrolled in primary schools and about 74,000 enrolled in secondary schools; by 1989 these totals had risen to 2.2 million and 671,000 respectively. The number of primary schools rose from 3,161 to 4,504, and the number of secondary schools increased even faster from 197 to as many as 1,502. Similarly the number of teachers increased at over 10 percent annually from 32,185 to 83,226. These achievements reflected the determination of the majority of the population to contribute towards and take advantage of the new educational opportunities open to them, and also the Government's fulfillment of its pre-independence commitment to expand the schooling system.

2. Despite these dramatic achievements, however, a number of critical issues could be seen by the end of the 1980s. With nearly all primary-age children in school and with a large proportion of older children participating in secondary education, the major concern was no longer the need to increase access to education. Instead, there were concerns about low levels of learning achievements, especially in the recently-established secondary schools, and also about the unattractive prospects for many school-leavers due to the high amount of youth unemployment in the country. Related issues included whether the Government would be able to continue increasing its financial support to the education sector, whether its existing resources were being used optimally, and what additional resources could be utilized for education.

3. Against this background, in late 1989 the Government invited the World Bank to undertake a collaborative review of the major challenges facing primary and especially secondary education in the country. To enable the analytical work to be in-depth and achieved within a reasonable period of time, it was agreed that the review would focus exclusively on these sub-sectors of the entire education sector. These sub-sectors comprise the portfolio of the Ministry of Education and Culture (MEC), as tertiary education and training had been placed under the responsibility of a separate Ministry of Higher Education (MHE) created in 1988. It was also agreed that the review would focus largely on the formal system of education, though including systems of distance education.

4. Focus of this review. In preparing for this review, a long list of agenda items was put forward by the MEC and discussed. Some of these items were highly specific and technical, while others would have required an extended period of analysis and investigation. In the end it was decided that the review would be guided by two principal features. First, it would be collaborative, with full participation by the Government and maximum use being made of the local research and consultancy resources present within the country. While the responsibility for the arguments and conclusions in the resulting report would remain with the World Bank, it was agreed that they would be based on extensive input from knowledgeable Zimbabwean experts - and

especially on open and frank discussions with the counterpart team established by the Government for the exercise. Second, the focus of the work would be strategic - not necessarily covering every issue, but focussing on the highest priority items and painting a vision and proposed broad course of action for the future. This entailed standing back from some of the day-to-day problems facing the authorities, and addressing the overall question: what are the major problems now facing the Government and how can they be tackled over the medium-term?

5. Much of the background work for the sector review was carried out in late-1989 and early-1990. In January 1990 a preliminary mission visited Zimbabwe to collect information, review an initiating paper written by the MEC and begin discussions on the central issues. The mission also commissioned background research on three topics: a study of the factors affecting learning achievements in secondary schools; an analysis of the costs of secondary schools; and a review of the prospects for employment, skills demand and skills supply in Zimbabwe¹/. After the preliminary mission had taken place, officials within the MEC wrote review papers on a variety of policy questions²/, and a counterpart team of five government officials was formed to work closely with the World Bank team. The main, follow-up sector mission took place in May-June 1990. The draft report of the sector mission was discussed with, and well received by, the Government in October 1990, and written comments from the Government followed later. The main comments received were from the Ministry of Education and Culture, and these are recorded at the end of the Executive Summary of this Report.

1/A.Riddell and L. Nyagura: Multilevel Analysis of 1989 ZIC Results in English and Mathematics. K.P. Dzvimbo: Report on Cost of Secondary Education. P. Bennell: Prospects for Employment, Skills Demand and Skills Supply in Zimbabwe.

2/The review papers were on: (i) Improving School Supervision; (ii) Improving the Performance of Secondary Headmasters; (iii) Strategies for Recruiting and Retaining Teachers in Rural Areas; (iv) The Objectives of Vocational Courses in Secondary Schools; (v) Alternative Approaches to Secondary Education; (vi) Alternative Approaches to Teacher Utilization and Compensation; and (vii) Possibilities for Targeted Assistance to Disadvantaged Schools. Each of these papers contains extremely important material and suggestions for critical policy change; and wherever applicable, their ideas were incorporated into this sector report.

I. TEN YEARS OF EDUCATIONAL EXPANSION

A. The Development of Education Since Independence

1.1 The situation at independence. Zimbabwe became independent in April 1980 after a protracted liberation struggle. The liberation struggle had been motivated largely by two key issues - access to land and access to education opportunities. The European settlers had expropriated about half of the country's land - the best half - and the colonial Government had deliberately favored the European population with relatively excellent, but segregated, schooling facilities at the expense of the Africans. The pre-independence Government had spent 20 times as much on the education of each European child as on that of each African child. Much of the primary education for Africans in rural areas had, indeed, been provided by missionaries rather than by the Government. In the mid-1960s, the Government decided that only 12.5 percent of the African population should have access to "academic" secondary education and 37.5 percent to practically-oriented education, with the remaining 50 percent being left with no education beyond the possibility of the primary level. In fact, before independence, only about 12 percent of the African school-age population was in secondary school - in contrast to virtually all of the European children. Not surprisingly, then, education had come to be looked upon as the key to success and a better life. Against this background, the post-independence socialist Government decided to give tremendous priority to education, both for its own value and also as the spearhead of its effort to redress the country's inequitable distribution of resources and services.

Table 1.1 Primary Education in Zimbabwe, 1980-1989

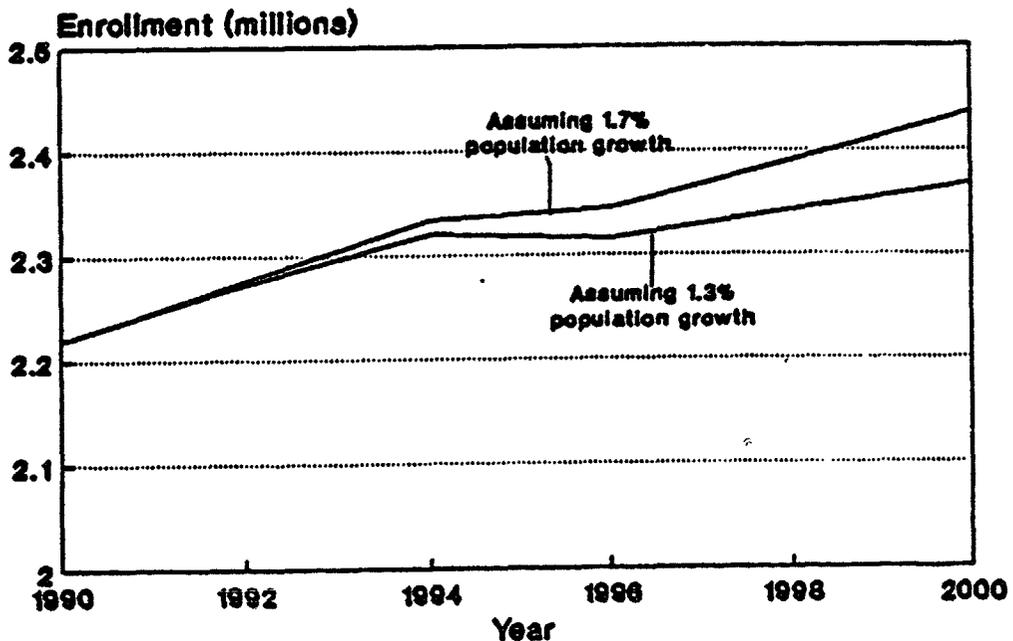
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Enrollments ('000)	1,236	1,715	1,907	2,044	2,132	2,217	2,265	2,251	2,221	2,204
of which:										
Percent Female	47.6%	48.0%	48.0%	48.1%	48.3%	48.5%	48.8%	49.1%	49.1%	50.2%
Teachers	28,455	37,800	45,467	52,502	54,086	56,714	58,257	57,120	57,762	58,370
of which:										
Trained a/	20,424	22,681	21,961	22,163	22,065	22,670	24,301	26,211	29,637	29,748
Percent	71.8%	60.0%	48.3%	42.2%	40.8%	40.0%	41.7%	45.9%	53.3%	51.0%
Schools	3,161	3,698	3,880	3,960	4,161	4,234	4,297	4,439	4,471	4,504
Pupil-teacher ratio	43.4	45.4	41.9	38.9	39.4	39.1	38.9	39.4	38.5	37.8
Population 6-12 ('000) b/	1,490	1,551	1,604	1,663	1,725	1,790	1,858	1,901	1,975	2,052
Gross Enrollment Ratio (percent) c/	83%	111%	119%	123%	124%	124%	122%	118%	112%	107%
Dropout as percentage of enrollment	n.a.	n.a.	3.0%	3.4%	5.0%	3.9%	4.7%	4.8%	5.2%	5.1%
Percent of entering cohort reaching grade 7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	76.7%	69.1%	74.6%	76.5%
Transition Rate to Secondary	27.0%	86.0%	69.5%	74.4%	82.3%	81.7%	78.3%	70.3%	65.0%	65.8%
Average school size	391	464	492	516	512	524	527	507	497	489

Notes:

- a/ Includes certified and uncertified Graduates, Bachelors of Education, Zintec Graduates, Junior Certificate Holders and Standard 6 Leavers with two or more years of teacher training, and Journeymen
- b/ 1982 figure is from the 1982 census reported in "Population Projections of Zimbabwe: 1982 to 2032." Harare: Central Statistical Office, January 1986.
1987 figures are from the Intercensal Demographic Survey provided by the Central Statistical Office. Figures between 1988 and 1989 figures are projected using a 3.9% annual growth rate as estimated in "Zimbabwe Population Sector Report". Washington, D.C.: World Bank, October 1989.
- c/ The gross enrollment ratio is computed as primary enrollment divided by the population aged 6-12.
- n.a. not available
- Sources: Ministry of Education and Culture. Annual Reports of the Secretary for Education, 1980-1989.

1.2 Primary education. After independence the Government honored its commitment to expand education made during the war. Primary school enrollments grew at an annual average rate of 5.8 percent from 1980-1990, with almost equal proportions of boys and girls now in school (see Table 1.1). School enrollment was made compulsory for children of primary age, and the gross enrollment ratio (which was inflated by older children who had previously not gone to school) rose to well over 100 percent. The construction of over 1,300 additional primary schools was carried out mainly by local communities themselves, while the Government provided and paid for the teachers. In order to increase the supply of teachers, the Government introduced the Zimbabwe Integrated Teacher Education Course (ZINTEC) teacher training program using distance education techniques, and also increased the output from the conventional teacher training colleges. However, while the total number of trained teachers increased at an annual rate of 4.3 percent, most of the additional teachers in the primary schools were still untrained. Thus while the overall pupil-teacher ratio decreased from 43 to 38 over this period, the proportion of trained teachers declined from 72 percent to 51 percent of the total. Reforms were made to the curriculum to "Zimbabweanize" it; and compared to many developing countries, drop-out of children in the first seven years of primary school in Zimbabwe was not a major problem, with an average of only about 3-5 percent of children dropping out annually. Indeed, of the cohort of children entering primary school in the early 1980s, between 69 percent and 76 percent of them completed their primary education. Although somewhat lower than the average for all children, the completion rate for girls was between 67 percent and 75 percent. Progression from one grade to the next was made automatic.

Figure 11
Projected Primary Enrollment, 1990-2000



Source: Appendix 1, Tables 1.2 and 1.3

1.3 Although primary school enrollments dropped marginally each year from 1986-1989, as a result of a reduction in the numbers of over-age children still in primary education, the projections of enrollments for the future show a reversal of this trend (see Figure 1.1). By the year 2000, the total primary school enrollment figure is projected to be around 2.4 million, if the annual population growth rate for the relevant age cohort of children remains at a projected rate of 1.7 percent, slightly less if the growth rate comes down to 1.3 percent.

Table 1.2 Secondary Education in Zimbabwe, 1980-1989

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Enrollments	74,321	148,690	227,647	316,438	416,413	482,000	537,427	604,652	641,005	670,557
Teachers	3,730	4,874	6,033	8,808	14,718	17,315	19,487	21,981	23,598	24,856
of which:										
Trained a/	3,618	4,608	5,313	6,707	8,759	9,706	10,408	11,498	12,198	12,913
Percent	97.0%	94.5%	88.1%	76.1%	59.5%	56.1%	53.4%	52.3%	51.7%	52.0%
Schools	197	694	738	790	1,182	1,215	1,276	1,395	1,484	1,502
Student-teacher ratio	19.9	30.5	37.7	35.9	28.3	27.8	27.6	27.5	27.2%	25.8
Population 13-18 ('000) b/	934	983	1,041	1,097	1,157	1,221	1,288	1,359	1,392	1,426
Gross Enrollment Ratio c/										
All Forms	8.0%	15.1%	21.9%	21.9%	28.8%	36.0%	39.5%	41.7%	44.5%	46.0%
Forms 1 to 4	n.a.	n.a.	30.3%	40.2%	50.4%	55.3%	58.7%	62.7%	65.1%	66.8%
Forms 5 and 6	n.a.	n.a.	2.3%	2.6%	2.9%	3.3%	2.9%	3.0%	3.3%	3.3%
Forms 1 to 4 male	n.a.	n.a.	36.3%	48.4%	61.0%	66.7%	70.9%	74.4%	76.6%	78.0%
Forms 1 to 4 female	n.a.	n.a.	24.6%	32.3%	40.2%	44.2%	46.9%	51.3%	53.9%	55.9%
Dropout Rates										
Forms 1 to 4	n.a.	n.a.	3.0%	4.6%	5.7%	3.9%	5.0%	9.0%	12.8%	11.1%
Male	n.a.	n.a.	1.5%	3.2%	3.8%	1.5%	2.4%	8.0%	10.7%	9.2%
Female	n.a.	n.a.	5.0%	6.7%	8.4%	7.4%	8.8%	10.4%	15.7%	13.6%
Proportion of Entry Cohort Reaching Form 4										
Total	n.a.	n.a.	85.9%	110.4%	85.1%	91.6%	88.3%	82.0%	76.3%	70.4%
Male	n.a.	n.a.	95.1%	113.5%	89.2%	97.2%	94.3%	86.9%	81.3%	74.9%
Female	n.a.	n.a.	75.6%	106.4%	79.1%	83.6%	80.0%	75.4%	69.6%	64.4%
Transition Rate to Form 5	15.8%	19.1%	15.3%	13.9%	12.7%	4.8%	7.0%	6.5%	6.6%	7.4%
Average school size	377	214	308	401	352	397	421	433	432	427

Note:

a/ Includes certified and uncertified graduates, Bachelors of Education, Zintec Graduates, Junior Certificate and 'O' Level holders with two or more years of teacher training, and Journeymen.

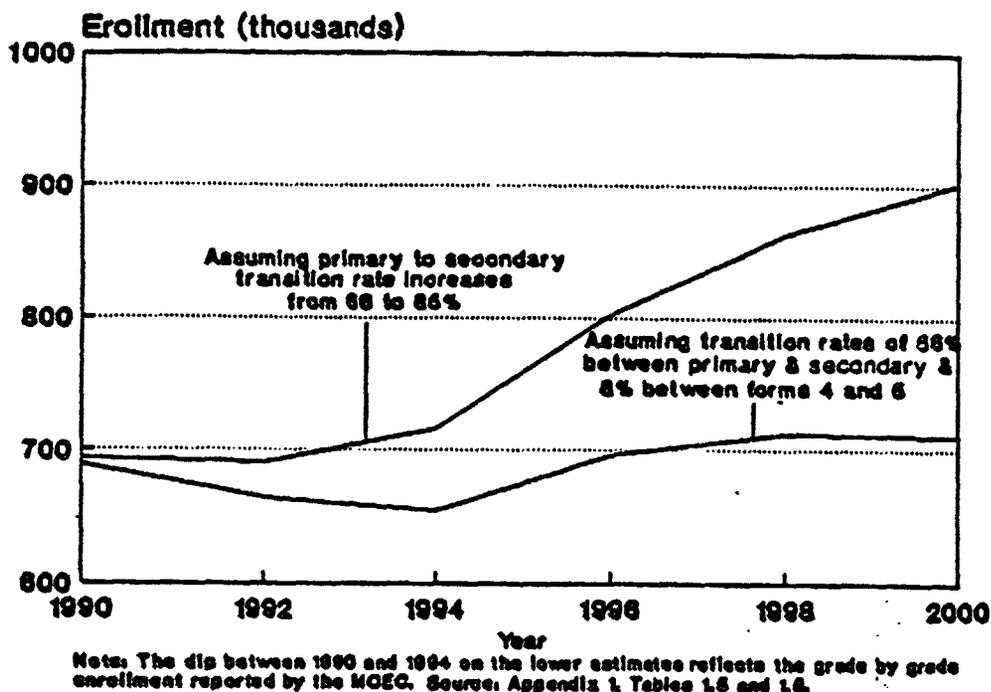
n.a. not available

Source: Ministry of Education and Culture. Annual Reports of the Secretary for Education 1980-1989.

1.4 **Secondary education.** The expansion of secondary education in the first decade of independence was even more dramatic than that at the primary level. Secondary school enrollments increased by 28 percent annually, while the number of schools rose from only 197 in 1980 to as many as 1,502 in 1989 (see Table 1.2). This massive construction of new schools was largely the result of community efforts, it facilitated the fastest rate of expansion of secondary education anywhere in the world, and it resulted in the transition rate from primary to secondary school jumping from 28 percent in 1980 to an average of over 70 percent up to 1987. The proportion of girls in secondary schools remained fairly constant in the 40-43 percent range, while the proportion of boarding students dropped from about 20 percent to 7 percent by the end of the 1980s. As in the case of primary education, however, the output of fully qualified teachers could not keep pace with school enrollments, and the proportion of trained teachers dropped from 97 percent in 1980 to 52 percent by 1989. Unlike in the primary sector, however, the

student-teacher ratio in secondary schools rose (from 20 to 26), despite the average annual rate of increase of 23 percent in the overall number of teachers. At the secondary level, where fees are charged, there was also a significant and increasing drop-out problem, especially among girls - with one-third of girls and one-quarter of boys failing to complete the four-year cycle leading to the 'O' level at the end of the 1980s. Competition for a place to do 'A' levels in forms 5 and 6 became even more intense, and the transition rate from form 4 to form 5 dropped from 16 percent in 1980 to 7 percent in 1989.

Figure 1.2
Projected Secondary Enrollment, 1990-2000



1.5 In contrast to the primary level, there was a steady increase in enrollments at the secondary level, even at the end of the 1980s. However, due to the fall in primary enrollments in recent years, there will be a slight fall in the number of secondary school students up to the year 1994 - unless the transition rate from primary to secondary school increases (see Figure 1.2). If the transition rate were to increase from 66 percent to 85 percent, then by the year 2000 there would be about 900,000 students in secondary schools in Zimbabwe. With constant transition rates from primary school to secondary school, and from form 4 to form 6, on the other hand, the total number of secondary school students would only be marginally higher in the year 2000 than the present number. While it is the Government's policy to try to increase further the transition rate from grade 7 to form 1, there is now a policy of consolidation at the upper secondary school level, with very few new form 5 and 6 classes having been added over the last couple of years.

Table 1.3 Government Expenditure on Education
1981/82 - 1989/90

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Total expenditure on education (current prices) (Z\$m)	324.26	425.51	487.57	531.86	678.08	770.09	892.05	1,093.84	1,318.51
Total expenditure on education (constant 1989/90 prices) (Z\$m)	616.59	713.83	676.23	725.51	900.26	933.21	1,027.38	1,162.53	1,318.51
Education as % of total government expenditure	17.1	16.6	17.1	16.5	18.4	16.4	17.1	17.2	19.0
Education expenditure per capita (constant 1989/90 prices) (Z\$)	83	93	86	89	107	108	115	126	138

Notes:

The figures are actual expenditures, except for 1989/90 when they are estimated actuals. They include education and training expenditures by the Ministry of Education and Culture, the Ministry of Higher Education, the Ministry of Labor and Manpower Planning, and the Ministry of Public Construction and National Housing.

Constant prices were derived by using the GDP deflator.

The population estimates used were based on a total population size of 7,517,165 in mid-1982 and 3.2% annual growth.

Source: Government Budget Estimates.

1.6 Government expenditure on education. The Government's commitment to education and training can be seen from the data in Table 1.3. In current prices, total spending on the sector grew at an annual rate of over 19 percent, rising from Z\$324 million in 1981/82 to Z\$1,319 million in 1989/90. Measured in constant prices, the annual growth rate was still over 10% - in contrast to the African region as a whole, where governmental education expenditures stagnated through the 1980s. As a proportion of total governmental expenditures, the education sector averaged 17.3 percent over the decade, with the trend moving slightly upwards in the more recent years. Spending per child also rose in real terms - from Z\$83 in 1981/82 to Z\$138 in 1989/90.

1.7 Within the sector, appropriate priority was also given by the Government to basic education during the first decade of independence. Primary education on average received 55 percent of the Government's expenditure on the sector, while secondary education received 26 percent. Expenditure in constant prices per pupil at the primary level rose marginally from Z\$292 in 1981/82 to Z\$309 in 1989/90, but at the secondary level (where enrollments expanded particularly dramatically) it fell from Z\$1,281 to Z\$542 over the same period. Of particular concern during this period was the steady increase in the proportion of the budget taken up by the salaries of teachers - from 78 percent in 1981/82 to 88 percent (and even higher if

salaries granted to private schools are included) at the end of the decade. In addition, and of fundamental importance to the sustainability of the educational gains of the 1980s, the ability of the Government to continue its strong financial support to the education sector was increasingly undermined by the lackluster performance of the economy.

B. Macroeconomic Developments

1.8 In contrast to the highly successful expansion of the social sectors - health and family planning, as well as education - since independence, the Government was not been able to stimulate economic growth at the target rate that it set for the country. Whereas planned targets for annual economic growth were 7 percent from 1983-85 and 5.1 percent from 1986-90, actual annual economic growth was much lower and averaged only about 3.2 percent over the decade as a whole. However, with fertility beginning to decline due to the strong family planning program and the relatively favorable socio-economic status of the people, the country's population growth rate fell during the 1980s. Even so, there was still very little growth in gross domestic product (GDP) per capita. The overall rate of investment (varying between 15-21 percent of GDP) was barely adequate even to sustain the current stock of capital, as business confidence was suppressed by a combination of tight foreign exchange controls, pervasive business regulations, and high budget deficits (at around 8-10 percent).

1.9 The Government has now recognized that comprehensive economic policy reform is needed for economic growth and some steps have already been taken. For example, exchange rate management has become more aggressive, new investment guidelines have been issued, some progress has been made on wage, price and interest rate controls, and the Government has announced its intention to half the budget deficit (as a proportion of GDP) by 1994/95. The Government has also recognized that the budget deficit reduction should be achieved through expenditure restraint rather than any further rise in revenues as a share of GDP. These fiscal changes, together with further reform of domestic regulatory policies and trade liberalization, will be necessary to achieve an accelerated rate of economic growth, which itself will be needed to sustain expenditures on the social sectors over the medium-term. Certainly, however, no major increases in expenditures for the social sectors can be expected in the short-term. Maximum attention, therefore, needs to be paid to ways in which existing governmental funds provided to the education sector could be used more effectively, and ways in which additional funds might be obtained from other non-governmental sources.

II. EDUCATION AND EMPLOYMENT

2.1 The first major problem now facing the Government is the unattractive prospects for many school-leavers due to slow economic growth and constrained wage employment relative to the expansion of secondary and tertiary education. To improve the links between education and employment, Zimbabwe needs to confront two important challenges. The first is to ensure that the skills needed for economic and employment growth are developed. Expansion of the economy is primarily a matter of effective policy, capital investment, the state of world markets and the responsiveness of the private sector to new opportunities. But a skilled workforce is also a crucially important ingredient, and there is evidence in Zimbabwe of skill shortages in a number of technical and professional occupations. A cost-effective skills training system is therefore needed; and while considerable progress has already been made in developing such a system, more still remains to be done.

2.2 The second challenge is posed by the increasing number of educated youth entering the labor market. In recent years there have been more than two graduates of secondary and tertiary education and training institutions for each vacancy in the formal wage sector. As a result, unemployment among individuals aged 15-24 with secondary education or higher not living in communal farming areas reached 47 percent in 1987, amounting to more than 100,000 individuals. New entrants to the labor force must thus compete not only with each other, but also with a growing pool of educated but unemployed young persons. Even under the most optimistic assumptions about future growth in wage employment, about half of the educated youth will either have to find productive employment in communal farming areas or in the urban informal sector, or join the swelling ranks of the unemployed. The second challenge is, therefore, to ensure that all school leavers are equipped as well as possible to find formal or informal income earning opportunities when they enter the labor market.

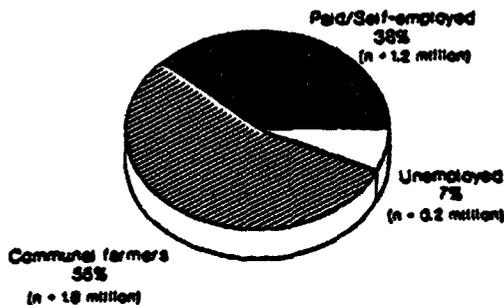
2.3 Education and training systems have important complementary roles to play in addressing both of these challenges. Because resources for education and training are limited, however, it will be important to define the most cost-effective roles for each within the evolving economic and social context of the nation. This, in turn, requires a careful look at the prospects for employment, at the capacity of specialized training institutions to meet critically important skill needs, and at the contributions that can realistically be expected from education to improve the employment chances for youth.

A. Prospects for Employment

2.4 Present employment situation. The structure of employment in Zimbabwe is unique by Sub-Saharan standards.^{1/} According to the Labor Force Survey (LFS), in 1986/87 total employment was about 3.26 million, of which paid employment (including commercial agriculture) amounted to 1.2 million. This represented as much as nearly 40 percent of the total (see Figure 2.1). Government employment accounted for about a fifth of the total paid employment, and manufacturing somewhat less than one sixth (see Figure 2.2). More than half of this workforce was unskilled, a quarter semi-skilled, 13 percent skilled, and six percent professional. Non-agricultural employment was concentrated in Harare and other urban areas.

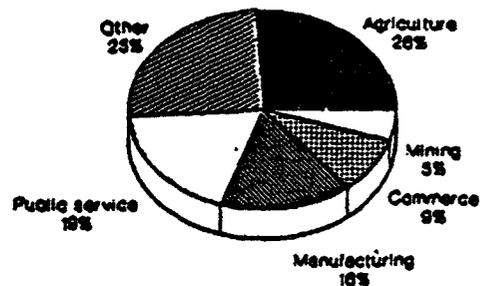
2.5 The results of the 1986/87 LFS are broadly representative of the present situation. An unusually high proportion of paid employees still works in large firms. For example, in manufacturing, 75 percent of workers are employed by firms with more than 200 employees, and 61 percent in firms that employ more than 500. Employment concentration is even higher in the mining industry. A very small proportion of workers in Zimbabwe is engaged in small firms. By contrast, in most developing and developed countries, excluding Eastern Europe, firms employing 100 or fewer workers account for at least 30-40 percent of employment.

Figure 2.1
Structure of the Labor Force, 1987
(Total = 3.2 million)



Source: 1986/87 Labor Force Survey

Figure 2.2
Paid Employment by Industry, 1989
(Total = 1,170,000)



Source: ILO Employment Report (1988); self-employed not included

^{1/} See Annex I for a more detailed treatment of employment issues.

2.6 The informal sector in Zimbabwe is very small, constrained by municipal zoning and vending regulations, high land costs, lack of credit and foreign exchange, and lack of markets for goods in a economy dominated by large formal enterprises. Many of the controls date back to the colonial policies, which were designed to restrict African settlement in urban areas. This small size of the informal sector can also be illustrated through data from the LFS. Within formal employment, some 234,000 individuals were counted as being self-employed in the informal sector in 1986/87. However, of these, more than 150,000 reported their occupation as "agriculturalist." Of the balance, 38,000 were engaged in community and social services, and 21,000 were in wholesale and retail trade. Only 10,000 were engaged in manufacturing and 9,000 in construction. If agriculturalists are excluded, the informal sector, therefore, employed less than three percent of the labor force and 10 percent of non-agricultural workers. In seventeen other Sub-Saharan African countries for which data are available, the informal sector averages 21 percent of total employment and nearly 60 percent of urban employment.

2.7 More than half of the workforce is engaged in subsistence agriculture, supplemented by non-farm employment, in communal farming areas. Productivity and incomes are low, and under-employment is high. Workers in communal areas are disproportionately young and female, as a result of migration of mature males to seek wage employment in urban areas and on commercial farms.

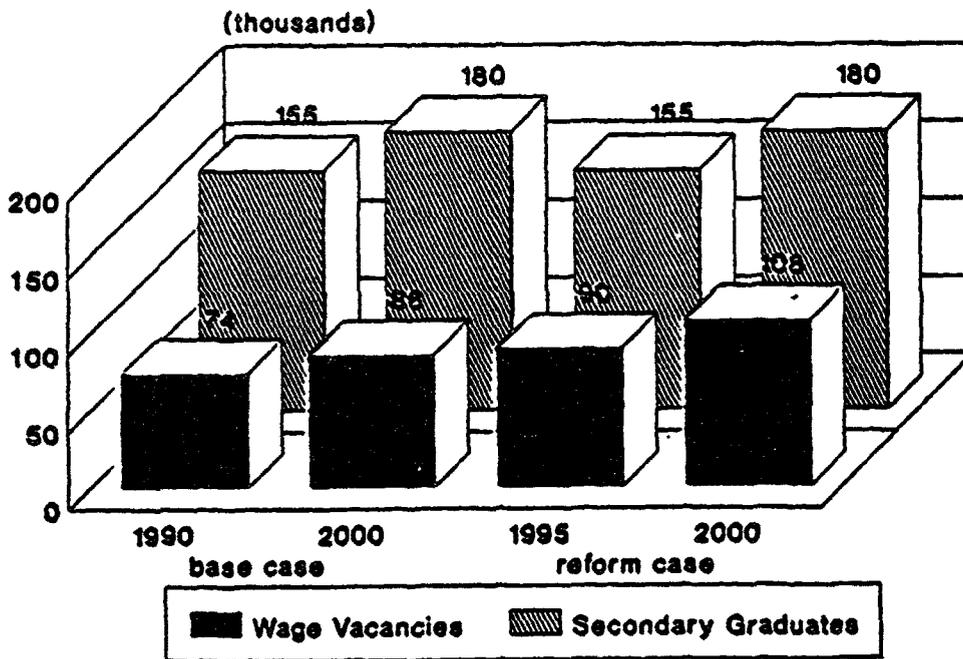
2.8 The extent of open unemployment is large and growing. The LFS counted about 234,000 individuals or about seven percent of the workforce as openly unemployed. Other estimates suggest that this figure is low: if under-employed youth in communal areas are also counted, the total would be closer to 500,000. Unemployment is concentrated among individuals aged 15-24 in urban areas, and among those with at least secondary education. In 1986/87 120,000 secondary school graduates throughout the country were openly unemployed, and this number has no doubt increased in the past three years. It is believed that open unemployment may now be in the region of 26 percent.

2.9 Prospects for wage employment. Wage employment in the formal sector grew slowly in the first half of the 1980s, averaging only 9,000 new jobs a year, with expanded public sector employment being offset by declines in employment in agriculture and mining. In the last four years, led by the private sector, employment has expanded more rapidly, averaging more than 28,000 new jobs annually. However, the overall rate of job creation has still remained low relative to the growth of the work force, which is increasing at 2.5 percent a year.

2.10 The slow expansion of wage employment reflects Zimbabwe's sluggish economic growth, caused in turn by lack of investment, foreign exchange shortages, protectionist trade policies and capital scarcities resulting from a large public deficit. Government labor policies, notably the job security regulations and, to a lesser extent, minimum wage policies, have had a dampening effect on new employment too. However, available evidence also suggests that higher level skill shortages exist for such positions as accountants, engineers, technicians and precision machine workers, and that these shortages may also have had some negative effect on economic growth, though their effect may have been less than the other factors.

2.11 The prospects for growth in formal wage employment are tied directly to the prospects for economic and labor policy reform, and to the rate of attrition in the workforce. But even under optimistic assumptions regarding reform and higher rates of employment growth, and even if the rate of labor attrition increases as a result of higher adult mortality due to AIDS, the formal sector would be able to absorb at most slightly over half of the 1.8 million individuals with secondary and tertiary education and training that will enter the labor market over the next decade (Figure 2.3). With a continuation of recent trends, the proportion would fall to under 50 percent.^{2/}

Figure 2.3
Prospects for Wage Employment



^{2/} Employment projections are extremely unreliable, and these are no exception. They are presented in order to provide rough comparisons between formal wage opportunities and projected educated entrants to the labor market. See Annex I for details.

2.12 Based on the 1985 profile of skills in the work force, the more optimistic projections of growth in formal employment would imply the need for about 125,000 skilled workers and 60,000 professionals over the next decade. However, changes in economic policy would increase the uncertainty of which skills will be in most demand: international competition would lead to changes in technologies and skill profiles, as well as a shift of labor between sectors of the economy. Generally, however, prospects would be best for workers with higher technical education.

2.13 The relatively undeveloped state of registered small scale enterprises (SSEs) offers some potential for expansion at a faster rate, as they employed only about 10,000 workers in 1986/87. However, improved availability of credit and support for entrepreneurship development, as well as improved linkages with larger enterprises, would be needed for significant expansion to take place. Seven years of 10 percent annual growth would be required to add only 10,000 new SSE jobs to the economy.

2.14 Prospects for informal sector employment. The presence of a growing pool of educated workers unable to find wage employment highlights the importance of eliminating barriers to self-employment. With a more favorable policy and regulatory environment, and with improved access to credit, productive informal sector employment could expand. However, its capacity will be small relative to wage employment for some time. Even if the informal sector were to expand at 10 percent annually, which would be an optimistic prospect, it would still take seven years to double informal sector employment, adding a total of about 250,000 jobs to the economy. Nevertheless, the priority is for the Government to recognize the central importance of the informal sector for employment creation, both because of its potential supporting role for the formal sector, and also especially because of the relatively low cost per job created. The informal sector, indeed, will have a critical role to play in dealing with Zimbabwe's employment creation challenge.

2.15 Prospects for communal area employment. Even assuming that formal employment absorbs half of the 1.8 million educated school leavers over the next decade, and that successful expansion of SSEs and the informal sector adds 250-270,000 more jobs, more than 600,000 educated youth would still need to be absorbed in the communal areas. Here the challenge is, therefore, to provide alternatives to low productivity subsistence agriculture. Continued improvement of earnings in smallholder and commercial agriculture would also be essential to generate the incomes needed to develop rural markets for services and products.

B. Meeting the Skill Needs of the Economy

2.16 The estimates of needs for highly skilled professionals and workers in a changing economy are at best indicative, but the available data for Zimbabwe suggest that the capacity of the economy to provide an adequate amount and quality of training, at an affordable cost, needs to be reviewed. Most attention tends to be paid to this issue in relation to the formal sector, but attention also needs to be given to the skill requirements of the informal and communal sectors.

2.17 In comparison with other lower middle income countries, Zimbabwe has three important assets in meeting future demand for skills. The first is the large number of youths with secondary education. These potentially provide a solid foundation for a flexible force of workers able to learn new skills efficiently throughout their working life. The second is the concentration of wage employment and skills in large firms. Large employers have the expertise to carry out a significant amount of the skills development, and they would no doubt do so if the economy expands rapidly. The third asset is the existence of a large and dynamic private training sector, including correspondence colleges and private colleges (offering general, commercial and some technical courses, and already enrolling more than 200,000 persons a year), as well as about fifty non-profit and non-government organization (NGO) operated training institutions.^{3/} Added to these assets are the Government's technical and vocational education and training institutions, which fall into two categories: (a) specialized training institutions managed outside of the MEC; and (b) vocational education programs within the secondary schools.

1. Post-school skills training

2.18 Formal sector. In order to consider the optimal role to be played by primary and secondary education in preparing children for income-earning opportunities after school, it is first necessary to review briefly the existing post-school skills training programs. An important beginning has been made in establishing specialized training institutions to meet the demand for technical and craft skills in the wage sector. Public capacity for technical training is concentrated in the Harare Polytechnic and six technical colleges. Craft level skills training is provided by the Harare Institute of Technology (formerly known as the Belvedere Vocational Training Center). These institutions are administered by the MHE, as are the two vocational training centers at Msasa and Westgate that provide trades testing and modularized upgrading training to employed workers. The Ministry of Political Affairs also administers 15 youth training centers originally intended to prepare craft workers for rural employment. Faced with low demand for places, however, these centers were re-oriented in 1985 to prepare students for trades tests and formal sector employment. This resulted in a sharp increase in enrollments. The capacity of these training institutions is shown in Table 2.1.

^{3/} K. King: In-service Training in Zimbabwe. Human Resource Research Center, Occasional Paper No. 3 (1989).

Table 2.1: Capacity of Post-School Training Institutions

Institutions	Enrollments			
	1986	1987	1988	1989
Technical Colleges	6,415	7,551	11,169	n.a.
Vocational Training Centers	253	267	523	n.a.
Craft Apprentices				
Intake	1,145	1,097	906	n.a.
In training	n.a.	n.a.	n.a.	3,889
Youth Training Centers	2,200	n.a.	n.a.	3,250

n.a. not available

Source: Ministry of Higher Education and Ministry of Political Affairs

2.19 An important source of training finance is the Zimbabwe Manpower Development Fund (ZIMDEV). Financed by a one percent levy on the payroll of all 16,600 registered enterprises, the fund is used to finance the first two years of apprentice wages and direct training costs, reimbursement to employers for approved training courses at external institutions, and expansion of and equipment for the technical colleges. However, declining numbers of apprentices and employer reluctance to undergo the "red tape" required for reimbursement led to the accumulation of a substantial surplus, estimated at Z\$75-100 million. Recently, though, a large proportion of this amount has reportedly been committed to improving the technical colleges.

2.20 Taken together, these institutions and financing arrangements form the core of a potentially effective and efficient training system for the modern sector. However, there are still some serious problems to its realization. Salary constraints have made it extremely difficult to attract and retain qualified instructors, forcing reliance on externally financed expatriate instructors. The vacancy rate at the Polytechnic and technical colleges was 34 percent in 1989; counting expatriates as vacancies, it was nearly 50 percent. These staffing constraints have reduced the number of students being trained and undermined the quality of training. The apprenticeship system has also been in decline for a number of years, because of slow growth in employment and employer concerns regarding the quality of block release training in the technical colleges. Cooperation between the Government and the private sector, while recently improving, has also been weak.

2.21 A comprehensive training policy and strategy would be needed for the emerging needs of the formal sector to be met. The potential of the public system could be linked with the assets of a well educated and young workforce, substantial enterprise training capacity and a potentially large contribution from private and NGO institutions to create a flexible and responsive public/private training system. This would require investment, perhaps through more flexible use of ZIMDEV resources, and increased recurrent financing, as well as policies that make it possible to hire more qualified training staff. The need for a revised strategy has been recognized by the MHE

and a major policy paper on manpower development and training is now being prepared.

2.22 Informal sector. Public training for the informal sector is not well developed. The Small Enterprises Development Corporation (SEDCO) provides project development services, credit consultancy advice and training to help establish new registered SSEs, but since 1984 only 3,385 new jobs have been created. SEDCO began an Entrepreneurship Development Program in 1988; but of 200 initial applicants, only 15 had projects approved. SEDCO is understaffed and under-capitalized, and primarily supports larger, registerable new enterprises. Indeed, at present SEDCO hardly addresses the informal sector at all. However, some informal sector entrepreneurs are supported by NGOs, among them the Zimbabwe Project, the Danhiko Project and the Glen Forest Training Center. The training offered is generally intended to support self-employment in the urban informal and rural sectors, and governmental support to NGOs might be considered as a means of expanding such training opportunities further. As in the case of the formal sector, however, there is need for a correspondingly comprehensive training program and strategy for the needs of the informal sector.

2.23 Rural sector. Much also remains to be accomplished in training for the rural sector. The shift of the youth training centers to train for the wage sector, complete with Zimbabwe National Craft Certificate (ZNCC) examinations and industrial attachments, is a striking illustration of the pull of higher paid formal employment. Before the shift, applications for places in the youth training centers were falling significantly; thereafter, they rose steadily.

2.24 Recognizing that training alone will have little impact on job creation, the Government has given priority to the establishment of rural growth points and service centers, and to supporting the development of cooperatives. The growth point strategy emphasizes the development of small and medium-sized enterprises in rural areas. Fifty-five district service centers (growth points) and 413 rural service centers have been designated. While there has been no comprehensive evaluation, a survey of three rural service and three district service centers in 1986 found that 29 percent of activities were in manufacturing, 3 percent in repair, 9 percent in personal services and 60 percent in retail. Within manufacturing, nearly two thirds of activity was in maize grinding and milling. Another survey in the same year of 25 activities found that four were "very profitable" and 15 "only just profitable."^{4/} The strategy has been hampered by lack of local and national funding, lack of electricity in many rural service centers, and, until recently, the inability of entrepreneurs to acquire freehold title to land.

2.25 Cooperatives are seen as an important means of generating rural employment. However, of the 1,832 cooperatives registered with the Ministry of Community and Cooperative Development in 1988, only 1,106 (60 percent) were functioning. Effective cooperative development requires identification of viable products and markets, entrepreneurial ability and training. A good example of how training can be successfully integrated into cooperative

^{4/} Helmsing (1986) and VOICE (1986), cited in the background paper written by P. Bennell.

development is provided by the Buildings Cooperative Project of the Bulawayo City Council. The Council trains school leavers in building skills, including cooperative and financial management, planning permission applications and building regulations. Trainees are encouraged to form their own cooperatives on completion of training; and the project's Cooperative Development Section provides continuous technical building and management supervision, a six month loan of tools and a rudimentary site shed, a revolving loan fund and other credit for plant and materials, and shared use of the project truck on a rental basis. Eight cooperatives employing 95 members have been successfully established.

2.26 A final source of rural skills is the eight secondary schools run by the Zimbabwe Foundation for Education With Production (ZIMFEP). These do not train to ZNCC standards, but offer practical training in agricultural production and related skill areas. However, recent tracer study of ZIMFEP graduates found that nearly two-thirds were unemployed or had gone on to higher education.^{5/}

2.27 In total, these strategies provide a promising framework for integrated skills training and job creation in rural areas. However, the quantitative impact thus far has been small relative to the numbers of unemployed school leavers, and an expansion of programs is needed to improve rural incomes and employment opportunities.

2. Vocational education in secondary schools

2.28 The MEC has been concerned for some time about the perceived lack of relevance of the 'O' level curriculum to employment and especially self-employment in rural areas, and as a result it has initiated two levels of vocational courses in secondary schools. The first of these is the inclusion of practical subjects within the 'O' level curriculum and examination system. These occupy 5-7 periods (of 40 minutes each) out of the total of 46 each week -- the same time devoted to the study of English, mathematics or science. The subjects include woodwork, metal work, agriculture and fashion design. It is intended that all students in forms 1 and 2 take two practical subjects within this time allocation. Assuming 6 periods per week per subject, this amounts to 108 hours of instruction a year, or 216 hours if a course is taken for two full years. One practical course is required at forms 3 and 4. On the basis of time allocation and through an examination of the subjects, it is evident that these are clearly pre-vocational rather than vocational courses, and that they are aimed at the most basic orientation to a trade. In contrast, at least 1,000 hours of instruction would be required for a student to pass a first level trades test.

2.29 The second approach of the MEC is the pilot testing of the ZNCC courses. This is being done in 28 primarily well-endowed urban academic secondary schools, already equipped to a reasonable standard. These are more truly vocational courses, offering 1,000 hours of theory and workshop practice

5/ Ministry of Cooperatives and Community Development. Proceedings of a Workshop on Post-Vocational Training and Support for School Leavers. Cooperatives and Self Reliant Enterprises(1989.

in such subjects as bricklaying, carpentry and joinery, machine shop and motor mechanics. The courses are intended to prepare students for the ZNCC examinations, and are thus clearly oriented to formal wage employment. Class size is 16 students. These courses are added to the normal 'O' level curriculum of eight subjects, and thus require additional study time during the week and often on Saturdays. The ZNCC scheme was modelled on the vocational training program of St. Peter's Kubatana Vocational Training Center in Harare. The Kubatana program was initiated in 1980 as a church-sponsored, post 'O' level two year training course, but was later taken over by the Ministry of Labor, Manpower Planning and Social Welfare and changed to a integrated course with form 3 entry.

2.30 The implementation of practical subjects in general secondary schools has been a slow process, constrained by lack of resources and trained teachers. In 1989, there were 1,647 technical teachers for 1,502 secondary schools. Of these, half had four years of teacher training beyond 'O' levels, 130 were journeymen, and the balance had two or three years of teacher training. There is, therefore, an average of only about one teacher per school, while each school is to provide at least two subjects. In some rural schools visited, only one subject was offered and on a reduced time schedule, resulting in under-utilization of the trained teacher in post. Furthermore, it is believed that a significant number of technically-trained teachers are not teaching technical subjects at all. The high costs of wood and metal workshops have also restricted the availability of these courses. No data on recurrent costs are available, but parents are required to pay as course fees Z\$ 10-25 per year. Based on international experience, the recurrent costs of well implemented practical courses should range from 15-40 percent above the costs of general instruction, depending on the subject. In the sample of schools visited, it was clear that the additional costs were not being met.

2.31 The inclusion of practical courses in the secondary curriculum as pre-vocational subjects intended to develop generally useful life skills and to provide an orientation to various skilled occupations can be justified in educational terms, if well implemented. When weakly financed and implemented, however, these objectives are unlikely to be attained. Under these circumstances, the time would probably be better spent on learning additional English, mathematics and science.

2.32 Thus far, the results of the ZNCC pilot scheme have not been encouraging. An initial tracer study of 1980-82 graduates of the post 'O' level training then offered at Kubatana found that over half had gone on to apprenticeships, and that nearly all were then employed in skilled technical jobs with good salaries. In contrast, a later tracer study found that none of the 1988 group (which did the course as part of their secondary schooling) had obtained an apprenticeship, and that 70 percent of the graduates stated that their job expectations had not been fulfilled.^{6/} The examination results of the first year of the MEC pilot project were also less than encouraging. Of the 115 candidates from 11 schools, only 9 passed -- and all of these were from the well staffed and equipped Alan Wilson School in Harare.

^{6/} P. Bennell (forthcoming).

2.33 The ZNCC courses are expensive. The reduced student-teacher ratio immediately doubles recurrent teacher costs, while capital costs are also high: a block of two classrooms with storage costs Z\$140,000 to build, metal shops each cost Z\$180,000, while wood shops cost Z\$175,000. Not counting equipment (which is quite expensive for wood and metal shops, and even more so for machine shops) or non-salary recurrent costs, the teacher and capital costs per student period of expanding ZNCC to schools without facilities would be twice that of conventional instruction (see Table 2.2).

2.34 Costs aside, the ZNCC program faces several other problems. ZNCC teachers must hold a B.Ed in technical education or be qualified journeymen. B.Ed teachers acquire their technical skills during teacher training and few have industrial experience. The MEC is assisting these teachers to pass trades tests, but early experience indicates that this simply increases turnover as the qualified teachers take up jobs in the private sector. There are fewer than 130 journeymen in the entire school system, and the ability of the MEC to attract more in the future is problematic: the better the journeyman, the more likely it is that he/she will seek higher paying work in the private sector. The pilot scheme also remains quite centralized, making it difficult for schools to adjust to local conditions, including local employment opportunities.

Table 2.2: Estimated Building and Instructional Costs of New General and ZNCC Classes Per Student Period

	General (Z\$)	ZNCC (Z\$)
Classroom	70,000	180,000
Teacher	10,764	10,764
Total	80,764	190,764
Student periods/year a/	7,326	8,288
Cost per student period	11	23

a/ General: 6 periods a week x 37 weeks x 33 students
 ZNCC: 14 periods a week x 37 weeks x 16 students

Source: Mission estimates.

2.35 Paradoxically, ZNCC courses are also offered in the more well-endowed mission and government secondary schools where academic achievement is high. Recognizing the additional work load required, schools tend to select the most able students for the ZNCC program -- and these are the ones who are anyway most likely to do well in academic courses and then pass on to tertiary education. Some of these students will enter the technical college stream, where ZNCC passes may be accepted in lieu of part of the curriculum. But for many, the skills are unlikely to be used.

2.36 These problems of cost and effectiveness face schools offering vocational courses throughout the world. Successful vocational training at the secondary school level is possible, but it requires substantial financing for teachers and facilities, autonomy at the school level to adjust courses and enrollments to local employment opportunities, and strong cooperation

between schools and employers. To be cost-effective, there must also be jobs for graduates. These requirements have not yet been met in Zimbabwe. With adequate support, ZNCC courses could help meet basic skill needs in an expanding economy. But other alternatives, including employer training, are likely to be more cost-effective in meeting the skill needs of the economy. And given that the Polytechnic and technical colleges accept students with good results in the 'O' and 'A' level exams, initial technical training at the lower secondary level would seem to be unnecessary. The resources used for technical subjects could also be used in other high priority areas.

C. Education for Continuing Learning

2.37 While practical courses can be justified in educational terms, they are costly, difficult to implement and unlikely to improve employability. They also reduce the time available for more basic subjects. The results of the ZNCC pilot program so far are not encouraging; and while good training is possible in secondary schools, there are other, potentially more cost-effective modes of skills training for the formal, informal and rural sectors. Both of the Government's vocationalization programs are thus problematic; but if the Government wishes to continue them in their present forms, consolidation and quality improvement should have priority over expansion. Alternatively, the ZNCC experiment could be reformulated, with a return to the original Kubatana model, voluntary entry after 'O' levels, modest cost recovery and increased institutional autonomy.

2.38 Either course of action leaves unanswered the question of the value of the 'O' level curriculum to the large proportion of students who do not achieve a substantial number of passes. With wage employment opportunities scarce relative to the number of school completers, the chance of these students finding work in the modern sector is limited. Vocationalization is one alternative, but it is costly, currently oriented to modern sector employment, and the results are uncertain at best. Other alternatives, therefore, need to be considered.

2.39 Worldwide, secondary schools are expected to prepare some youth for tertiary education and others for employment, to prepare them all for citizenship, to develop the basic skills needed to manage a household, and to develop knowledge and attitudes needed for successful family life. They are also expected to adjust courses and programs to meet the varying aptitudes and interests of different student populations. This is a very wide range of objectives, and it is not surprising to find that the secondary curriculum is subject to constant innovation and change in many countries, and that different patterns emerge.// In general, countries need to develop

//For example, Singapore streams youth in different general curricula according to ability with slower learners taking more time to complete their studies. The United States has developed comprehensive high schools, with academic, general and vocational tracks -- the latter consistently proving not to be cost effective in preparing students for employment. In Germany, most students leave school after nine years of high quality education to enter the extremely effective apprenticeship system; others move on to higher education through specialized academic schools. In Korea, students are streamed after high quality lower secondary schools to academic, technical and vocational schools based on academic achievement.

approaches that fit their social and economic environment, and their ability to pay -- including for the costs of curriculum reform and teacher re-training.

2.40 Two elements are fundamental to effective post-primary curricula: (a) achieving good levels of quality in the basic skills, and (b) building into the base curriculum concepts and exercises that help students apply knowledge effectively within their own context. With this base established, students are well-prepared, not only for the next level of education or training, but also for continuing formal and informal learning over both working and private life. In Zimbabwe, the period of basic preparation for most youth is defined by the 'O' level curriculum, and the country has made significant progress in establishing the second element. Localization and revision of the 'O' level curriculum and examinations to fit the Zimbabwean context is well advanced. English, mathematics and science syllabi already include a substantial amount of applied concepts and skills that are broadly useful in life and work (See Box 2.1).

Box 2.1: Applied Content in 'O' Level Syllabi

National efforts to create a more relevant curriculum at the lower secondary level have led to the integration of a wide range of practical concepts and skills useful in the context of Zimbabwe, both urban and rural. Examples include:

English: interpreting information from graphs and charts; writing a variety of letters, notes and reports; summarizing written information; communicating orally.

Mathematics: approximation and estimates; interpreting data (i.e., electric bills, mortgages); solving budget problems (simple interest, discounting); reading charts and graphs;

Science: a) Agriculture in Zimbabwe: soils, plant germination, animal breeding; ecosystems; conservation. b) Science in industry: mineral resources, industrial processes; c) Science in energy: electricity and electric motors; petrol and diesel engines; d) Science in the community: food and nutrition; water; wastes; and health practices.

These educational objectives are intended to be taught with local examples, and this is reflected in the nationally developed textbooks.

Sources: O Level Syllabi (1991) for Candidates in Zimbabwe.

2.41 However, as will be discussed in the next chapter, the level of student achievement in this curriculum varies substantially across schools. Students in well-endowed schools learn much more than their counterparts in poorer, especially rural council schools. Many students are yet to realize the benefits of the basic curriculum, thus reducing their chances in life and the benefits of investment in education to society. In rural schools, science teaching is especially problematic, due to difficulties in implementing the innovative Zimbabwe Science Program (ZIMSCI) and the lack of qualified teachers. Thus a first alternative for consideration is to improve teaching and learning within the present curriculum. This would better prepare students for all forms of post-school learning, whether in tertiary institutions, in rural youth training programs or on the job. It would also improve equity of opportunity by enabling all students to have a reasonable chance of success along the path to higher education.

2.42 There are, however, other alternatives. More applied science, in the form of technology education, is a second alternative. This is attracting considerable interest in developing countries anxious not to be left behind in technological change. Such courses would be new to Zimbabwe, and curriculum development and teacher training and education would be costly.

2.43 A third alternative would be streaming at the end of form 2, with some students pursuing the 'O' level curriculum and others pursuing a more general and applied course of study not leading to the 'O' level examinations. A more extreme version of this option would be to do away with the 'O' level entirely. Such an applied course might be especially useful in rural schools, particularly if it were designed from the ground up to fit realistically with rural employment opportunities. Again, curriculum development and teacher education costs would be high, but experimentation may be warranted. In any case, streaming should be voluntary, supported by transparent and effective testing, and with information provided to parents. To do otherwise would create considerable disappointment as students are taken off the path to greatest success. If nothing else, an alternative curriculum would imply less, or less good, English language instruction -- and English is the language of the economy.

2.44 A final option, and one that merits considerable attention, is the gradual development of capacity in schools for vocational counseling and employment orientation in schools. Here a careful distinction would need to be made between rural and urban employment opportunities. Counseling programs would need to be developed locally by staff trained to search out employment and further training opportunities in the local area. This could, in initial stages, be a part time role for teachers relieved of one or two courses and provided with training and basic guidance materials.

2.45 In sum, the best contribution of secondary education at this stage in the development of education may well be to enable more students to master the concepts and skills of the present curriculum, rather than devoting additional resources to major curriculum change. This, admittedly, is an imperfect solution, but secondary curricula are never perfect. However, enabling schools to do their basic job better and investing additional resources in post 'O' level training and employment creation programs -- especially for rural areas -- is likely to be the most cost-effective use of resources for human resource development in Zimbabwe.

III. VARIATIONS IN LEARNING ACHIEVEMENTS

3.1 The second major problem now facing the education sector in Zimbabwe is how to raise learning achievements especially in secondary schools. A decade of educational expansion has made it possible for all children to enter primary school, with high completion rates and respectable learning achievements. About two-thirds of primary school graduates enter secondary school. Relative to the relevant age cohort in the entire population, the proportion of students with high levels of achievement in the 'O' level examinations has increased, while in the grade 7 and ZJC examinations the trends are less easy to interpret. However, the rapid expansion of secondary school places has not led to an even pattern of learning achievements, as the students with high achievement levels are concentrated in comparatively few schools with better resources. Learning achievements in the largest share of secondary schools, especially district council schools in rural areas, remain very low. And a significant number of young people still do not yet have access to secondary education.

3.2 Improving learning in under-achieving secondary schools and further expanding access at low cost are priority objectives for the coming decade. Tackling these objectives requires an analysis of the causes of variations in achievements across schools of different types, and then the development of strategies to address the barriers to better learning and to increase access to secondary education even further. Ways also need to be found to finance these strategies without increasing the current share of governmental resources devoted to education.

3.3 This chapter presents a preliminary analysis of learning achievements (defined in terms of examination results) in secondary schools. In sum, the analysis indicates that achievements are weakest in rural schools, and that girls generally learn less than boys (although the gender differential is narrowing). Lack of resources at the school level, uneven distribution of qualified teachers and learning materials, and constrained professional support and supervision are the principal causes of differential achievements across schools.

A. Patterns of Achievements

3.4 Change over time. The learning achievements of students in primary and secondary education in Zimbabwe are routinely assessed at the end of the primary cycle (grade 7 examination) and at three points in the secondary cycle (ZJC examination at the end of form 2, 'O' level examination at the end of

form 4, and 'A' level examination at the end of form 6).⁸ Annual reports of the MEC have reported student achievements on grade 7 examinations since 1983⁹ and on ZJC (formerly the Internal Junior Certificate), 'O' level and 'A' level examinations since independence or before.

Table 3.1: Success Rates of Candidates for Grade 7, ZJC and 'O' Level Examinations, 1980-1989

	Grade 7 English	Grade 7 Math	ZJC English	ZJC Shona/ Ndebele	'O' level All subjects 5+ Grade C
1980	n.a.	n.a.	n.a.	n.a.	27.4%
1981	n.a.	n.a.	n.a.	n.a.	19.3%
1982	n.a.	n.a.	n.a.	n.a.	16.2%

1983	n.a.	n.a.	n.a.	n.a.	43.4%
1984	82.2%	77.8%	n.a.	n.a.	18.2%
1985	79.7%	86.5%	54.4%	n.a.	16.1%
1986	77.7%	78.8%	45.4%	72.6%	15.5%
1987	81.6%	82.9%	42.5%	56.0%	17.3%
1988	50.4%	55.3%	33.0%	46.1%	18.8%
1989	60.6%	60.9%	33.9%	60.0%	

Note: Figures for 'O' level examinations in 1980-1982 refer to the Cambridge School Certificate Examinations. The numbers of candidates receiving 5+ Grade C are those who obtained First Division Certificates under this system. Data for these years are not strictly comparable with data for later years.

Source: Annual Reports of Secretary for Education, 1980-87; unpublished MEC data, 1988-89.

3.5 Concern about the possibility of a decline in educational quality appears to have some support from recent governmental reports. In 1988 and 1989 the proportion of successful candidates in the grade 7 examination dropped significantly compared to previous years, and since the mid-1980's there may have been a downward trend in the candidate success rate in the ZJC English examination. For the 'O' level, there was a drop in the proportion of

⁸ The grade 7 examination consists of two subject papers, one in English and one in mathematics (though with effect from 1990, there will be two additional subjects: an African language and a social studies paper); the ZJC examination includes 22 papers; and both the 'O' level and 'A' level examinations include over 30 papers. Students are required to write both grade 7 papers and 6 of the 22 ZJC papers, and may write as many of the 'O' level or 'A' level papers as they choose. Both the ZJC and the grade 7 examinations are graded on a scale of 1-9, 1-6 being passing grades with 1 the top grade, and 7-9 being failing grades. A minimum of five 'O' level passes of grade C or better, including a language, are required for entry to form 5, and an 'O' level pass in English is required for most modern sector jobs. A minimum of two 'A' level passes are required for entry into the University of Zimbabwe. All four examinations are intended for certification, and are therefore set with a relatively high standard of difficulty.

⁹ Before 1983, the number of grade 7 certificates awarded to all those who wrote the two papers was reported. The term "candidate" refers to those registering to take an examination.

candidates that obtained a first division certificate in the period 1980-82, and also a drop from 1983-84 in the proportion of candidates obtaining at least five passes of grade C or better. Since 1984, the proportion of successful 'O' level candidates has been fairly constant.

3.6 However, for at least the 'O' level examination, there has actually been a significant improvement rather than a decline in per capita achievements since independence.¹⁰ Comparing the number of candidates attaining various levels of achievement in this examination to the total number of candidates sitting the examination understates the accomplishments of the Zimbabwean education system, which has successfully increased the number of children eligible to sit the examination. As the system has

¹⁰ Measuring the quality of an education system requires indicators that take into account both appropriate measures of achievement and appropriate comparison groups. The most appropriate assessments of learning achievement are those that take into account only that proportion of learning that occurs as a result of being in school: what should be measured are increases in learning with respect to some base level (this is often referred to as the "value added" of schooling). Thus, the quality of primary education should be assessed by measures of individual student learning gains across the primary cycle, the quality of education in form 1 and form 2 should be assessed by gains in achievement between the grade 7 examination and the ZJC, and the quality of education in the upper secondary levels should be assessed by gains in achievement between the ZJC and the 'O' level examinations.

When "value-added" measures are not available, it is necessary to rely upon measures of achievement at a single point in time. If the achievement measures are the same from one year to the next, comparisons over time can also be made. In Zimbabwe, it is assumed that the grade 7, ZJC and 'O' level examinations measure the same competencies from one year to the next, and that they are therefore comparable. However, this may not be the case.

A school system enrolling only a few students in a few schools, however much these schools contribute to students' learning gains, is not effective with respect to increasing learning achievement in the overall population. Thus, measures of achievement based on those children in school, as opposed to those in the age-cohort, will be biased upwards. An effective school system is one that distributes learning across an entire school-age cohort, rather than across only those in school. Appropriate measures of the quality of an education system should, therefore, be based on the learning gain ("value-added") of all in the school-age cohort; however, measures of learning achievement of those out of school are rarely available.

When measures of learning for the appropriate school-age cohort are not available, an approximation may be necessary. For Zimbabwe, one approximation is the number of students attaining a particular level of performance (e.g. five 'O' level passes) relative to the age-specific cohort in the population (e.g. 17 year olds). When students of more than one age are permitted to sit a given examination, this approximation may be biased upwards, even exceeding 100 percent. In this discussion, achievement per student, per test candidate and per age-specific cohort (for ease of reference, this latter measure is referred to as "age-specific per capita" achievement) are discussed separately. The age-specific cohorts are 17 year olds for the 'O' level examinations, 15 year olds for the ZJC examinations, and 13 year olds for the grade 7 examinations.

expanded to include more than a small elite, it would not be surprising if proportionately somewhat fewer candidates were now succeeding. However, the absolute number of candidates succeeding has increased dramatically; and, particularly significantly, the number relative to the age cohort has also increased. In fact, age-specific per capita achievements at the 'O' level increased dramatically over the past decade, from one percent of the 17 year old population receiving five or more 'O' level passes of grade C or better in 1980 to nearly 10 percent achieving a similar accomplishment in 1989 (see Table 3.2). However, overall levels of achievement in some subjects remain disturbingly low.

3.7 At the grade 7 and ZJC levels, the trends in per capita achievements are less easy to interpret. From 1984-87 there appears to have been an increase in per capita achievement levels in both the English and mathematics subjects examined at grade 7, and the lower results obtained in 1988 and 1989 could be seen as aberrations. No clear trend is discernible in per capita achievement levels for the ZJC Shona/Ndebele examination, though there may have been a slight decline in per capita achievements in the ZJC English examination.

Table 3.2: Per Capita Pass Rates for Grade 7, ZJC and 'O' Level Examinations, 1980-1989.

	Grade 7 English	Grade 7 Maths	ZJC English	ZJC Shona/ Ndebele	'O' level All subjects 5+ Grade C
1980	n.a.	n.a.	n.a.	n.a.	1.0%
1981	n.a.	n.a.	n.a.	n.a.	1.0%
1982	n.a.	n.a.	n.a.	n.a.	1.1%
1983	n.a.	n.a.	n.a.	n.a.	4.9%
1984	72.8%	68.9%	n.a.	n.a.	6.9%
1985	74.7%	81.1%	37.7%	n.a.	7.8%
1986	90.2%	91.5%	27.4%	42.3%	7.3%
1987	100.4%	102.1%	25.6%	32.4%	8.6%
1988	64.2%	70.2%	23.4%	31.7%	8.5%
1989	75.3%	75.3%	24.4%	41.9%	9.9%

Note: Figures for 'O' level examinations in 1980-1982 refer to the Cambridge School Certificate Examinations. The numbers of candidates receiving 5+ Grade C are those who obtained First Division Certificates under this system. Data for these years are not strictly comparable with data for later years.

Source: Annual Reports of Secretary for Education, 1980-1987; unpublished MEC data, 1988-89; World Bank population estimates.

3.8 Although per capita achievement rates have certainly increased at the 'O' level examination, there is still reason for concern as overall achievements remain quite low, particularly on the curriculum-based, criterion-referenced grade 7 and ZJC examinations. Absolute levels of achievement, moreover, differ significantly between students attending different types of schools and somewhat between boys and girls.

3.9 Variations in achievements across types of schools. In order to analyze patterns of educational achievements, it is necessary to explain the

various different types of school in Zimbabwe¹¹. Formal education is provided by the Government and by a variety of "responsible authorities", including missions, "trusts", committees and district councils. At the primary level, the overall examination pass rate is relatively high for all schools. However, the mark required to obtain a pass is not very high, and thus the relatively high proportion of children passing in the various types of schools may disguise the differential extents of learning achievements within them. Unfortunately, there is no intake measure at the primary level in Zimbabwe and very little information yet available about differences in student achievements between primary school types. Some important research is now underway to investigate this latter issue, but at present it is difficult to make judgements about the relative effectiveness of the different types of primary schools. There is also insufficient information about differences in resource availability between the various types of schools, although it is believed that differences in resource availability between urban and rural schools are pronounced. In contrast, one survey by the MEC Standards and Control Unit found few differences in resources between school types at the primary level within a single urban area. Specifically, textbook to student ratios averaged about 1:1 for English and mathematics and about 1:4 for science at all types of schools in Harare. Further work and analysis is needed to establish the patterns of resource availability between different types of primary school, patterns of learning achievements in primary schools and the extent to which they are caused by differential resource endowments, and the procedures used by secondary schools in selecting primary school leavers.

Table 3.3: Average Student Achievement by Secondary School Type

	<u>Grade 7</u>	<u>Grade 7</u>	<u>ZJC</u>	<u>'O' level</u>
	<u>English</u>	<u>Math</u>	<u>English</u>	<u>5 passes</u>
	<u>1987</u>	<u>1987</u>	<u>1989</u>	<u>1984</u>
	(score)	(score)	(score)	(percent)
High fee-paying	1.4	1.7	2.9	57
Mission	2.4	1.8	4.4	45
Former Group A	2.3	2.5	4.1	30
Former Group B	4.1	3.3	6.9	22
District Council	4.7	3.8	7.6	14

Notes: (i) Scores on ZJC mathematics have been erratic for all years for which data are available and they are not discussed in this report; and (ii) the grade 7 examination marks apply to the marks obtained by the students in the respective secondary school categories. To the extent that there is not a perfect correlation between the children at the various types of secondary school and corresponding types of primary school, then these marks would not reflect the learning achievements obtained in the respective primary schools.

Source: Riddell and Nyagura (1990) for grade 7 and ZJC results; Dorsey (1989) for 'O' level results

¹¹ Important work on the subject of student achievements has been done by B. Dorsey (Socialization, Gender, Academic Achievement and Aspirations of Secondary School Students in Zimbabwe) in Working Paper No. 2 of the Human Resources Research Center, University of Zimbabwe, 1989); J. Jordan (School Type and Academic Achievement in Zambesia, University of Zimbabwe 1989); and by A. Riddell (Factors Affecting Learning Achievements in Secondary Schools in Zimbabwe, unpublished Ph.D. thesis, University of London). However, most of the material used in this chapter is derived from the background report written by A. Riddell and L. Nyagura for the sector mission.

3.10 The five principal different types of secondary schools operating in Zimbabwe are: (i) former Group A government schools, which had catered to the European population before independence; (ii) former Group B urban government schools and former Group B rural government schools, both of which had catered solely to the African population before independence; (iii) high fee-paying (trust) schools; (iv) mission schools; and (v) the new district council schools. In contrast to the primary level where data are not available, there is evidence of significant differences between secondary schools in the intake characteristics of students, their subsequent performance on the ZJC and 'O' level examinations, and resources available to students. The average intake score of students at high fee-paying (private) schools is much higher than that of students at any other type of school, and their subsequent scores on the ZJC and 'O' level examinations reflect this selectivity (see Table 3.3) Of particular concern is the poor performance of students in district council secondary schools, which account for two-thirds of secondary schools and one-third of secondary enrollments.

Table 3.4: Selected 'O' Level Results: Pass Rates by Gender, 1984 - 1988

	1984		1985		1987		1988	
	M	F	M	F	M	F	M	F
Eng Language	23.2	15.6	20.8	15.6	18.9	17.7	16.6	14.9
Eng Literature	24.3	17.0	22.5	18.2	25.3	23.3	34.2	31.0
Relig Studies ^a	24.4	20.0	25.9	19.3	28.7	24.3	29.0	23.3
Relig Studies ^b	33.6	25.1	26.3	21.7	27.6	21.2	25.8	20.2
History	29.5	14.3	29.3	15.2	28.0	16.5	28.0	19.7
Geography	32.0	16.6	28.1	15.0	29.0	16.1	31.4	19.1
Ndebele	38.5	41.1	37.6	43.0	60.3	67.2	60.7	67.4
Shona	45.5	43.7	44.3	46.8	66.4	70.0	63.9	65.4
Mathematics ^c	25.6	10.6	23.1	8.4	25.3	10.8	26.5	13.7
Agriculture	35.6	12.2	41.6	22.5	52.9	32.6	45.7	28.3
Biology	69.0	36.7	57.7	35.9	54.6	37.4	51.1	49.3
Science	71.7	42.2	60.8	37.2	70.3	51.5	74.8	61.1
Combined Science	48.2	21.1	28.8	11.4	28.6	12.6	13.7	14.5
Accounts	48.9	35.9	44.4	33.6	51.1	39.4	44.1	34.0

Notes

- (i) Definitions:
a Religious Studies (Paper 2040)
b Religious Studies (Paper 2045)
c Mathematics (Paper 4004)
- (ii) Information on the gender of candidates for the grade 7 and ZJC examinations is not collected.

Source: Examinations Branch, Ministry of Education and Culture.

3.11 Variations in achievements by gender. Differential patterns of learning achievements at the secondary level can also be seen by gender (see Table 3.4). In every 'O' level subject with more than 2,000 candidates, except Shona and Ndebele, boys averaged higher pass rates than girls over the period 1984-88. In subjects like mathematics, science and agriculture, their pass rates were more than twice those of girls. These differentials in achievement are particularly disturbing because they occur among school populations which are not equivalent. As Table 3.5 illustrates, by the time that a school cohort has reached form 4, about 50 to 55 percent of girls who were in grade 7 four years earlier are still in school, compared to 63 to 69 percent of boys. Excluding the somewhat unlikely scenario of bright girls and dull boys dropping out, one must assume that girls who remain are more determined, intelligent and hardworking on average than the boys who remain. Their lower performance levels are, therefore, disheartening.

Table 3.5: Proportion of Grade 7 Cohorts Reaching Form 4, 1984-1989
(percent)

	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Females	48	54	55	51
Males	69	63	69	63

Source: Annual Reports of the Secretary for Education, 1986 - 89

3.12 The trend in the achievement level differential by gender, however, is very encouraging. In nearly every subject the differential narrowed over the four year period; and in the combined science subject, the girls outperformed the boys in 1988. Also, although there is still a higher proportion of the male grade 7 cohort reaching form 4 than of the female cohort, this differential has also narrowed considerably. Indeed, while the trend was downwards for boys over the period 1984-88, for girls it was upwards.

B. Causes of Differential Achievements.

3.13 Differences in achievements by school type can be accounted for by both differences in selectivity and differences in resource availability; while gender differences are the result of a complex set of social attitudes, probably including practices within schools.

3.14 School type. Differences in achievements between schools are determined by student intake characteristics, and by school and classroom level resources and institutional practices. Research in many countries has demonstrated that student achievement is determined by such school factors as the availability of instructional materials, the knowledge and teaching proficiency and motivation of teachers, the amount of time allocated for learning, the curriculum demands, the teachability of students and their

motivation, and the support received by students at their homes¹². In Zimbabwe, student motivation to achieve at school is quite high, sustained both by the perceived relationship between school achievement and employment prospects, and by the present system of examinations. Student "teachability" as influenced by health and nutritional status is generally not a problem except for certain regional pockets¹³, although some schools do provide primary children with a snack at break-time to alleviate short term hunger.

3.15 To investigate the reasons for the discrepancy in ZJC performance between school types, Drs. Riddell and Nyagura undertook a multi-level analysis of school effectiveness, in which the entry level characteristics of students at 33 secondary schools were statistically controlled and the achievement effects of specific resource differences between schools were examined. Their study demonstrated, first, that two thirds of the variance in achievement on the ZJC English examination and one third of the variance in achievement on the ZJC mathematics examination between schools was explained by the students' grade 7 English and mathematics examination scores respectively, confirming the importance of intake on subsequent achievement. Second, they found that differences in resource availability--particularly a 1:1 ratio of students to textbooks, and faculty stability-- were also important determinants of achievement. Remarkably, when student intake and school level resources were controlled statistically, very few differences were observed in the ability of schools to convert grade 7 achievement into ZJC achievement.¹⁴ That is, given the resources available to them, about 75 percent of schools in the sample were equally effective.

3.16 The resource base of different types of schools, however, is not equal, with significant differences existing in the amount and types of material and non-material resources available in the various types of secondary schools. District council schools are severely under-endowed by comparison with all other types of schools. For example, a study¹⁵ carried out in 1985 noted that hardly any rural secondary schools had adequate textbooks, library facilities or audiovisual aids, and that they were overly dependent on trainee teachers for their faculty. As part of the present

¹² Lockheed, M, Verspoor A. Improving Primary Education in Developing Countries: A Review of Policy Options. (1990).

¹³ SIDA Primary School Nutrition and Health Project Proposal (1989).

¹⁴ For English, only 14 percent of school-level standardized residuals (4 out of 28 schools) were greater or less than 1.96 standard deviations, a common measure of meaningful difference. The three schools with a high positive residual were high fee-paying and former Group A schools, and the school with a high negative residual was a district council school. For mathematics, 21 percent of schools (6 out of 28) fell above or below 1.96 standard deviations. Together for English and mathematics, 7 schools (25 percent) scored significantly better or worse than what would be expected given the resources available to them.

¹⁵ Ncube and Neilson (cited in Dorsey, 1989).

sector mission, 15 of the 33 schools analyzed by Drs. Riddell and Nyagura were surveyed and a similar pattern of disparity was found. Of 12 material inputs listed in Table 3.6, district council schools on average had only 15 percent, while former Group B schools had 63 percent, former Group A schools had 83 percent, and mission and high-fee-paying schools had virtually all the resources. Students in district council schools have fewer resources at the classroom level as well. None of the district council schools surveyed have enough textbooks for each student to have his or her own, only 34 percent of teachers in these district council schools are trained, and shortages in basic instructional materials such as chalk, paper and pencils are not uncommon.

Table 3.6: Frequency of Resource Availability by Type of Secondary School (Percent)

Resource	High fee [2]	Mission [3]	Former Group-A [2]	Former Group-B [4]	District Council [4]
Telephone	100	100	100	100	0
Flush toilets	100	100	100	100	0
Science labs	100	100	100	100	0
Typewriter	100	100	100	100	50
Subject rooms	100	100	100	100	50
Electricity	100	100	100	75	0
Library	100	100	100	75	25
Vehicle	100	100	100	25	0
Television	100	75	100	25	0
Duplicating	100	100	50	50	25
Radio	100	75	50	0	25
Computer	100	33	0	0	0
(All resources)	(100)	(90)	(83)	(63)	(15)
1:1 student textbook ratio a/	100	67	67	0	0
Trained teachers b/	95	85	88	57	34
Always enough:					
Chalk	100	100	100	75	50
Pens, pencils	100	100	100	50	50
Paper	100	100	50	25	50
Inst. guides	50	100	100	50	50
Maps, charts	100	75	100	0	50
Science kits	100	100	50	25	0
Geography kits	100	66	100	50	0
Dictionaries	50	33	50	25	0

Notes: a/ These data apply to the proportions of each category of school where there are enough books for every student to have his or her own. Within each category of school, the proportions of students each having his or her own book are: high fee 100 percent, mission 84 percent, former Group A 79 percent, former Group B 40 percent, and district council 40 percent.

b/ These data apply to the proportions of trained teachers within each category of school, rather than the proportions of each category of school with fully trained teaching staff.

Source: Riddell and Nyagura (1990), Mission Survey (1990)

3.17 Thus, in the district council schools, the learning achievements of students (who already have lower entry level achievements than their peers in other types of schools) are additionally constrained by the low level of resources with which their schools are provided.

3.18 Gender. It could perhaps be argued that the variations in educational achievements by gender are caused by natural differences between the sexes in aptitude for languages or mathematics. However, the poor rate of passes for women in a field such as agriculture or biology in which girls would be expected to have a great interest, the lack of an advantage in English, and the considerable narrowing of the differential in achievement levels in recent years suggest that there are complex factors affecting the gender differentials.

3.19 While the role of women and girls in any society is the result of many cultural and socio-economic influences, part of the explanation for the continuation of the gender differential may involve the atmosphere of the school itself and relations between male teachers and female students. An inspection of the explanations for the dismissal of a random sample of 48 teachers dismissed for misconduct during the past few months revealed that 54 percent were discharged for sexual offenses on students. In 1988 and 1989, 520 and 486 teachers respectively were dismissed for misconduct, so approximately 250 teachers a year are found guilty of sexually molesting their students. While this number is obviously a small proportion of the total number of teachers, it can only be an underestimate of the number of girls actually endangered each year and it may be a factor contributing to the lower performance of girls. While this issue clearly requires further research, it is thus possible that the remaining lower achievement levels of girls are caused partly by attitudes and practices within some of the schools.

IV. IMPROVING LEARNING ACHIEVEMENTS.

4.1 Fundamental to improving learning achievements in secondary schools in Zimbabwe is a more equitable allocation of governmental resources. This chapter discusses some of the key policy issues, and particularly focusses on the training and utilization of teachers. Ways need to be found to improve teaching in rural schools, but the costs of teacher wage policies must be carefully assessed and managed as current policies are likely to lead to increases in the wage bill that would exceed the overall rate of growth of the education budget. Innovations may, therefore, be needed in the utilization of teachers to keep down salary costs to an affordable level. English language and science instruction could also be improved through relatively low cost improvements, and much could be accomplished by improving the availability of basic learning materials in rural schools. Expanded access to secondary education at low cost is feasible through the non-formal study group model, and would be especially important in further improving access to secondary education for girls.

A. Improving Teacher Utilization

4.2 Ultimately, the effectiveness of schools depends on the motivation of teachers to work hard, work together, and have a close affinity with their schools and the environments in which they work. It also depends on the training and the support that they receive on the job. School effectiveness in Zimbabwe is undermined by the fact that there are substantial numbers of untrained teachers who receive little professional support, and by the absence of an effective strategy to attract and retain motivated trained teachers to work in rural (especially council) schools.

4.3 Currently, only half of the 58,400 primary teachers and 25,000 secondary teachers in Zimbabwe are trained^{16/}. While the number of trained teachers has increased significantly since independence, half of the existing teachers have never had any formal course of teacher training. This large number of untrained teachers jeopardizes student achievements, not so much because untrained teachers are less competent than trained teachers, but more because attrition rates among untrained teachers are high (about four to six times higher than those of trained teachers and of the labor force generally).

4.4 The schools most affected by these high staff turnover rates are council and rural schools, which already have fewer resources and more economically disadvantaged students than other schools. Trained teachers do their best to avoid posts in these schools because rural service often means poor working conditions, social and professional isolation, poor housing, inadequate transportation and medical facilities, no piped water or electricity, and low quality schools for the teachers' own children. If trained teachers accept a rural post at all, many request - and are granted - a transfer after the first term. It is not surprising, then, that government, trust and mission schools, and all schools located in Harare and other main

^{16/}Annex 3 contains supporting data and analysis of teacher training, deployment and utilization.

urban areas, have more than their fair share of trained teachers, while many rural and district council schools have none at all. Nor is it surprising that the average length of teachers' tenure in district council and former Group B rural schools is only 1.7 years, compared to 5.2, 4.4 and 3.7 years in the high fee paying, mission, and government former Group A schools, respectively. These high turnover rates among teachers place enormous demands on the recruitment and deployment system; but, more importantly, they disrupt the continuity of students' learning experiences and of curriculum planning and implementation. Maintaining and creating a collegial atmosphere in school is also difficult under these conditions, even for the best of headmasters.

4.5 These negative consequences of staff instability impede students' academic achievements. Drs. Riddell and Nyagura found that the average tenure of teachers in a school is among the most important predictors of student achievement. According to their estimates, a one year increase in the average length of teaching experience at a particular school is associated with an increase of 0.2 to 0.4 grades on the ZJC exams for mathematics and English. For district council and former Group B rural schools, an increase of one year in the average tenure of teachers translates into 19 to 33 percent higher mathematics scores and 14 to 28 percent higher English scores.

4.6 To improve student achievement within this context, the MEC's short term goal is to attain a more equitable distribution of trained teachers by assigning at least four to every school. In the long run, the Ministry hopes to raise the overall level of teacher competence by providing all students with trained teachers. This long term strategy to qualify all teachers, however, would significantly increase the cost of education. This, then, raises three questions. Is this an affordable strategy? Is it cost effective? And would it achieve the objective of providing rural schools with trained teachers who are willing to work hard and work together for several years?

4.7 Cost of trained teachers. To illustrate the cost implications of raising the qualifications of the teaching force, the teacher salary costs of the following staffing approaches have been calculated: (i) maintaining the current number of trainee teachers in teacher training colleges and continuing to employ the current number of new university graduates; (ii) speeding up ongoing training activities to obtain a fully trained and qualified teaching force; and (iii) adjusting training programs to maintain the current proportions of trained and untrained teachers. The cost estimates are based on projected enrollments, the average class size, the number of classroom hours offered to students each week, and teachers' employment conditions. It was also assumed that the teacher salary schedule moves with the cost of living index and, therefore, that teachers receive no real salary increase.

4.8 Within each of these staffing approaches, expenditures on teachers' salaries could be lowered by: (i) limiting school enrollments (while maintaining existing student-teacher ratios); (ii) increasing class sizes (i.e. raising the student-teacher ratio); (iii) increasing the number of hours worked by teachers; (iv) reducing the number of classroom hours offered; or (v) allowing the purchasing power of teachers' salaries to decline. Of these options, increasing classroom hours for trained teachers by offering them the opportunity to teach additional classes in schools that double shift is probably the most practical way to reduce expenditures without undermining

student achievement or access. Therefore, the cost implications have been calculated of offering trained teachers in double shift schools the opportunity to teach 10 more periods each week (i.e. about 7 hours) at two-thirds or at one-third of their normal pay. This approach would be different to the present arrangements, in which classrooms but not teachers are used on a double shift basis. A simulation has also been made to investigate the financial implications of changing the average class size at the secondary level. At the primary level, where the average class size is already between 35 and 40 pupils, it is unlikely that it could be increased much without jeopardizing learning achievements. At the secondary level, however, there may be some scope for this, as the average class size is about 26 students.

4.9 Cost of primary school teachers. Table 4.1 displays the cost estimates of the different staffing approaches for primary education. The first column of the table shows that if teacher training colleges continue to operate at their maximum capacity, graduating about 3,600 teachers a year, by the year 2000 the number of trained teachers would increase by at least 54 percent, raising their share of the teaching force from 58 to 82 percent. (To the extent that there are re-entrants to the teaching force, the figure would be slightly higher). This increase would raise the cost of teachers' salaries by 4.1 percent annually, a cost nearly double the expected 2 percent annual increase in the education budget (see Chapter VII). At the same time, the primary school system would still require a substantial number (about 11,200) of untrained teachers. The second column of the table shows the implications of an accelerated training effort, and the estimated cost burden of staffing all schools with trained teachers. To achieve this goal, teacher training colleges would need to increase the number of students they accept by about 5.4 percent each year. This approach would raise the cost of teachers' salaries by an estimated 4.9 percent annually.

Table 4.1 Projected Primary Teachers and Estimated Salary Costs, 1990-2000

	Base case: Number of teacher training college graduates remains constant [1]		Fully qualified teaching force by increasing teacher training college graduates [2]	Maintaining 1990 proportions of trained & untrained teachers [4]
	1990	2000	2000	2000
A. Projected enrollment	2,220,714	2,436,144	2,436,144	2,436,144
B. Projected teachers	58,440	64,109	64,109	64,109
C. Trained	31,919	49,242	57,913	37,069
D. Untrained	22,845	11,191	0	26,017
E. Student	3,676	3,676	6,196	1,024
F. As a percent of C+D:				
Trained	58.3%	81.5%	100.0%	58.8%
Untrained	41.7%	18.5%	0.0%	41.2%
H. Salary expenditure (Z\$ '000)	486,021	723,209	787,025	628,645

Average Annual Growth Rates, 1990-2000

Teachers	0.9%	0.9%	0.9%
Trained	4.4%	6.1%	1.5%
Untrained	-6.9%	-67.3%	1.3%
Student	0.0%	5.4%	-12.0%
Salary expenditure	4.1%	4.9%	2.6%
Salary expenditure index: Salaries in 2000/ Salaries in 1990	1.49	1.62	1.29

Note: See Annex 3 for the assumptions and description of the projection model.

4.10 Compared to these two options, maintaining the current proportions of trained and untrained teachers would be a much lower cost staffing approach. However, this approach would still raise the cost of teachers' salaries by an estimated 2.6 percent per year, which is still slightly above the 2 percent expected annual increase in the MEC budget. But it would cost the MEC an average of Z\$ 78 million less a year than would a fully qualified teaching force. This approach of continuing to supplement the work of trained teachers through the use of untrained teachers could be extended to supplement the trained teachers with the assistance of mentors and using distance education techniques. As discussed later in this chapter, this approach has already been used in Zimbabwe and could be extended further.

4.11 Increasing the number of hours that trained teachers work could also lower salary costs, depending on the proportion of trained teachers who take advantage of the opportunity and depending on the compensation levels offered. Increasing teaching hours would not always, however, result in savings. The outcome depends on the relative proportions of trained and untrained teachers in the teaching force.

Table 4.2. Cost of Primary Teachers with Double Shifting, 1990-2000

	Year 2000						
	1990	Base case		Fully qualified teaching force		Maintaining 1990 proportions of trained & untrained	
		[1]	[2]	[3]	[4]	[5]	[6]
Percent of teachers double shifting	0%	20%	30%	20%	30%	20%	30%
Projected teachers	58,440	60,863	59,360	60,863	59,360	60,863	59,360
Trained	31,919	49,242	49,242	55,432	54,272	37,069	37,069
Untrained	22,845	7,945	6,442	1	3	22,770	21,268
Student	3,676	3,676	3,676	5,431	5,085	1,024	1,024
Percent trained	58.3%	86.1%	88.4%	100.0%	100.0%	61.9%	63.5%

18% salary increase (2/3 regular rate)							

Salary expenditure (\$2 '000)	486,021	734,533	740,665	782,600	780,710	634,860	638,435
Average annual growth in salary expenditure		4.22%	4.30%	4.88%	4.85%	2.71%	2.77%
Savings/increase compared to no double shifting		3.99%	6.13%	-1.20%	-1.71%	3.87%	6.09%
Average annual savings (\$2 '000)		0	0	2,122	3,030	0	0

10% salary increase (1/3 regular rate)							

Salary expenditure (\$2 '000)		723,874	724,676	770,806	763,311	626,472	625,854
Average annual growth in salary expenditure		4.06%	4.08%	4.72%	4.62%	2.57%	2.56%
Savings/increase compared to no double shifting		0.24%	0.52%	-4.42%	-6.49%	-1.36%	-1.75%
Average annual savings (\$2 '000)		0	0	7,794	11,411	1,109	1,425

Note: See Annex 3 for the assumptions and description of the projection model.

4.12 Table 4.2 shows projected salary expenditures for each of the three staffing approaches when, in addition, trained primary school teachers are offered the opportunity to increase their teaching hours by 27 percent (i.e., 10 periods a week) at two thirds and one third of their regular pay (i.e., pay premiums of 18 and 10 percent, respectively). If 20 and 30 percent of trained teachers were to take advantage of this opportunity, by the year 2000, the primary school system would need 5.1 to 7.4 percent fewer teachers. However, only under two of the three staffing approaches would the salary costs of teachers be reduced. Under the first approach, maintaining the status quo, no savings could be expected even if 30 percent of trained teachers increase their hours and even if they are paid only 10 percent of their regular salary for a 20 percent increase in teaching hours. With this staffing approach, teachers would have to be compensated at a rate less than 9 percent of their regular salary for savings to be realized. Few teachers would probably be willing to work at such low wages.

4.13 Increasing teaching hours could yield moderate savings if the objective were to reach a fully qualified teaching force. Table 4.2 shows

that if 20 and 30 percent of trained teachers teach 10 more hours a week and if they are paid at a rate two thirds of their regular pay, an average of Z\$ 2.12 million and Z\$ 3.03 million could be saved annually. If these teachers were paid one third of their regular salary for the additional teaching hours, the annual growth in salary expenditure required to obtain a fully qualified teaching force would fall from 4.9 to 4.7 percent, saving the MEC an average of Z\$ 7.794 million and Z\$ 11.411 million each year.

Table 4.3 Projected Secondary Teachers and Estimated Salary Costs, 1990-2000
Assuming a 0.3 percent Annual Enrollment Growth Rate

	Base case: Number of teacher training college graduates remains constant (1)		Fully qualified teaching force		Maintaining 1990 proportions of trained untrained teachers (5)
	1990	2000	by increasing teacher training college graduates (2)	by increasing graduate teachers (3)	
A. Projected enrollment	688,523	710,772	710,772	710,772	710,772
B. Projected teachers	26,080	26,923	26,923	26,923	26,923
C. Trained	14,141	24,396	24,954	25,096	15,782
D. Untrained	10,121	709	0	9	10,983
E. Student	1,818	1,818	1,969	1,818	158
F. As a percent of C+D:					
Trained	58.3%	97.2%	100.0%	100.0%	59.0%
Untrained	41.7%	2.8%	0.0%	0.0%	41.0%
H. Salary expenditure	241,423	374,830	378,911	383,206	306,841
Average annual growth rates, 1990-2000					
Teachers		0.3%	0.3%	0.3%	0.3%
Trained		5.6%	5.8%	5.9%	1.1%
Untrained		-23.3%	-69.0%	-50.4%	0.8%
Student		0.0%	0.8%	0.0%	-21.7%
Salary expenditure		4.5%	4.6%	4.7%	2.4%
Salary expenditure index: Salaries in 2000/ Salaries in 1990		1.55	1.57	1.59	1.27

Note: See Annex 3 for the assumptions and description of the projection model.

4.14 Modest salary savings could also be expected under the third staffing approach - where about 40 percent of the teaching force remains unqualified - if trained teachers are paid one third of their regular salary for the extra teaching hours. In this case, the MEC could save an average of Z\$ 1.109 million to Z\$ 1.425 million annually.

4.15 Cost of secondary teachers. The cost implications of the three staffing approaches for secondary education are similar to those for primary education, though here there is much uncertainty about the rate at which secondary enrollments might grow. Given this uncertainty, Tables 4.3 and 4.4 show the potential consequences of these staffing options, assuming a low and moderate growth in secondary enrollments, respectively.

Table 4.4 Projected Secondary Teachers and Estimated Salary Costs, 1990-2000
Assuming a 2.7% Annual Enrollment Growth Rate

	Base case: Number of teacher training college graduates remains constant		Fully qualified teaching force ----- by increasing teacher training college graduates		Maintaining 1990 proportions of trained & untrained teachers
	1990	2000 (1)	2000 (2)	2000 (3)	2000 (5)
A. Projected enrollment	688,523	901,527	901,527	901,527	901,527
B. Projected teachers	26,080	34,149	34,149	34,149	34,149
C. Trained	14,141	24,396	30,488	30,654	19,149
D. Untrained	10,121	7,934	3	10	14,365
E. Student	1,818	1,818	3,658	3,485	634
F. As a percent of C+D:					
Trained	58.3%	75.5%	100.0%	100.0%	57.1%
Untrained	41.7%	24.5%	0.0%	0.0%	42.9%
H. Salary expenditure	241,423	402,515	447,943	452,472	361,573
Average annual growth rates, 1990-2000					
Teachers		2.7%	2.7%	2.7%	2.7%
Trained		5.6%	8.0%	8.0%	3.1%
Untrained		-2.6%	-56.1%	-50.2%	3.4%
Student		0.0%	7.2%	6.7%	-10.0%
Salary expenditure		5.2%	6.3%	6.5%	4.1%
Salary expenditure index:					
Salaries in 2000/ Salaries in 1990		1.66	1.85	1.87	1.49

Note: See Annex 3 for the assumptions and description of the projection model.

4.16 Table 4.3 shows that if there were to be no change in the proportion of primary school graduates who enroll in secondary school over the next decade, and if teacher training colleges (and the University of Zimbabwe) continue to function at their maximum capacity graduating about 1800 teachers annually, by the year 2000 an estimated 97 percent of secondary teachers would be trained and only 709 untrained secondary teachers would be required. This increase in trained teachers would raise the teacher wage bill by about 4.5 percent annually. A fully qualified teaching force would require 4.6 to 4.7 percent more resources each year, depending on whether the additional trained teachers needed to arrive at a fully qualified teaching force are non-graduate or graduate teachers. Maintaining the current proportions of trained and untrained teachers would place less strain on the education budget. This approach would require only a 2.4 percent annual increase in salary expenditure, an increase comparable to the expected increase in the MEC's budget.

4.17 If we assume that secondary enrollments grow at a moderate rate of 2.7 percent a year (based on an assumption that the transition rate from primary to secondary increases from 66 to 85 percent), and that a conventional approach to secondary education is used, the annual growth in salary expenditures would far exceed the MEC's ability to finance it no matter what the staffing approach (Table 4.4). Maintaining the current high proportion of untrained teachers alone would raise the cost of teachers by 4.1 percent annually. A fully qualified teaching force would require annual expenditure increases of 6.3 to 6.5 percent. These estimates illustrate the very high financial implications of expanding secondary education further under existing

arrangements. However, savings should be secured by using trained teachers more intensively in schools that double shift.

4.18 Table 4.5 illustrates the potential cost savings of increasing the number of hours trained teachers work, when the growth in secondary enrollment is contained to a very minimal 0.3 percent a year. The pattern of estimates is similar to those presented above for primary education. If the objective were to be to reach a fully qualified teaching force, and if 20 to 30 percent of teachers took advantage of the opportunity to teach 33 percent more hours (10 periods a week) at two thirds the pay (a 22 percent pay increase), a modest saving of Z\$ 2.5 million and Z\$ 2.6 million annually could be realized. Compensating teachers at a rate one third of their regular pay could lower the growth in annual expenditures for a fully qualified teaching force from 4.6 to between 4.3 and 4.4 percent, saving Z\$ 6.3 million and Z\$ 8.2 million annually. Modest salary savings could also be expected under the third staffing approach - where about 40 percent of the teaching force remains unqualified - if teachers were to be paid one third of their regular salary for the extra teaching hours. In this case, the MEC could save an average of \$2 335,000 annually over the next decade.

Table 4.5 Cost of Secondary Teachers with Double Shifting, 1990-2000

	Year 2000				
	1990	Fully qualified teaching force		Maintaining 1990 proportions of trained & untrained	
		[1]	[2]	[5]	[6]
Percent of teachers double shifting	0%	20%	30%	20%	30%
Projected teachers	26,080	25,240	24,476	25,240	24,476
Trained	14,141	23,621	23,009	15,782	15,782
Untrained	10,121	3	3	9,301	8,536
Student	1,818	1,617	1,463	158	158
Percent trained	58.3%	100.0%	100.0%	62.9%	64.9%

22% salary increase (2/3 regular rate)					

Salary expenditure (\$2 000)	241,423	378,037	377,820	312,012	314,891
Average annual growth in salary expenditure		4.59%	4.58%	2.60%	2.7%
Savings/increase compared to no double shifting		-3.01%	-3.13%	7.1%	10.9%
Average annual savings (\$2 '000)		2,495	2,600	0	0

11% salary increase (1/3 regular rate)					

Salary expenditure (\$2 '000)		370,190	366,282	306,197	306,169
Average annual growth in salary expenditure		4.37%	4.26%	2.41%	2.40%
Savings/increase compared to no double shifting		-7.64%	-9.98%	-0.89%	-0.92%
Average annual savings (\$2 '000)		6,301	8,205	330	344

Note: See Annex 3 for the assumptions and description of the projection model.

4.19 Increasing class size. Raising class sizes in secondary schools in another way to lower the cost of teachers. Table 4.6 illustrates the potential savings in teacher salaries if the average class size in secondary schools were increased by five. Expectations about substantial cost savings by increasing class size should, however, be viewed with some caution. For example, it may not be feasible to raise enrollments if the demand for secondary education in a school's catchment area does not permit it. Given this caveat and those already mentioned earlier, the estimates are meant to be illustrative only.

4.20 The estimates in Table 4.6 show that raising class size on average by five students would substantially lower the number of teachers needed for secondary schools. At an assumed annual enrollment growth rate of 0.3 percent, 13 percent fewer teachers would be needed by the year 2000. With this decline in the demand for teachers, the current supply of teacher training college graduates would exceed the demand. All schools, therefore, could be staffed with trained teachers at a substantially lower cost. Raising the average class size by five students would require expenditure increases of 3.6 percent annually compared with the 4.6 percent that would be required with the present average class size, thereby saving the MEC an average of Z\$17.2 million annually.

Table 4.6: Cost of Primary Teachers with Increased Class Size, 1990-2000

	Year 2000				
	1990	Fully qualified teaching force		Midway between fully qualified and present proportions of trained and untrained teachers	
		[1]	[2]	[3]	[4]
Percent of teachers double shifting	0%	0%	30%	0%	30%
Projected teachers	26,080	23,381	21,255	23,381	21,255
Trained	14,141	22,126	20,382	17,441	17,441
Untrained	10,121	3	2	5,582	3,456
Student	1,818	1,252	871	358	358
Percent trained	58.3%	100.0%	100.0%	75.8%	83.5%
Salary expenditure (\$2 000)	241,423	343,779	Below	306,904	Below
Average annual growth in salary expenditure	----	3.60%	Below	2.43%	Below
Savings/increase compared to class size of 33	----	-22.0%	Below	0	Below
Average annual savings (\$2 000)	----	17,206	Below	0	Below
22% salary increase (2/3 regular rate)					
Salary expenditure (\$2 000)	----		343,192	----	317,512
Average annual growth in salary expenditure	----		3.58%	----	2.78%
Savings/increase compared to class size of 33	----		- 21.8%	----	14.45%
Average annual savings (\$2 000)	----		16,970	----	0
11% salary increase (1/3 regular rate)					
Salary expenditure (\$2 000)	----	332,662	----	308,125	
Average annual growth in salary expenditure	----	3.26%	----	2.47%	
Savings/increase compared to class size of 33	----	-28.9%	----	1.77%	
Average annual savings (\$2 000)	----	69,996	----	0	

Note: See Annex 3 for the assumptions and description of the projection model.

4.21 Costs could be lowered even further if teachers were given the opportunity to teach more hours. If the average class size were increased by five, and if 30 percent of teachers taught 10 more periods a week at an additional two thirds and one third of their regular salary, the required annual growth in salary expenditure would fall to an estimated 3.6 to 3.3 percent, respectively, compared with 4.6 and 4.3 percent that would be required if teachers taught longer hours at the present class size.

4.22 Although increasing class size would substantially lower the cost of a fully qualified teaching force, the expenditures required would still exceed the growth in the MEC's projected budget. An attractive alternative, however, to a fully qualified teaching force and to the lower cost option of maintaining the present proportions of trained and untrained teachers would be to raise the class size and to increase the proportion of trained teachers to about 75 percent of the teaching force. The cost of this strategy would be equivalent to the lowest cost staffing approach of maintaining the current proportion of untrained teachers.

4.23 Table 4.7 presents a summary of some of the findings arising from these projections. In brief, simply from a financial perspective, it would be advisable for the MEC to limit the number of trainee teachers, to continue to supplement the work of teachers with the assistance of untrained teachers (or mentors), and to consider increasing the numbers of hours worked by teachers.

4.24 Cost effectiveness of a fully qualified teaching force. These estimates show very clearly that a fully qualified teaching force would be very expensive. Furthermore, its cost effectiveness would also be doubtful as it is not obvious that a fully trained teaching force would substantially improve student achievements. Indeed, the study by Drs. Riddell and Nyagura found that classes taught by trained teachers had levels of achievement no higher than those taught by untrained teachers. This does not necessarily mean that teacher training does nothing to improve teacher effectiveness, however, nor that trained teachers do nothing to improve the effectiveness of schools. There is no doubt that teachers' cognitive skills and their ability to plan and deliver instruction and to monitor students' progress are essential to their effectiveness. And there is no doubt that trained teachers are better equipped than untrained teachers to apply well-established principles of learning and to teach students how to learn. Furthermore, trained teachers can and often do assist other teachers in their schools. It is probably for these reasons that although Drs Riddell and Nyagura found no relationship between academic achievements and the qualifications of the teacher of a particular class, they did find that, holding constant prior achievements, students attending schools with a larger proportion of trained teachers have higher levels of achievement. However, the magnitude of this relationship was small relative to the projected cost of a fully trained teaching force and also relative to the effect of teacher tenure. According to their estimates, increasing the proportion of trained teachers in a school by one percentage point is associated with only a 0.02 increase in English ZJC scores, or a 0.8 percent increase in the average scores of district council and former Group B rural schools. This implies that, if all teachers were trained, achievement scores in disadvantaged schools would be expected to increase by only one grade.

Table 4.7

Summary of Selected Main Findings of Teacher Cost Projection Model

	Base case: number of teacher training college graduates remains the same.	Higher case: fully qualified teaching force by increasing teacher training college graduates.	Lower case: maintaining 1990 proportions of trained and untrained teachers.
1. <u>Primary Teachers</u>			
1.1 Financial implications of training program (Table 4.1)	Budget would be required to grow at 4.1% p.a.	Budget would be required to grow at 4.9% p.a.	Budget would be required to grow at 2.6% p.a.
1.2 Financial implications of increasing hours worked by teachers through double shifting (Table 4.2)	No significant savings likely to be achieved.	Moderate savings could be achieved but budget would still need to grow at 4.7% p.a.	Modest salary savings could be achieved.
2. <u>Secondary Teachers</u>			
2.1 Financial implications of training program			
(i) 0.3% annual growth in enrollments (Table 4.3)	4.5% p.a. increase in wage bill would be needed.	4.6-4.7% p.a. increase in wage bill would be needed.	2.4% increase in wage bill would be needed.
(ii) 2.7 % annual growth in enrollments (Table 4.4)	5.2% p.a. increase in wage bill would be needed.	6.3-6.5% p.a. increase in wage bill would be needed.	4.1% increase in wage bill would be needed.
2.2 Financial implications of increase in hours worked by teachers through double shifting (Table 4.5)		Modest savings could be obtained, but growth of budget would still need to be 4.3-4.4% p.a.	
2.3 Financial implications of increase in class size by five. 0.3% annual growth in enrollments.	Approximately equivalent cost to maintenance of existing proportions of trained and untrained teachers, but with no change in class size.	3.6% p.a. budget growth would be needed.	2.8% p.a. budget growth needed.

4.25 These results on the effectiveness of trained and untrained teachers suggest that trained teachers can improve the effectiveness of schools, but that teacher training does not guarantee that teachers will use their knowledge and skills well on the job. Conditions which enable teachers to be effective are equally, if not more, important to school effectiveness. These conditions include teachers' motivation, the availability of teaching materials and other professional support to improve teacher practices, and headmasters' management capabilities. In addition to the high cost of training and qualifying all teachers, as well as the likelihood that untrained teachers will in any case continue to play an important role in the education system in Zimbabwe, this suggests that there may be other and more cost effective approaches to improve school effectiveness in the country. One approach would be to maintain the current staffing structure, but increase professional support to all teachers (and especially rural teachers) and improve the employment conditions of untrained teachers in order to stabilize this group.

4.26 Maintain differentiated staffing. Maintaining the current staffing structure could yield substantial cost savings. This approach would require 50 percent fewer resources than a policy to staff all schools with certified teachers and would limit the growth in teacher costs to about 2.6 and 2.4 percent annually for primary and secondary teachers, respectively. This would undoubtedly be a lower cost option for the MEC, and is consistent with the MEC's new pilot program of associate teacher training through which untrained teachers are given in-service training. However, the approach would still need to be combined with additional measures to improve professional support to teachers and to stabilize the untrained teaching force.

4.27 Improve professional support. All teachers need enabling conditions to be effective and to improve their teaching practice. They need basic materials to teach with and learn from, as well as opportunities to confer with other teachers. At present, all teachers in rural and council schools, trained or untrained, have inadequate professional materials, and few teachers have many opportunities to confer with other teachers or supervisors. There are, however, several ways to create these enabling conditions inexpensively. Administrators could create schedules that provide common planning time, construct teams that plan and teach together, and increase opportunities for teachers to confer on matters concerning curriculum and instruction. Additional resources invested in strengthening the supervision capacities of headmasters and education officers (EOs) would also allow them to contribute to this process more effectively (see Chapter V). EOs, in particular, could act as mobile resource centers, providing teachers with materials and engaging teachers in discussions about effective teaching. An induction program at the start of the school year directed principally towards new teachers in the district could serve the same purposes district wide. In addition to introducing new teachers to their area, such a program could focus on building professional exchanges among teachers and supervisors. While relatively inexpensive, however, resources would need to be set aside specifically for such activities.

4.28 Improve employment conditions of untrained teachers. Improving professional support would probably do little to stabilize the untrained teaching force, because their employment conditions encourage mobility.

Untrained teachers have little job stability: they are hired by district education officers (DEOs) rather than the Schools Division of the MEC, they are temporary employees with usually only one year contracts, and they are often terminated after a relatively short period of teaching. Their starting salary (Z\$387 a month) is, on average, 45 percent less than that of a non-graduate trained teacher doing the same work, and they reach their maximum salary of \$449 a month within three years. In contrast, teaching is an attractive profession for trained teachers: they enjoy the security of a civil servant status, they are reasonably well paid, and recent salary increases have improved their position. These conditions discourage untrained teachers from forming any long term commitment to the job, and they undermine enthusiasm for and dedication to teaching.

4.29 One way to retain untrained teachers and, at the same time, encourage high levels of effort would be to lengthen their employment contracts (to two years, for example), increase the number of salary steps (to six, for example), and offer progressively higher salary increases for each step. One might also consider a scale barrier at the end of, say, three years to further encourage skill improvement^{17/}.

4.30 In addition to the adjusted salary schedule, the opportunities for promotion of untrained teachers could be improved. One often suggested way of doing this is to reduce the training time required for untrained but experienced teachers. The effectiveness of this approach, however, would depend on how well they can compete with all other teacher training applicants. If they cannot compete given existing standards, expanding promotion opportunities might require increasing further the 50 percent of reserved places for them in the teacher training colleges. Offering this type of promotional opportunity has two additional benefits. It would probably reduce the discrepancy between urban and rural schools in the deployment of trained teachers. Untrained teachers in rural schools are more likely than trained teachers to come from the areas in which they teach. Once trained, they would probably be more willing than other teachers to return to this area. The second benefit would be substantial savings in resources used for teacher recruitment and deployment. To illustrate the magnitude of this, it may be assumed that it takes a minimum of one day of personnel time to process each termination, and to recruit and process a replacement. In 1989 about 8,800 teachers terminated or were terminated. At this level, reducing the number of terminations by 50 percent would save a minimum of 4,400 working days (which is about 13 full-time personnel positions or over Z\$100,000 in salary payments).

4.31 Offer incentives for trained teachers to teach in rural areas. There are currently few incentives to attract and retain teachers to teach in rural schools. At the local level many schools are making valiant efforts to mobilize community resources for the construction of teacher housing; but their resources are too meager to provide all teachers with an acceptable home, and five to seven teachers often end up camping out in two and three bedroom houses.

^{17/}Trained teachers encounter scale barriers after 10 to 12 years of teaching, depending on their grade. At this point, they must receive a satisfactory evaluation by the DEO to be promoted to the next step.

4.32 In order to try to deploy more trained teachers in rural schools, the MEC relies on a system of quotas and mandatory assignments. Under this system, trained teachers are recruited and deployed by the Professional Staffing Section, which allocates them across regions based on each region's share in national enrollments. At the regional level, trained teachers are then assigned to school districts based on each district's share of the regional enrollment. All new teachers are expected to serve in rural areas for two years, though married women are allowed to remain with their spouse, and applications for retransfer can be entertained after a teacher has been in post for one term. Over the past few years, this practice has resulted in a moderate redistribution of trained teachers to areas outside Harare, but it has not satisfactorily addressed old disparities between rural and urban areas, nor has it dealt effectively with the drift of trained teachers away from rural areas.

4.33 Mandatory assignment of trained teachers to rural schools as an approach to improving school effectiveness has one major advantage: it requires no additional resources. It has, however, two disadvantages that can undermine school effectiveness. First, mandatory assignment often elicits dysfunctional responses from teachers, such as absenteeism and an unwillingness to integrate into the school and community. Second, it also creates and perpetuates a view of rural schools as undesirable posts where young teachers have to stay before receiving their choice assignment. Neither are desirable conditions for effective schooling.

4.34 The willingness of teachers to teach in rural areas depends on the conditions of rural service. Some of them could be remedied while others could not. For example, professional isolation and the poor educational resource base of rural schools could be remedied through improved professional support. More difficult to change are the remoteness of the community, the absence of transportation, piped water and electricity, and the social isolation that accompanies separation from family and friends, especially when cultural and linguistic differences between the teacher and community are pronounced. To compensate teachers for these hardships various incentives could be considered: for example, higher salaries, faster promotions, housing and travel allowances, access to boarding schools for teachers' children and the like. The MEC is already considering the introduction of a cap on salaries unless teachers serve for a specified period in rural areas, and faster promotion for teachers in rural areas. Another option would be to reduce the amount of loans owed by teachers to cover the cost of their training, according to the amount of time spent in rural schools. These two approaches have an important advantage over mandatory assignment. They recognize that teachers respond to incentives, and they are less likely to elicit dysfunctional responses that jeopardize school effectiveness. However, the success of such measures would depend on the response patterns of the teachers.

4.35 Although empirical data from Zimbabwe are not available, limited evidence from other countries suggests that modest pay premiums are unlikely to attract and retain teachers who were raised and trained in urban environments to teach in rural schools. Faster promotions for trained teachers would probably be more effective, but faster promotion would also be a higher cost option for the Government to introduce.

4.36 Relative to pay premiums, an educational loan forgiveness program has three advantages. It avoids different compensation for similar work and experience among a group that is often very sensitive to this issue. Second, it is offered at a time in their careers when teachers are more likely to be sensitive to prices. Third, institutional mechanisms to disburse loans for teacher training and collect payments are already in place in Zimbabwe. Students currently borrow money from the Government which is later repaid over the period of time in which they were in training. For loan forgiveness to be an attractive incentive, the cost of teacher training to the student and therefore the size of the loan would probably have to be higher than it now is. Currently, students are charged and can borrow, on average, \$145 per term for two years (6 terms). The loan is then repaid over a period of three years. On an annual basis the repayment amounts to only 3 percent of a starting teacher's salary. This may be attractive enough for poor rural students and for untrained teachers, but it is unlikely to be high enough for the town dweller. However, the current cost of teacher training is about four times the cost of the present loan; and raising the cost significantly to the student, coupled with a loan forgiveness scheme which together would be fiscally neutral for the Government, might be an efficient way to encourage more trained teachers to serve in rural areas.

4.37 Recruiting from local areas. A danger of relying only on incentives to encourage trained teachers to serve in rural areas is that the attracted teachers may still not be willing to work hard and over an extended period of time in remote communities. An alternative to these incentives, and a strategy that has had some success in other countries, is recruiting for teacher training talented youths from those rural areas where schools are difficult to staff and encouraging them (through the loan forgiveness program, for example) to return to their home areas to teach. This strategy differs from the incentive approach in three important ways. First, like mandatory assignment, is it a low cost option. Second, it minimizes social isolation and the dysfunctional responses that often accompany involuntary posting. Third, it recognizes that one rural area is not like another and that the response to the opportunity to teach in one's home area is likely to be very different from the response to an opportunity to teach in an unfamiliar one. The Government's existing efforts to recruit from local areas should, therefore, be extended.

B. Ensuring Availability of Learning Materials

4.38 Improving learning achievements significantly in the secondary schools would undoubtedly require improvements in the system of deploying trained teachers. However, measures would also have to be taken to improve the availability of learning materials. The extent of the problem was seen earlier in Table 3.6. The present scarcity of learning materials in many remote schools is not only due to lack of resources for purchasing them, but it is also due to inadequate distribution mechanisms.

Table 4.8: Instructional Materials in Central Storage, 1989

Type	Number
Geography kits	1400
Globes	4044
Newsprint (rolls)	1261
Charts	1400
Booklets	35000
Radios	6735
Educational films	500

Source: A Report on the Study into the Distribution of Materials and Equipment to Schools (Ministry of Higher Education, Policy Division: Research and Evaluation Section, 1989).

4.39 Distribution. A 1989 report on the distribution of materials and equipment to schools concluded that "the distribution system was so unsystematic and inefficient that while schools and pupils were chronically in need of some learning facilities, these were stored (in abundance) at either Head Office, Regional Offices and District Offices." The report cited four major reasons that materials and equipment failed to reach the schools: lack of vehicles, lack of manpower, insufficient financial resources to sustain routine distribution of materials, and inadequate storage facilities. As a result, donated materials were distributed haphazardly and purchased materials were often never distributed. Examples of the type and quantity of materials stored appear in Table 4.8.

4.40 According to the 1989 report, storage facilities at schools, district and regional offices, and head office were often insecure, with the result that equipment was frequently damaged, lost or stolen. Where storage facilities existed, they tended to lack shelves, secure cabinets for science supplies, waterproof roofs and locks and barriers on doors and windows. One governmental estimate of the cost of providing adequate storage facilities at head, regional and district offices is Z\$4.6 million, of which Z\$3.2 million is related to storing and packing examinations.

4.41 The failure of materials to be distributed to schools was also attributed to inadequate manpower, vehicles, and procedures at head office. However, greater decentralization of decision-making to the regional level, combined with use of commercial haulers and distributors, rather than increasing staffing at the head office, may be more likely to improve materials distribution to schools. The discussion of decentralization is treated at length in Chapter V.

Table 4.9 Estimated Annual Cost Per Student Per Year of Providing Instructional Materials

Resource [useful life]	Cost Z\$	Cost per year Z\$	Annual per student cost (160 students per school) Z\$
<u>Construction</u>			
Science labs [10]	356000	35600	222.5
Subject rooms [10]	200000	20000	125.0
Library [10]	187000	18700	116.9
Electricity, water [10]	69000	6900	43.2
<u>Hardware</u>			
Telephone/Wireless [5]	400	80	0.5
Typewriter [5]	2000	400	2.5
Vehicle [5]	20000	4000	25.0
Television [2]	2000	2000	12.5
Duplicating machine [5]	2000	400	2.5
Radio [2]	500	250	1.6
Computer [3]	9000	3000	18.8
<u>Software</u>			
Textbooks (1:1) (5 subjects @ Z\$15)		75	37.5
Exercise books (6 @.5 each)			3.0
Teacher guides (4 x 6 subjects)		240	1.5
Maps, charts (ea)		48	.2
Science kit (1)		1,000	6.3
Geography kit (1)		600	3.8
Dictionaries (4)		200	1.2

Source: Ministry of Public Construction and National Housing; SIDA sector report.

4.42 Resources at schools. Increasing resources at the school level is a key strategy for increasing the availability of learning materials to students. While there is no common package of material inputs that is "correct" for every school, it is possible to estimate the cost of raising the level of instructional materials at a rural district council school to that of high fee-paying, mission or government school. The estimate are shown above in Table 4.9.

4.43 For a rural council school to be improved materially to a level fully equivalent to that of the best secondary schools would require an annual increment per student several times the present per capita grant. The achievement effects of all these resources are not the same, however. Resources most closely tied to students, such as teachers and instruction materials ("software"), are much more effective than buildings. Similarly, not all "hardware" inputs have equal effects on achievement either. Resources that increase the ability of the school to communicate with the regional office (for example, telephone or two-way radio), or that facilitate the preparation and production of teaching materials (for example, a typewriter or duplicating machine) are more effective than such items as computers and televisions. And, while vehicles could be used for headmasters to collect teacher salaries and heavy materials from the regional or district office, any additional vehicles are more usefully deployed in such offices themselves rather than at the schools. To the extent that additional funds are limited for such school improvement investments, it would thus be necessary to prioritize them carefully.

C. Improving English and Science Instruction

4.44 More equitable deployment of qualified teachers and better availability of learning materials would contribute to improved learning in all subjects. Additional strategies may be considered for two crucially important subjects in the curriculum: English language and science. English language achievements are very low, especially in rural schools, and the evidence suggests that this contributes to poor learning and examination performance in other subjects that require good reading ability, such as history. Moreover, English is the language of the economy, and students with good verbal and written skills have an advantage in obtaining employment, (English passes at the 'O' level are often required by employers), and in benefitting from further training. The science curriculum incorporates a significant body of applied and practical scientific knowledge, but in rural schools -- where this knowledge is most needed -- it is often not being learned.

4.45 English. Two options are proposed for improving instruction in English. Currently, instruction is dispersed across 6-7 periods of 40 minutes each during a week. Block scheduling of 2 periods, twice a week, would increase student time on tasks substantially. This is especially important for supervised writing and speaking practice.

4.46 Secondly, interactive radio offers a feasible option for strengthening the learning materials and activities available to improve comprehension and speaking skills. A well-tested curriculum and materials base has already been developed and is in use in neighboring countries. The techniques for adapting the basic materials to different contexts are well developed and tested. The conditions for effective introduction of these materials already exist in Zimbabwe. There is considerable experience with educational broadcasting, the educational radio channel (which is presently used at the primary level) is currently under-utilized, and there is even a store of radios available for distribution to schools.

4.47 Science. In better-endowed schools, science is well taught by qualified teachers in conventional laboratories. In less-well endowed schools, especially in rural areas, science laboratories have not been affordable. In response, the innovative Zimbabwe Science Program (ZIMSCI) package of instructional texts and experiment kits has been developed. The package is designed to enable students to master the 'O' level syllabus. When well and regularly used, ZIMSCI materials work excellently. Unfortunately, however, effective utilization has been difficult to achieve in many rural schools for a variety of reasons. First, unqualified teachers have no preparation in the specialized skills needed to teach ZIMSCI effectively. The impact of in-service training has also been diluted by the high turnover of unqualified teachers, while the teacher training colleges emphasize conventional science teaching in laboratories at the expense of ZIMSCI. In addition, not all schools follow the block scheduling arrangements that are needed to set up and conduct experiments. Finally, although there has been much improvement in recent years, many schools have not been able to afford to purchase materials for their kits, and re-supply has been erratic.

4.48 Some of these problems could be addressed through the strategies discussed earlier. For example, better financing and materials distribution systems would help ease the problem of materials availability. Block scheduling in all schools should also be considered. In addition, consideration could be given to allowing ZIMSCI teachers an additional preparation period during the week to allow them to set up and practice experiments before taking them into the classroom.

4.49 The problem of teacher training are less easily addressed, however. Certainly, as long as ZIMSCI remains a major model for teaching large numbers of students, training in the use of ZIMSCI materials should be an integral part of teacher education. Intensive induction training for newly hired unqualified teachers could also be arranged at regional levels, and supervision improved. These efforts would not overcome entirely the problems of teacher turnover, but could make substantial contributions.

D. Alternatives to Conventional Schooling

4.50 The early 1980s were a period not only of tremendous expansion of the education system in Zimbabwe, but also of considerable innovation. One of the more notable of the innovations was the pilot study for the Zimbabwe Integrated System of Secondary Education (ZISSE). The original proposal in 1983 was for a radical reorganization of the secondary school system, using a combination of half-time face-to-face teaching and distance education based on the use of mentors. Rather than implement a full-scale program, ZISSE was introduced on a pilot basis and in study groups rather than in schools themselves. The ZJC exam results obtained by children in the experimental, ZISSE study groups were to be compared with those of children in secondary schools, but unfortunately the evaluation of the ZISSE program was only carried out belatedly and with insufficient data on which to make firm judgements about the relative cost-effectiveness of the program. Nevertheless, there was some evidence to suggest that the exam results of the children in the ZISSE program were comparable to those of the school-children and better than those in the regular study groups. The pilot ZISSE program, however, was not extended.

4.51 In contrast, the program of distance education through study groups has continued for many secondary school children who are unable either to obtain a school place or especially to pay the required fees. Even with a transition rate of 66 percent from grade 7 to form 1, there are still 70,000-80,000 primary school leavers who do not go on to secondary school - and some of these enter study groups, each guided by a mentor (a secondary school leaver with at least 5 'O' levels) and supplied with distance education learning materials. The cost of the program to the child or his/her parent is about Z\$119 (Z\$101 in mentor costs and Z\$18 in the form of a subsidy to whichever of the 10 private colleges is providing the learning materials). The costs of the program are, therefore, considerably less both to the Government and to the student. There is also some evidence that the exam results obtained by the children in at least the better study groups may be comparable to many secondary schools - indeed, perhaps better than many of the remote schools - but no systematic comparison has been carried out.

4.52 The study group program is still on a relatively small-scale compared to the schools, with only about 370 study groups catering for 30,000 children, and it is probable that achievement rates depend critically on good management of the study groups. If so, expansion of the groups especially in rural areas would have to be carefully supported, but even so this approach is likely to be a cost-effective complement to the formal schooling system. Particularly in view of the lower costs to parents, it would seem desirable to consider establishing more study groups within, or in the vicinity of, selected secondary schools in rural areas. The administration of the groups could be handled by the school headmaster, and parents could have the choice of whether to enroll children in the secondary school class or in the study group. As was the case with the ZISSE program, this approach could also be tried on a pilot basis, but then evaluated carefully. In particular, data should regularly be collected and processed on the examination results of children in the study groups. If, indeed, the study group achievement rates are found to match those of the school and if parents realize this, then there would presumably be a natural progressive move towards this alternative form of secondary education - bringing about reduced unit costs to the Government too. Finally, the distance education approach might be particularly beneficial to girls. To the extent that secondary school drop-outs are mainly the result of relatively high fee levels, to the extent that some parents are more willing to pay high school fees for boys rather than for girls, then a lowering of fees through the study group approach might reduce the imbalance of boys and girls in secondary education.

4.53 In order to strengthen its distance education programs, the Government has decided to establish a Zimbabwe Institute of Distance Education (ZIDE). Although not yet operational, a new headquarters is already under construction. While this is an important initiative, it is debatable whether ZIDE should itself produce distance learning materials rather than focus on regulating their production by the existing private colleges. The Government is rightly concerned about the quality and relevance of learning materials now being produced and distributed, but ZIDE might be more effective by increasing its monitoring and licensing role, rather than by directly trying to compete with materials production as is presently planned. The argument for ZIDE itself to produce materials rests on the need for a catalytic approach (as carried out by Curriculum Development Unit in book production), but this course of action could lead both to a reduced role in the sector by the private colleges, and possibly also to an inadequate supply of materials from the Government itself.

4.54 Towards school improvement strategies. The options outlined above are not exhaustive, but do suggest approaches to improving learning achievements and access that appear feasible in Zimbabwe, and that have been shown to be valuable in improving learning -- and access -- in other nations. International experience also indicates that incremental and flexible implementation that is focused on improvements at the school level is needed for success. Centralized and uniform approaches that treat all schools the same have proven difficult to implement, and weak in adjusting to the unique problems, and strengths, of different schools. Effective implementation of strategies to improve school effectiveness will require stronger and more flexible regional education offices, and enhanced analytical capacity in the head offices of the ministry. These issues are addressed in the following two chapters.

V. MANAGING SCHOOL IMPROVEMENT AT THE REGIONAL LEVEL

5.1 Strategies for school improvement place different demands on educational systems and managers than strategies for school expansion. Building more schools and expanding educational infrastructures require strong, centralized administration. In contrast, the implementation of school improvement strategies requires management structures that move decisions closer to the schools, that allow for flexible and efficient use of resources in addressing different combinations of constraints on school performance, and that strengthen the framework of professional support and supervision.

5.2 Over the last decade, despite some degree of decentralization from the headquarters to the regional level, the administration of education by the MEC remained largely centralized. During this period a competent administrative organization was built up, along with a nucleus of professional support units (curriculum development, planning, standards control and monitoring). Although this was an effective strategy for a period during which the schooling system was expanding rapidly, the new priority of raising learning achievements in under-achieving schools now requires further decentralization of responsibilities to the regional (and to some extent district) level. Even if additional resources were to be made available to under-achieving schools, it is only with more decentralized support that such resources would effectively be used to address problems such as having inexperienced headmasters, unqualified teachers, low staff morale, isolation from professional support and supervision, inadequate community involvement, and lack of facilities and instructional resources.

5.3 The implementation of school improvement strategies needs to be based on two key elements: (a) strengthening the capacity of the regional offices to help the schools to improve; and (b) stronger central capacity for policy analysis and planning, monitoring, research and evaluation, and examination systems. The former is discussed in this chapter, while the latter is discussed in Chapter VI.

A. The Regional Education Offices

5.4 Nine regional offices have been created to supervise and support the work of schools, to assign teachers to schools, and to ensure that information is provided to the MEC itself. Each office is headed by a regional director of education (RD), who supervises deputy regional directors for secondary and primary education. In turn, the deputies supervise teams of DEOs who supervise primary schools and specialist EOs who supervise secondary schools. DEOs are usually former primary school headmasters, and they supervise schools as a whole. EOs are subject matter specialists who supervise secondary teachers in their subject area. There are additional specialized EOs and a clerical support staff (see Box 5.1). DEOs are placed in districts; EOs are based in the provincial offices.

Box 5.1: Mashonaland West Provincial Office

The Mashonaland West Provincial Office is responsible for the staffing and supervision of 448 primary and 150 secondary schools, and a total of 2,546 secondary and 5,678 primary teachers, over half of whom are unqualified. Of the 150 secondary schools, 110 are remote, rural council schools, and the balance a mix of urban and sub-urban government, mission and private trust schools. A third of rural secondary headmasters are unqualified.

In addition to the Regional Director and Deputy Directors for Primary and Secondary Education, the region is staffed by 5 primary education officers and 20 district education officers located in eight districts, 13 subject specialist secondary education officers, seven education and district education officers for staffing, and 3 specialized education officers for non-formal education, planning, and buildings. A Psychological Services Unit includes a senior educational psychologist, 3 psychologists, a guidance counselor, a speech therapist, and eight support professionals. The total complement of 66 staff is supported by 17 administrators and 42 clerical staff. There are four vehicles, three of which are functioning.

5.5 Four tasks consume the resources available for school supervision. The largest share of visits to schools is made to observe and evaluate teachers eligible for fixed appointments or salary scale increases. Administration of three annual examinations (primary, ZJC and 'O' levels) requires as many as three visits to each school. Unplanned visits to deal with emergencies is a third task, with priority over others. Professional inspection and support is fitted in around these tasks.

5.6 The regional offices also administer the non-formal education and early childhood education programs. In addition, the regional staff are responsible for in-service training of teachers and headmasters, writing supervision reports on each school visit, assigning teachers, maintaining data on teachers and schools, and forwarding reports to the head office. Teacher and school records have been computerized, although the system is not flexible and of little use for regional purposes.

5.7 The ability of regional offices to fulfill their responsibilities effectively is seriously constrained by lack of authority and resources. Although staff have been decentralized, authority mostly remains concentrated in the MEC itself. Currently, regional offices must seek and obtain time-consuming MEC approval for many decisions best taken locally. Among them are the following: (a) authorization for school construction; (b) expenditures on in-service training; (c) transfer and discipline of headmasters and teachers; (d) temporary closing of schools for health reasons; (e) expulsion

of pupils; (f) approval and payment of travel expenses for regional staff; and (g) payment of expenses occurred in in-service training.

5.8 RDs hold a rank equivalent to a chief education officer, but thus find themselves in the unusual position of seeking approval for decisions from colleagues of equal standing and experience. In effect, current patterns of authority greatly reduce the ability of RDs to lead and motivate their staff and to use resources flexibly to support school improvement. They can promote lower grade primary head masters and also deputy headmasters, but they have little effective control over headmasters, they have very limited resources to improve teaching, and cannot even ensure the timely reimbursement of the travel costs of their own staff.

5.9 Lack of resources also constrains the regional offices in providing adequate support to schools. By the fourth quarter of the financial year, staff are grounded due to lack of funds. The total funding available in each regional office for in-service training is Z\$500 (to reimburse teachers for bus fares to an assembly point) plus whatever portion of the limited subsistence budget that the RD decides to allocate to in-service training. Budgets are often overspent as officers try to respond at a minimal level to emergency needs in schools (see Box 5.2). Equally important, regional offices cannot use funds flexibly to meet the unique needs of individual schools.

5.10 For a school improvement strategy to be effective, regional offices need authority commensurate with their responsibilities, and flexible access to more resources. These adjustments would represent a next stage of the decentralization process already begun. Having established the regional function and having developed considerable institutional capacity, the MEC is now well-placed to take advantage of the capacity developed. The need for further decentralization is well understood by both regional and central office staff.

Box 5.2: Supervision Resources in Mashonaland West

While staffing resources are adequate in regional offices, constrained budgets lead to low levels of staff utilization and weak services to schools. This is easily seen when the recurrent budget is compared to resources needed for even a minimal program of school visits. Ideally, the secondary education officers in Mashonaland West Province would like to conduct intensive team visits to rural secondary schools at least once a year, recognizing that more frequent visits are needed. Visiting 110 rural schools, two schools a day, would require seven circuits by two vehicles, traveling a total of 14,160 kilometers. At the standard rate of Z\$1.19 per kilometer the cost to the regional travel budget would be Z\$16,050 out of the total allocation of Z\$60,000. Following circuits designed to minimize nights on the road, the eight staff would still be away from office 44 nights. A total of 352 staff nights at standard subsistence of Z\$100 would consume Z\$35,200 of the subsistence allocation of Z\$54,000. Completing this one task would take 72 staff weeks of the total of the 572 available annually from 13 secondary education officers, or about 13 percent of staff resources. But it would consume 27 percent of the travel budget, leaving Z\$43,950 in the mileage budget and Z\$18,800 in the subsistence budget.

These balances would then have to cover the costs of 3 examination visits to each school, estimated at \$28,000 in mileage and \$10,000 in subsistence. About 20 percent of the travel and subsistence budget would remain to cover emergency trips and visits to the remaining 45 urban and suburban secondary schools. Still available would be 87 percent of secondary EO staff time.

The remaining funds would also have to cover visits to 448 primary schools by the district education officers, travel at least once a month to Harare to follow-up on delayed reimbursement of travel costs and requests for approval of school construction and other regional activities. An additional Z\$30,000 is available to reimburse officers for use of their private vehicles, but few have them, and the funds cannot be transferred from this vote to any other.

B. Adjusting Patterns of Authority

5.11 To develop school improvement programs that fit local needs and conditions, RDs should be able to act flexibly and with considerable authority. They should be able to design and approve in-service training within general guidelines, approve and reimburse staff travel costs from local bank accounts, and channel resources to targeted schools. In view of the inability of the central office easily to inspect sites or newly constructed schools, and the much better knowledge of local conditions held by regional staff, RDs should be authorized to approve new primary schools. Among other benefits, this would increase their status with local communities and relieve the MEC Planning Unit from this task.

5.12 RDs' authority over staffing decisions should also be reviewed. Central allocation of teachers to the regions would continue to be needed, at least in the short run. But it would seem appropriate for RDs to be able to promote and appoint headmasters in grade 1 primary and form 4 schools. These appointments would probably need to be approved by the head office, but the initiative should lie with the RDs.

5.13 Consideration might also be given to modifications in the current pattern of staffing levels and responsibilities to rationalize the supervision process. At the primary level, DOs have a higher rank than headmasters, and are thus able to supervise schools with authority. But at the secondary level, EOs hold the same rank as qualified headmasters, limiting their authority and restricting inspections to subject matter departments. Raising the rank of some secondary EOs to a level above headmasters would strengthen the ability of provincial officers to supervise the whole secondary school, including the headmaster. It would have the added advantage of opening up a career path for successful headmasters, eventually strengthening the supervision process substantially. This would need to be done within existing staffing complements, and would eventually reduce the number of subject specialist EOs. Under current conditions, subject EOs, despite strong efforts, are likely to be having minimal impact in any case. Under a two-tier structure, with more resources for school visits, fewer subject EOs could actually have more impact.

5.14 Finally, the authority of qualified headmasters could be increased to enable them to observe and certify teachers within their school who are eligible for fixed appointments or scale increases. Qualified headmasters certainly know more about teacher performance than could be learned in brief visits by regional staff, and the shift of responsibility would free up regional resources for supervision focused on school improvement.

5.15 Any increased authority for RDs should be matched by correspondingly increased accountability, however. The Standards Control Unit should, therefore, focus primarily on an annual inspection and review of regional performances, with responsibilities for evaluation of school performance being shifted to the regional offices themselves. Similarly personnel decisions by headmasters could be audited on a sample basis by regional office staff.

5.16 Finally, there is the issue of the appropriate role of the regional offices vis-a-vis the district councils. At present, the district councils are the responsible authorities for most of the secondary schools in the rural areas, and these local authorities should continue to have a major role in a strategy to raise learning achievements throughout the country. Unfortunately, however, their effectiveness has been undermined by a lack of capacity to manage the schools, and also in some cases by the failure to spend funds raised or allocated for educational purposes on schools. As a response, the MEC now passes the per capita grants to the regional offices rather than to the district councils, and also many of the local authority secondary schools are no longer forwarding school fees to their district councils. Understandably relationships between the district councils and their parent ministry, on the one hand, and the MEC, on the other hand, have deteriorated significantly. For the future, it would seem appropriate to emphasize three principles on which the role of the district councils vis-a-vis the MEC should

be based: (i) full recognition of the central role of district councils as responsible authorities for a large number of secondary schools within the country; (ii) agreement that per capita grants and school fee revenues should be used exclusively for educational purposes; and (iii) recognition of the need to build up the institutional capacity of the district councils to enable them to manage their schools efficiently. While it would be difficult and inadvisable for responsibility for handling the per capita grants to be moved away from the MEC regional offices in at least the short-term, it would seem appropriate for procedures to be introduced to ensure that school fee revenues should again be handled by all of the local authorities as responsible authorities - but strictly for educational purposes. The general issue of the inadequate financial base of the district councils needs to be addressed from an institutional and broad perspective, in order to reduce the existing pressures on the councils to use school fee revenues for non-educational purposes.

C. Raising Staff Competence

5.17 Learning achievements depend heavily on the competence of headmasters and teachers. Raising this competence should be a matter of first priority, but will be difficult because of the large numbers involved and the isolation of schools. Much staff development must take place at the school level, led by the headmaster. Increasing the competence of headmasters is thus of central importance. The MEC has already done a considerable amount of in-service training of primary school headmasters; regular and planned in-service training of secondary school heads, especially the younger ones, should now be a main task for regional staff. Training should focus on school management and teacher in-service training at the school level, and could utilize distance education techniques.

5.18 The effects of training could be improved by creating a better career incentive structure for headmasters. Currently, the pattern is from teacher to deputy head to head. This has the advantage of enabling deputies to serve a period of apprenticeship to an experienced headmaster. Raising the level of the secondary EOs would offer an additional incentive to secondary headmasters. There would also be advantages in establishing two levels of headmaster rank, one for the newly appointed, and a higher rank for which headmasters would become eligible through excellent performance over a period of five years. Promotions would be made from the pool of eligible candidates based on truly outstanding achievement. Rank would be tied to performance, not to the size of the school. This approach is already being considered by the MEC.

5.19 An associated issue concerns the registration of newly established secondary schools^{18/}. At present, the MEC has a set of rather demanding criteria which must be fulfilled before a secondary school can become

^{18/} 561 secondary schools (or approximately one-third of the total) are presently unregistered. These include 108 in Manicaland, 94 in Midlands, 83 in Mashonaland West, 83 in Masvingo, 80 in Mashonaland East, 50 in Matabeleland South, 37 in Matabeleland North, 22 in Mashonaland Central, and 4 in or around Harare.

registration, the school is entitled only to have a teacher-in-charge. While wanting to maintain pressure on unregistered schools to fulfill the Ministry's criteria for registration, the absence of a fully qualified head teacher undermines the likelihood of the criteria being met. The MEC has wisely decided to accelerate its program of school registration, and to post head teachers to all secondary schools. This policy change should make a major contribution to raising management competence in the schools and hence improve the learning achievements of their students.

5.20 Over time, the proportion of qualified teachers in the schools is likely to increase. In the interim, structured induction training for unqualified teachers before assignment offers a feasible way to improve performance. This training could be conducted by provincial staff just prior to assignment to the schools.

5.21 The main problem of female education in Zimbabwe does not so much relate to access, but rather to the relative achievement levels of girls vis-a-vis boys, and also to the higher drop-out rates of girls. To the extent that the differential achievement levels are caused by inappropriate attitudes of male teachers, it would be critical for all male and head teachers to be made aware of the existence and potential scale of this problem, and also their responsibility for ensuring that their schools and classrooms are environments conducive to learning by girls.

D. Improving Information Systems

5.22 The MEC made a crucial decision in the mid-1980s to computerize its information system. Unfortunately, however, the technology is incompatible with standard data management software. In particular, it is designed to record and aggregate information on staffing and enrollments for forwarding to the head office. For school improvement purposes, regional staff need to be able to disaggregate information by school and supervision circuit. Data on school resources and expenditures, and on examination achievements, need to be added in order to monitor effectively the relationships between resources, improvement strategies and student achievement. Commercially available software could easily be adapted to this task, provided personal computers are made available. Provision of data to the ministry would not be affected.

5.23 In part because the system serves few regional purposes, utilization of the data is low, and staff are not familiar with its use. An improved data management system should be accompanied by training for all professional staff, not just clerical staff, to expand utilization and efficiency.

5.24 Regional staff already have many other good ideas for improving school performance. These include district level teacher resource centers, subject matter teacher conferences, and establishing small school libraries. Other ideas would undoubtedly occur as experience accumulates. It will be important to allow regional offices to develop appropriate local strategies as standardized approaches are much less likely to be effective. In addition to appropriate levels of authority, this would also require adequate and flexible financing arrangements for the regional offices.

VI. STRENGTHENING ANALYTICAL CAPACITY CENTRALLY

6.1 For school improvement strategies to be fully effective, the regional offices would need strong central support. The MEC would also need to develop and use information on the effects of the strategies to reach decisions on what works, on costs, and thus on strategy modifications to improve effectiveness further. These tasks would increase the need for strong analytical capacity within the head office. The key functional areas would be planning and monitoring, curriculum development, research and evaluation, and examinations. In summary, it is argued here that the Planning Unit (PU) should be responsible for routine statistics and management of policy research; the Standards and Control Unit (SCU) should be principally responsible for monitoring school improvement strategies; the Curriculum Development Unit (CDU) should strengthen its activities in managing research into teaching and learning processes; and the technical capacity of the Examinations Branch (EB) for the development and analysis of examinations should be strengthened.

A. Planning and Monitoring

6.2 Planning and monitoring functions are currently organized separately. The PU has five principal functions: (a) collecting, maintaining and reporting educational statistics, including enrollments and staffing; (b) supervising the construction of new schools; (c) carrying out, or providing technical assistance for, evaluation studies focused on the use of educational materials and the efficiency of the education system; (d) coordinating aid projects; and (e) managing the Ministry's computer systems. When the MHE was created, most of the planning staff left the MEC. In consequence, over the past two years, the principal challenge has been to rebuild the PU. Considerable progress has been made, notably in the creation of a three-person Evaluation Section, and additional staff have been engaged for computer and statistics functions as well as for supervision of school construction. However, further strengthening would be needed especially for the unit to adapt itself to the new priority of improving learning achievements in schools.

6.3 Monitoring of schools, headmasters and teachers is the main responsibility of the SCU, which operates as a supervisory body for the professional functions of regional offices. Like the PU, the SCU has evaluation responsibility, but its focus is on learning from the lessons of implementation at the regional level in order to identify both problems and successful practice. As part of this responsibility, the unit organizes annual conferences of RDs to assess system performance and to identify issues for further study and evaluation. The unit is also charged with organizing induction training for regional office staff at the deputy director level and below, and providing staff to assist regional offices with in-service training activities.

6.4 In principle, there is an overlap of function between these two units in the area of evaluation. In practice, neither unit has been able to be very active in evaluation activities in recent years due to staff shortages. The SCU currently has three vacancies in a professional staffing

complement of five persons. In practice, low levels of activity have prevented any serious problems of duplication of function from arising. Both offices also spend a great deal of staff time in routine administrative functions. At present the PU has to review all proposals for the building of new schools, even though staffing and budget shortages prevent the staff from participating in field inspections, which are primarily conducted by EOs in regional offices. But the paper work load is significant. Similarly, officers in the SCU have to process all schools inspection reports done annually in the nine regional offices; these amount to more than 12,000 individual reports each year. Because of the volume, only reports flagged as significant by RDs are given much attention. The rest are filed, and there is no staff time for retrospective analysis.

6.5 For a school improvement policy to be adopted effectively, the need for effective planning, evaluation and monitoring would increase substantially. Further decentralization of authority and functions to regional offices could reduce the administrative burden on these two critically important central offices, enabling them to devote more attention to developing and using the information needed for policy guidance and planning. However, clear delineation and coordination of functions would be needed.

6.6 Planning Unit. In general, the PU should be responsible for two kinds of data gathering and processing activities. The first is the development and utilization of routine administrative statistical information. The second is management of special research studies conducted by the University and other external research bodies. If the responsibility for approval of new school construction were to be decentralized to regional directors, the PU would have more time and resources to devote to these two key tasks. In this way, the PU would be able to play a major role in strengthening the information and statistics systems at all levels, including more effective use being made of computers. The PU would also be able to work towards having all routine educational statistics and cost information current, accurate and available for rapid analysis in response to requests for information within the ministry. This would include regular reports to senior ministry staff, including the regional directors, on the status of education nationally and at regional levels. In addition, the role of the Evaluation Section could be modified from conducting and providing technical assistance for evaluation studies to one of research management. This role is discussed in detail in the section below on research and evaluation.

6.7 Standards and Control Unit. Under the proposed new approach, the SCU would strengthen its current primary function of being the central clearing house for problems and progress in improving schools. Considerable staff time could be generated by eliminating its present responsibility for processing all school inspection reports, and leaving them to be read and filed at the regional offices. RDs could report every quarter to the MEC on major issues and problems, and on actions taken within their expanded regional authority.

6.8 Based on reports from the regions and periodic inspections, the SCU could prepare regular reports (perhaps twice a year) for senior ministry staff on the implementation of school improvement strategies. It could also expand the function of annual conferences to develop agendas of issues and

problems which could be used as the basis for a research agenda for the PU. Time and resources might also be made available to monitor educational programs and innovations in other parts of the world, and to disseminate information on promising innovations to senior officials and to the regions.

B. Curriculum Development

6.9 The CDU is presently responsible for curriculum research, development and testing. Its major task in recent years has been to increase the relevance of curricula specifically oriented to conditions in Zimbabwe. The CDU also produces teaching and learning materials on a pilot basis for new syllabi and to fill gaps in commercially produced and developed syllabi. A major responsibility has been the development of ZIMSCI materials, recently including arrangement for commercial publication and distribution of ZIMSCI texts. The CDU also manages the warehouse and distribution systems for the provision and re-supply of ZIMSCI kits.

6.10 The basic responsibilities of the CDU are consistent with school improvement programs and should be maintained. However, more emphasis could be given to identification of problems in curriculum implementation -- such as those currently being experienced with ZIMSCI in rural schools. The unit could be responsible for preliminary reconnaissance studies to identify the dimensions of problems encountered. Where solutions are obvious, appropriate recommendations could be made. In other cases, more detailed research into teaching and learning problems may be needed. In the same way that the PU could manage research on policy issues, the CDU could assume responsibility for managing research on instructional processes. As the 'O' level curriculum revision process approaches completion, staff resources could be shifted -- with appropriate training -- to establish this research management function.

C. Research and Evaluation

6.11 Education research and evaluation in Zimbabwe take place in a variety of institutions, including the MEC, the MHE, the University of Zimbabwe and other local research institutes. A review of documents produced by these various institutions indicates a high level of activity, especially at the University.

6.12 Research and Evaluation within the MEC. Research and evaluation within the MEC is carried out by the SCU (with two professional staff), the Evaluation Section of the PU, and the Test Development and Research Section (with five research officers) of the Examinations Branch (EB). These units can draw upon a rich data base lodged within the MEC, where there are records on teachers (training, employment histories, supervision reports), schools (types, location, staffing), and students (examination results) that have been stored in paper form for decades and more recently stored in machine readable format. In addition, there are various smaller data sets, collected in response to particular research and evaluation questions. Yet these data are rarely analyzed for four reasons: (i) MEC staff lack requisite skills in data retrieval and analysis; (ii) the Central Computer Service computers are frequently too busy to respond to requests; (iii) appropriate software packages are not available for use on the computers to which MEC staff have greater access; and (iv) the responsibility for research is dispersed across

the three units. As a result, even simple descriptive studies with respect to educational quality (e.g. gender differences in performance on the grade 7 examination or comparisons of cost-effectiveness of study groups versus conventional secondary schooling) or analyses to support test development work of the EB (e.g. the psychometric properties of grade 7 and ZJC examinations) are rarely conducted. More complex issues, such as the determinants of school effectiveness, are virtually never addressed.

6.13 Research and evaluation outside the MEC. Educational research in Zimbabwe has been supported by both the Government, through the Research Board at the University of Zimbabwe^{19/}, and by external donors (USAID, SIDA etc). As a consequence, the nation has developed considerable strength in conducting research studies. The Human Resource Research Center (HRRC) which was established in 1988 in the Faculty of Education at the University of Zimbabwe, is the country's leading institute for educational research, with 30 studies ongoing in 1989 and another 30 already completed. Much of its work is very sophisticated. In addition, a smaller amount of educational research work is done by the Zimbabwe Institute for Development Studies and by the Center for Applied Social Studies.

6.14 Research grants typically support the individual interests of the researcher, and therefore are rarely of priority relevance to the specific educational policy research concerns of the MEC. Also, while externally-supported contract research proposals must be cleared by the MEC, they are rarely developed at the initiative of the Ministry, and hence may lack relevance to policy questions of immediate concern. At present, there is no mechanism whereby research related to current educational policy questions is initiated by the MEC but carried out externally. Instead, interested researchers prepare proposals for research, and these proposals are vetted for appropriateness by the SCU.

6.15 Future Strategy. While studies conducted both within and outside the MEC address education reform and policy change in Zimbabwe in general terms, they do not often provide empirical data that is relevant for informing MEC policy. There are two reasons for this. On the one hand, while the research and evaluation carried out within the MEC address specific issues of concern to the ministry, studies tend to be carried out on a small scale, do not utilize the vast data banks of the MEC, and do not use modern research tools for data collection and analysis. On the other hand, while the research and evaluation studies conducted outside the MEC are technically more sophisticated, in many cases they are irrelevant to specific MEC information needs.

^{19/}The Research Board of the University of Zimbabwe comprises one representative from each of the faculties (about 15 members in 1990) and has an annual budget of Z\$3.2 million for research (Z\$2.5 million) and external travel (Z\$0.7 million). The Research Board meets bimonthly to review research proposals for funding; approximately 300 proposals are reviewed annually, of which approximately half receive an award. However, only about 1 percent of its budget goes for educational research, largely as a result of a low submission rate from the Faculty of Education.

6.16 For education research in Zimbabwe to serve better the policy and planning needs of the MEC, it would be necessary to modify the current pattern of research initiation and support, as well as enhance the technical skills of the MEC Evaluation Section staff. What is needed is a concentration of research and evaluation expertise within the MEC, and greater collaboration between the MEC and the educational research community. The former should shape the policy research questions, while the latter should assist in carrying out the studies and provide technical training to MEC staff. The responsibilities of the Evaluation Section should, therefore, shift somewhat from providing technical assistance for research and evaluation conducted by the MEC itself, to creating the conditions under which research and evaluation could be carried out on behalf of the MEC. This would involve a primary focus on activities related to (i) organizing data held at the MEC, so that it is accessible for research and evaluation purposes, and (ii) commissioning research and evaluation studies related to current policy and planning needs. This latter function would involve: (a) identifying key issues for research and evaluation, through consultation with SCU and regional education officers; (b) proposing topics for research and evaluation for review by senior MEC officials; (c) drafting specific terms of reference for studies and disseminating requests for proposals widely to encourage responses from a variety of research organizations; (d) reviewing proposals for technical quality; (e) recommending funding levels; and (f) monitoring the implementation of research. In addition, the research staff of the PU should have the skills and time to carry out small research studies directly. Even to carry out the technical review function, however, the staff would need additional training in research and evaluation methods, including computer-based data analysis. Psychometric research on test development, however, should remain within the Examinations Branch.

6.17 To a large extent, this redefinition of the role of the Evaluation Section implies greater cooperation with the University and the HRRRC, and with private consulting firms. While strengthening such links is not always easy, the existing relationships between the MEC and outside bodies are already established and should provide an excellent basis for greater future collaboration.

D. Examinations

6.18 Evaluating the impact on student learning achievements of the school improvement program would require valid, reliable and cost-effective measures of such learning. Most examinations set and administered by the EB of the MEC are valid, insofar as they are criterion-referenced, curriculum based examinations. However, the reliability of the grade 7 and ZJC examinations is not routinely evaluated, and the level of difficulty of various forms of the tests is not equated over time. As a result, pass rates on these examinations fluctuate greatly from year to year, significantly reducing their utility for evaluating the impact of educational policy changes on changes in student learning achievements. Improving the quality of the examinations prepared by the EB requires: (i) greater technical expertise in tests and measurement, and (ii) additional resources for routine statistical analyses of examination results.

6.19 Technical expertise. The EB is aware of the problems of poor reliability and consistency, but at present lacks the technical expertise

required to solve these problems. There is a reason for this: historically, the EB was set up to administer external examinations, not to engage in test development. As a result, the EB has acquired considerable ability to print, administer, mark and grade a rapidly increasing volume of examinations, and most of its resources are used for these purposes. In 1989, 76 percent of its operating expenses were attributable to the direct costs of printing, distributing, administering, marking, and grading examination papers. The remainder of its budget covered the salaries of the EB staff involved in test production and administration.

6.20 The EB has made considerable progress in setting examination papers, and is now fully responsible for the grade 7 and ZJC examinations, and for 90 percent of the 'O' level subjects. However, an analysis of the pattern of scores on these tests over time and a review of technical staff qualifications of the EB suggest that much necessary technical expertise for successful test development is lacking. Although the EB includes a Deputy Chief Education Officer for Test Development and Research with a staff of 21, most work undertaken by that office is administrative in nature. The research staff is limited to five research officers, none of whom has any graduate level training in psychometrics or tests and measurement, and the present "statistics" staff are former teachers with no graduate level training in statistics. The absence of test development expertise in a test development unit is particularly disturbing, especially since the policy of the EB is to localize all aspects of test development, administration and scoring (marking and grading) of examinations in the near future.

6.21 Costs. Actual government expenditures for the EB in 1989 were Z\$7.37 million, up from Z\$0.9 million in 1984. This increase is entirely explained by inflation and an increased volume of subject entries. Average governmental expenditure per subject entry remained at about Z\$2 in constant 1989 Z\$ (see Table 6.1). In real terms, the Government has increased its annual expenditures for examinations by only about Z\$148,000 since 1984, despite increased localization of examination setting.

Table 6.1: Average Government Expenditure Per Subject Entry, 1984 and 1989

	Subject Entries (in millions)				Government expenditure (constant 1989 Z\$) Millions	Z\$/subject entry
	Grade 7	ZJC	O-level	Total		
1984	0.38	0.66	1.11	2.15	4.32	1.96
1989	0.64	1.42	1.63	3.69	7.37	1.99

Source: Annual Report of the Secretary for Education, 1984; unpublished MEC data, 1989; Actual Government Expenditures, 1984/5 and 1989/90;

6.22 Governmental allocations to the EB cover only a fraction of the costs of these examinations, however, as parents contribute a much larger share (see Table 6.2). In 1989, for example, parents contributed Z\$4.4 million to the Ministry of Finance, Economic Planning and Development (MFEPD)

for the ZJC examination and Z\$48.9 million (which was placed in a non-interest-bearing account for remittance to the University of Cambridge) for 'O' level examinations. The total 1989 expenses of the EB were Z\$60.9 million, of which 88 percent was contributed by parents.

Table 6.2: Examination Expenditures by Source of Funds, 1989
(Z\$ millions)

Type of expenditure	Source of funds		Total
	Parents	Government	
Grade 7 exam			
Overhead			0.7
Printing/stationery			0.2
Total	0	0.9	0.9
ZJC			
Overhead			0.7
Printing/stationery			0.5
Accommodation			0.2
Markers fees			2.8
Total	(4.4) (to MFEPD)	4.2	4.2
O-level			
Overhead			0.7
Training of markers			.05
Accommodation			1.5
Markers fees			4.2
Services of Cambridge			48.9 _a
Total	48.9 (to Exams Branch)	6.9	55.8
Grand Total^{b/}	53.3	12.0	60.9

Notes:

- a/ Based on an estimate of Z\$29.7 per subject entry, computed from 1988 data on Cambridge 'O' level subject entries (1.5 million) and fees paid to Cambridge.
- b/ The total amount spent was Z\$55.8 million. Parents paid a total amount of Z\$53.3 million (ie Z\$4.4 million plus Z\$48.9 million), while Government paid a gross total of Z\$12.0 million or a net total (taking into account the exam fee income of Z\$4.4 million) of Z\$7.6 million.

Source: Government expenditure reports, Examinations Branch data

6.23 For the process of localization of examinations to continue and for the technical quality of the examinations to improve, it will be necessary to allocate more resources for purposes of test development and statistics, and for the Government to fill the posts presently allocated to this department with suitably qualified statisticians and psychometricians. Greater technical expertise in multiple-choice test construction is particularly needed, especially for the grade 7 and parts of the ZJC examinations. The volume of entries for these examinations will increase significantly in the next decade; in fact, entries for the grade 7 examination will double in 1990, with the addition of a general paper and papers on Shona

and Ndebele. Multiple-choice papers with optically scanned answer sheets would be the most cost effective way of accommodating a large volume of candidates. (In 1989 the unit cost of the hand-scored ZJC was 5 times that of the optically scanned, multiple choice grade 7 examination.) Greater reliance on multiple-choice papers would be quite justifiable for reasons of cost-effectiveness, and routine statistical analyses (item analysis, reliability, and equating) would also be facilitated by multiple-choice items.

6.24 Resources for this additional support to the EB may already be available from: (i) interest on examination fees paid directly to the EB; and (ii) reallocation of resources currently spent on ZJC hand-marking. First, over Z\$48 million presently accumulate annually in a non-interest-bearing account and are held for 3-4 months. If this amount were invested in an interest bearing account at 10 percent, an additional Z\$1.2-Z\$1.6 million annually would be available to support the strengthening of test development. Second, the EB presently spends Z\$2.8 million on markers' fees for the ZJC: by comparison, nothing is spent on marking the optically scanned grade 7 examination. If the number of ZJC markers could be reduced by half, by greater use of multiple-choice questions marked directly on optical scanning sheets, Z\$1.2 million would be available for strengthening test development.

VII. FINANCING QUALITY IMPROVEMENTS.

A. Equalization of Finance

7.1 The first chapter of this report made three critical statements for the future financing of education in Zimbabwe: parents have already provided huge resources to enable the democratization of education to take place; the Government, for its part, has also devoted a relatively high proportion of its budget to the sector; and the intention of the Government to embark on a structural adjustment program precludes the possibility of significant additional public funds coming to the sector in the near future. Even if annual economic growth were to accelerate to 4-5 percent, and even if the education sector continues to receive its current share of the overall budget, the annual increases in the education budget would only be about 2 percent in view of the planned reduction in the budget deficit through expenditure control. As earlier discussed, the main driving force behind the budget is the payment of teachers' salaries - and so it will be crucial for the MFEPD and MEC to agree on teacher training and deployment policies. At the same time, however, resources would be needed to carry out the proposed school improvement strategy, and so the key issue is how the necessary funds could be obtained.

7.2 The strategy proposed in this chapter focusses on the efficiency of utilization of existing resources. Earlier in Chapter III it was shown that, given their available resources, most secondary schools are performing equally effectively. Put in different words, given the backgrounds of the students, the distribution of available resources is the major determinant of the present educational achievement levels of schools. The significant variations in achievements at present thus reflect a highly inequitable pattern of existing resource allocation - a pattern applying not just to the resources provided by the parents of the students, but also to the resources provided by the Government itself. In order to understand the existing patterns of resource allocation, it is first necessary to review the overall system of financing education in Zimbabwe.

7.3 The present system of financing education. Common to all schools is the payment of teachers' salaries by the Government²⁰. These payments are for staff whose appointments are based on standard teacher-pupil ratios, and who are paid according to the civil service salary structure. This policy was introduced soon after independence, in order to equalize educational expenditures throughout the country and also to increase the Government's control over the curriculum and education standards. (Until 1987, however, many teachers were paid through their school's responsible authority, though since then nearly all teachers have been converted to become civil servants). The resources available for other educational expenditures, however, vary by type of school. In the case of the Government's own schools - including both former Group A and former Group B - these non-salary expenditures are also paid directly by the MEC. Some of these expenses are defrayed by the collection of school fees, but the revenue from most fees goes directly to the

²⁰In fact a small number of additional teachers are engaged and paid privately by some of the trust schools.

MFEPD. In non-Government schools, there is a subsidy in the form of a per capita grant, equal across all school types though varying somewhat by level of education. Government grants are supposed to be paid to the respective responsible authority, but this is not being done consistently by the MEC as some district councils have not been using such grants exclusively for educational purposes.

7.4 At first sight the Government's system of financing education would seem equitable - it pays for all teachers' salaries and provides either directly or indirectly for other school expenditures - but there are very large variations in expenditures per child in the various different categories of schools. First, the resources contributed by the parents themselves vary considerably - at one extreme are the trust schools where parents typically spend several thousand Z. dollars annually on each child. At the other extreme are the district council schools, where costs to parents may average about Z\$20-25 per child at the primary level (although fees, as such, have been abolished) and about Z\$90-150 per child at the secondary level. Even though not all the revenue is collected (especially in district council schools) these are large amounts from the point of view of poor parents. In the case of the non-Governmental schools, the fee revenue is supposed to be kept by the responsible authority, and is meant to be used exclusively for educational expenditures. While it is extremely commendable that even very poor parents are thus contributing large amounts of money towards the education of their children, the reality is that the resources available per child in the trust schools (and also, though to a lesser extent, mission schools) are considerably greater than those available in the district council schools.

7.5 More surprising, however, is the fact that the Government's own resources are, in practice, allocated in a highly inequitable way. This is for three reasons. First, even though the MEC pays all of the teachers' salaries, the most educated and experienced (and, hence, most expensive) teachers tend to be in the urban areas and especially in the elitist schools (those that attract high-achieving students from wealthy homes). Trust schools and, to a lesser extent, the mission and former Group A schools can be selective about the teachers they employ and, naturally, choose the best they can get. The distribution of untrained, inexperienced and less expensive teachers is severely skewed towards the district council schools. Secondly, the non-salary amounts spent by the Government on its own schools are significantly higher than the per capita grants given to the district council and other non-Government schools. And third, the system of financing does not take into account the inherited assets of the long-established schools; and, in particular, it fails to provide any additional resources to assist the newly established district council schools to build up the stocks of books and other pedagogic and administrative equipment needed for them to be truly effective. Not only do these schools lack such inherited assets, but they also typically face higher prices in trying to acquire them, because they are located in the more remote areas of the country.

Table 7.1: Government Expenditure On Secondary Education By Type Of School (excluding Boarding Subsidies), 1989

Type of school A	Enrollment ('000) B	Unit expenditure (Z\$)			Total expenditure (Z\$'000)		
		Salary C	Non-salary D	Total NET OF GOVT FEES E	Salary F = B*C	Non-salary G = B*D	Total NET OF GOVT FEE H = B*E
Govt-former Grp A	30	\$842	\$110	\$817	\$25,409	\$3,319	\$26,655
Govt-former Grp B	180	\$455	\$88	\$438	\$81,811	\$15,823	\$73,360
Trust (high fee)	18	\$650	\$10	\$660	\$11,562	\$178	\$11,740
Mission	111	\$530	\$10	\$540	\$59,048	\$1,114	\$60,162
Council	357	\$293	\$10	\$303	\$104,513	\$3,567	\$108,080
Total	696	\$400	\$34	\$394	\$282,344	\$24,001	\$274,050

Source: World Bank Calculations

7.6 The unequal distribution of governmental resources to the various types of secondary school is shown in Table 7.1. On average, the Government spent about Z\$394 (net of fees collected in the Government-owned schools) on each secondary school student in 1989. However, the average by school type ranged from a high of Z\$817 to a low of Z\$303. Not only are parental contributions smaller in the district council schools than in all other categories of schools (see Annex 6), but so too are the governmental resources spent per child in such schools (where, in addition, children are at greater educational risk to begin with, because they come from poorer homes). Put differently, the district council schools, which serve the poor families, account for over half of all secondary school students but receive less than 40 percent of the Government's resources spent on secondary education. In contrast, the former Group A schools, which serve families that are better-off mainly, account for 4 percent of students but receive 9 percent of the Government's allocation. Similarly, the average per capita governmental allocation in the trust schools, which attract the children of the most well-off families, is 70 percent higher than that in the district council schools.

7.7 Alternative strategies. The existing allocation of resources is clearly out of line with the Government's stated policies, and a change in the system of financing education appears to be key to improving the learning achievements within secondary schools in Zimbabwe²¹. Essentially there are two, more or less extreme alternatives that could be adopted - either to have a system of positive discrimination, whereby the present pattern of governmental contributions would be reversed in an effort to compensate for differences in the educational and financial needs of different schools and communities; or to have a system that aims merely to equalize governmental expenditure across students. While the former approach may be the more equitable, it would require a considerably strengthened monitoring and administrative capacity within the MEC. This would be necessary particularly to ensure that increased governmental funding to selected schools does not undermine the efforts of the local communities themselves. A different approach from those already described might be to abolish all governmental

²¹ Any change to the system of financing education would probably require a change in the Education Act. The exact legislative implications would need to be determined once agreement within Government were reached on the general strategy and principles involved.

subsidies in the case of the trust schools alone, but because of the relatively few students involved, this would not save a large amount of money for redistribution and it might undermine whatever control the Government now has over such schools. Moreover, this move would be especially controversial and difficult to justify in view of the even higher per capita subsidies given to students in the Government's own former Group A schools, and also the fact that the parents of the children in the trust schools pay taxes like everyone else, and probably higher taxes than most.

7.8 It may be desirable in the longer-term for the Government to move to a system of positive discrimination in its system of financing education. However, it is suggested that, for now and as a first step, consideration be given to a system of subsidy equalization, though with some funds also set aside and used to improve the resources of some of the least well-endowed schools. In particular, this system would involve: (i) some additional resources going to the regional and district offices to support (a) selected high-priority expenditure items, particularly increased school supervision, in-service training of headmasters, and improved information systems (see Chapter V), and (b) the funding in each region of a Regional School Improvement Fund (RSIF), out of which special assistance could be provided on a selective basis to under-achieving schools (see below); and (ii) extension of the existing per capita grant approach, so that it takes into account not just the Government's financing of instructional materials and other non-salary inputs but teachers' salaries as well. Under this resource equalization approach, an initial calculation would be made to determine the average governmental contribution available for each secondary school student. Each school would then be credited with an amount equal to this amount times its student population². Under this approach, some schools would gain and others would lose.

7.9 Indicative figures based on a resource equalization strategy are shown in Table 7.2. First, it is assumed that an amount of Z\$15 per student would be made available for the RSIF (the national fund, before allocation to the nine regions), giving it a total of just over Z\$10 million. The average annual subsidy of Z\$394 per student would thus be reduced to Z\$379. Under the proposed system, three types of school would receive substantially reduced levels of governmental support: Z\$438 less per student in the case of the former Group A schools, Z\$281 less per student in the case of the trust schools, and Z\$161 less per student in the case of the mission schools. The per capita grant in former Group B schools would decline only slightly, by Z\$29. In contrast, the district council schools (which are presently receiving less than the average subsidy per student) would receive an additional amount of Z\$75 per student.

² Under this approach, honest and accurate reporting of enrollment figures would become even more important than under the current system. One purpose of the increased regional office allocations would be to facilitate the verification, on a spot-check basis, of these figures, and headmasters and/or school management committees would have to be held accountable for their accuracy.

Table 7.2: Proposed Changes in Government Subsidies to Secondary Day Schools

Type of school A	Current subsidy		Proposed RSIF a/		Proposed subsidy		Diff. between proposed and current			
	Enrollment ('000) B	Per student (Z\$) C	Total (Z\$'000) D = B*C	Per student (Z\$) E	Total (Z\$'000) F = B*E	Per student (Z\$) G = \$394-E	Total (Z\$'000) H = B*G	Total (Z\$'000) I = H-D	Per student (Z\$) J = B*I	Per stud-day (Z\$) K = J/187
Govt-former Grp A	30	\$817	\$24,655	\$15	\$453	\$379	\$11,432	(\$13,223)	(\$438.18)	(\$2.34)
Govt-former Grp B	180	\$408	\$73,360	\$15	\$2,697	\$379	\$68,113	(\$5,247)	(\$29.18)	(\$0.16)
Trust (high fee)	18	\$660	\$11,740	\$15	\$267	\$379	\$6,738	(\$5,002)	(\$281.18)	(\$1.50)
Mission	111	\$540	\$60,162	\$15	\$1,671	\$379	\$42,204	(\$17,958)	(\$161.18)	(\$0.86)
Council	357	\$303	\$108,080	\$15	\$5,351	\$379	\$135,124	\$27,044	\$75.82	\$0.41
Total	696	\$394	\$274,050	\$15	\$10,438	\$379	\$263,611	(\$10,438)	(\$20.67)	(\$0.11)

Note: a/ Regional School Improvement Fund.

Source: World Bank Calculations

7.10 In order to adjust to the reduced governmental financial support, the presently better-financed schools would need to do one or more of several things. They could (and probably would) raise their fees. The amount that would be needed to compensate fully for the reduction in the Government's subsidy in the former Group A, trust and mission schools may be substantial in absolute terms, but not so in comparison with what parents in such schools are already contributing (see Annex 6). However, in order to provide opportunities for the most capable children from poorer families to attend such schools, it is also suggested that a governmental scholarship program be introduced for children in forms 1-4. To promote equal opportunity for boys and girls, 50 percent of the scholarships could be reserved for girls.²³ To the extent that these schools cannot mobilize additional private resources adequate to compensate fully for the reduced subsidy amounts, they could reduce non-salary expenditures, or they could replace some of their trained teachers with untrained ones, with the result that more trained teachers would be available for deployment in the district council schools. The district council schools, on the other hand, could use their additional resources to pay for such teachers, and they would be in a better position also to purchase other critical educational inputs.

7.11 Although this strategy would not equalize educational opportunities, it would at least equalize the financial resources allocated by the central Government to students in different categories of schools. The introduction of the RSIF would also be a step in the direction of positive discrimination; and this strategy should certainly help Zimbabwe to move towards its goal of raising the learning achievements of students in the lower half of the present distribution (see Chapters III and IV).

B. Financing School Improvements.

7.12 A principal effect of the proposed resource equalization strategy would be to increase the resources of presently under-achieving schools. However, the establishment of the RSIF would also enable the regional offices to receive additional resources with which to carry out and support the school improvement program.

²³ Although there is an existing scholarship program, it is reserved now for students in forms 5 and 6, it is limited to roughly 500 students annually, and less than 20 percent of the scholarships awarded go to girls. Besides the Government's scholarship program, some awards are also supported by NGOs and, occasionally, by business interests.

7.13 Increasing funding for supervision. The success of school improvement strategy depends on frequent visits by regional staff. The number of vehicles available would need to be increased, and possibly doubled over a period of two-three years. Travel funds would also have to be expanded. Currently, regional offices have about Z\$ 154,000 to spend on supervision travel. This is clearly inadequate. This amount would have to be gradually increased as well, to a more realistic value of about Z\$400,000 per year. These funds should not be compartmentalized, but provided as a lump sum for flexible use within standard expenditure guidelines.

7.14 School improvement funds. Besides the extended per capita grant system, it is proposed that part of the RSIF be used to provide certain schools with additional funds each year for strengthening on a selective basis. To be effective, such school support programs would need to be designed and administered at the regional and district level, with considerable flexibility to adjust to local conditions. Establishment of school improvement funds under the authority of regional directors would improve efficiency and responsiveness to local needs. Funds could be administered within broad policy guidelines. A rolling three-year school improvement strategy that identifies under-achieving schools and principal constraints, and outlines a general program of action could be developed in each region. This strategy would establish a framework for annual central office inspection and evaluation of progress. RDs would thus be accountable annually for expenditures and success. In initial years, an annual allocation of Z\$200,000 would go a long way. In addition to supporting specially selected schools, these funds could be used for priority training or management strengthening activities. For example, the staff at Mashonaland East calculate that it would cost only about Z\$14,000 to provide a week of induction training to newly appointed unqualified teachers, assuming the use of the local Public Service Training Center.

Table 7.3: Estimated Costs of Strengthening Regional Offices ('000 Z\$)

Items	Current	Additional	Total
<u>Each regional office</u>			
Annual Recurrent			
Travel and subsistence	150	300	450
School improvement funds	-	200	200
subtotals	150	500	650

Equipment			
4 vehicles		400	400
6 computers		72	72
subtotal		472	472

<u>Total for 9 Regions</u>			
Annual recurrent	1,350	4,500	5,850
Equipment	-	4,048	4,048

Source: World Bank Calculations

7.15 **Estimated costs.** The total additional annual recurrent cost of these recommendations, excluding vehicles, would be about Z\$500,000 per region, or a total cost for all nine regions of about Z\$ 4,500,000 (Table 7.3). Adding four vehicles to each region would cost about Z\$3,600,000 more. Personal computers would cost about Z\$12,000 each. These should be deployed in pairs, up to a total of six per office, with a total cost of rather less than Z\$1 million. The total investment required would, therefore, just under Z\$10 million, the annual amount proposed for the RSIF. If equipment costs were met through donor support and/or phased over several years, the annual recurrent cost of strengthening regional support to schools could be kept at about half of the RSIF, with the balance being available to increase grants to schools.

VIII. CONCLUSIONS: TOWARDS AN INTEGRATED PROGRAM OF EDUCATIONAL IMPROVEMENTS

8.1 Background. The Government and the people of Zimbabwe are rightly proud of the tremendous educational progress achieved by Zimbabwe in its first decade of independence: the rapid democratization of education after the pre-independence policy of segregation; the innovations of distance education for the training of teachers and the introduction of some important curricula changes, including the ZIMSCI program; the impressive participation of girls in the expanded schooling system; and perhaps above all the dramatic mobilization of financial and human resources to build up the comprehensive primary and secondary education infrastructure throughout nearly the entire country. However, there are always challenges still to be addressed, and the purpose of this review was to explore options for dealing with some of the most pressing outstanding issues.

8.2 The central issues. At the outset of this report, it was argued that the two central issues now facing the authorities are the unattractive prospects for many school-leavers due to slow economic growth and constrained wage employment relative to the expansion of secondary and tertiary education, and the relatively low levels of learning achievements especially in recently established secondary schools. From one perspective these issues are unconnected, in that the main thrust for dealing with the unemployment problem has to come from macroeconomic measures to stimulate economic growth. Even within this perspective, however, the education sector would need to play its part by finding ways to minimize the pressure on the budget and the fiscal deficit. But equally important, an underlying theme of this report is that a crucial link does exist between raising the learning achievements of students within the existing large number of secondary schools and the work prospects of these children once they have left their schools. By ensuring that children learn as much English, mathematics and science as possible, they would be best equipped later to find income-earning opportunities in the formal, small-scale or informal sector of the economy. Concomitantly, the potential to improve the income-earning prospects of the mass of secondary school leavers could be undermined by diversion of scarce financial resources to expensive vocationalization programs in a few selected schools, by an extension of inadequately supported practical subject programs at the expense of the core subjects, or by failure to reorientate the management of the education system to focus more on ways to support improved learning achievements within the schools. There are, therefore, fundamental links between the two crucial issues at the heart of the debate on education policy for the second decade of the country's independence.

8.3 Prospects for employment. Over the next decade, about 1.8 million job seekers with secondary and tertiary education and training will enter the labor market. This equates to roughly 180,000 annually. Even if economic growth accelerates to create more than the present number of about 28,000 new jobs each year, and also taking into account the need for replacement workers to cover for natural attrition and retirements etc, the formal sector would still not be able to generate more than 100,000 new jobs annually at the very most. Expansion of the small-scale sector could only be expected to lead to a few thousand new jobs annually again under optimistic assumptions, while the informal sector could expand by maybe 20,000 - 25,000 new jobs each year if

the policy environment were made more conducive to its development. The informal sector will be particularly important in view of the supporting role that it could play towards the formal sector, and especially due to the relatively low cost needed for each job created. Relaxation of governmental regulations on the informal sector will, therefore, be critical. However, at least 600,000 job seekers will also need to be absorbed annually into communal agriculture, even under the most optimistic assumptions.

8.4 It is difficult to predict the training needs of a growing economy, and anyway the focus of this report is on primary and secondary education rather than on the training sector. However, a brief review of the existing post-school training infrastructure suggests that Zimbabwe does have a promising framework for an integrated skills development system, but that it is presently suffering from lack of sufficient training staff and inadequate coordination between the public and private sectors. The need for a revised strategy has already been recognized by the Government, and a major policy paper is now being drafted by the MHE.

8.5 In the meantime, however, the MEC has embarked upon two programs to introduce vocational education in the secondary schools. The first of these is the inclusion of practical subjects within the 'O' level curriculum and examination system. These courses are pre-vocational rather than vocational, but they have still been seriously impeded by lack of funds and trained teachers. The educational objectives of this program are, therefore, not being met; and unless the implementation of the program is strengthened, then the time spent by the students might better be used on additional English, mathematics and science subjects.

8.6 The second approach of the MEC is the pilot testing of the ZNCC courses. Although this is being done in 28 primarily well-endowed urban schools, already reasonably equipped, the initial exam results have not been encouraging. A tracer study of a comparable program has also suggested poor employment prospects for the program's graduates, and so the effectiveness of the program as well as its costs seem problematic. Again, unless well implemented, the resources used for these technical subjects could also be better used in other deserving areas. Indeed, the broad conclusion of this review is that priority should be given to improving and expanding post-school training opportunities, while focussing on measures to raise learning achievements within the schools themselves.

8.7 The broad conclusion of this review is that secondary schools should focus on improving basic skills, especially in English, science and mathematics. Past investments in building practical concepts and applications for the Zimbabwe context into basic curricula should be capitalized upon by improving delivery. More specialized vocational training should be delivered after school (including to school drop-outs) by employers, post-secondary institutions, NGOs and other specialized agencies better placed to achieve flexibility and efficiency in the use of scarce training resources. This approach would have the best chance of creating the flexible workforce needed for rapid economic adjustment.

8.8 Variations in learning achievements. A decade of expansion has made it possible for all children to enter primary school, with high completion rates and respectable learning achievements. About two-thirds of

primary school graduates enter secondary school, but here the rapid expansion of places has not led to an even pattern of achievements. Relative to the relevant age cohort in the entire population, the proportion of students with high levels of achievement at the 'O' level examination has increased, although the trends are less clear at the grade 7 and ZJC examinations. However, the successful 'O' level students are heavily concentrated in comparatively few schools with better resources. Learning achievements in the largest share of secondary schools, especially in the more remote areas, remain very low. The overwhelming reason for the lower achievement levels especially in the district council schools is two-fold: their students have lower entry level achievements than their peers in other types of schools, and these schools are additionally constrained by inadequate resources - particularly fewer qualified teachers, insufficient learning materials and faster staff turnover.

8.9 Improving learning achievements. Fundamental to improving learning achievements is a more equitable allocation of government resources - and especially the utilization of teachers. One way to improve the allocation of trained teachers to rural schools would be to upgrade and train as many as possible - however, the salary costs of this strategy would be inconsistent with the financially constrained budget of the MEC. Even maintaining the current number of student teachers in the teacher training colleges and employing the current annual additional number of university graduates would require a budget increase considerably in excess of the projected MEC budgetary growth. Furthermore, these approaches would not allow for increased funding of complementary measures to enable teachers to be more effective and improve their teaching practices. It is, therefore, suggested that the training of new teachers should not take place at the maximum capacity level, that ways be explored to increase the utilization of existing trained teachers, and that the present differentiated staffing approach be continued. Considerable use should continue to be made of untrained teachers, and wherever possible they should work alongside trained teachers. Additional professional support needs to be provided to all teachers, with particular measures taken to stabilize the untrained teaching force. This is of critical importance in view of their high attrition rates and the significant effect of continuity of service on the learning achievements of students. For example, the employment period of untrained teachers could be lengthened, the number of salary steps could be increased, and opportunities for promotion could be improved. Incentives, such as a program to forgive the loaned costs of teacher training, could be introduced to encourage teachers to serve in rural areas, and more effort could be made to recruit trainee teachers from the more remote areas.

8.10 Measures also need to be taken to improve the distribution of learning materials to schools. The present scarcities are partly due to lack of financial resources, but they are also due to inadequate distribution mechanisms. These problems have been thoroughly researched by the MEC, though improvements would depend on the availability of additional funds for the less well-endowed schools.

8.11 Additional strategies may be needed for two crucially important subjects in the curriculum - English and science. For English, block scheduling of periods may increase student time substantially, especially for

supervised writing and speaking practice; and consideration could also be given to use of interactive radio. The educational radio channel, mainly used at the primary level at present, could be utilized for this purpose, particularly as there is already considerable educational broadcasting expertise within the country. For science, on the other hand, the ZIMSCI program is similarly constrained by present class scheduling arrangements and by lack of resources for purchase of materials. Measures to improve the distribution of financial resources would, therefore, have a positive effect on science teaching, but additional intensive induction training could also be arranged for newly hired unqualified teachers.

8.12 With teachers' salaries already taking up 90 percent of the MEC budget and with the present financial constraints facing the educational authorities unlikely to be eased in the near future, it will be difficult for conventional secondary education to expand so that the existing 66 percent transition rate from the primary to the secondary level could be raised further. However, if the Government wants to increase the transition rate, then this could more easily be done through an expansion of the ongoing distance education program based on study groups. The unit cost per child is only one quarter of that for conventional secondary education using teachers, and the fees charged are only half of those for students in district council schools. This would be an advantage especially for the daughters of poor parents who may otherwise not go to school. However, rather than establish more study groups instead of schools in rural areas, it is suggested that they be set up adjacent to existing schools, so that parents could choose whether they want children to enter the school or the study group.

8.13 Managing school improvement. For major improvements to be made in the learning achievements in schools, an incremental and flexible rather than centralized approach would be required. Effective implementation of these strategies would, therefore, need to be based on strengthening the capacity of the regional offices to help the schools to improve, and on stronger central capacity for policy analysis and planning, monitoring, research and evaluation, and examination systems. The ability of the regional offices to fulfill their responsibilities effectively is presently seriously constrained by lack of authority and resources. Although staff have been decentralized, authority mostly remains concentrated in the MEC itself. For the future, the regional offices need authority commensurate with their responsibilities - for example, to design and approve in-service training, to channel additional resources to targeted schools, to approve new primary schools, and to have a greater role in staff allocation and promotion decisions. All of these increased responsibilities would need to be carried out within guidelines approved by the MEC and they would also need to be matched with increased accountability to the SCU. Above all, however, they would have to be matched with additional resources made available to the regional offices for school supervision, etc.

8.14 Improving learning achievements would also depend on raising the competence of teachers, and especially headmasters. Regular and planned in-service training of heads, especially less experienced ones in recently established secondary schools, should therefore be a priority task for regional staff. Some change in the career structure for heads could also be considered - for instance, establishing two levels of headmaster rank, and raising the level of EOs. With increased authority given to qualified

headmasters for in-service training and certification of teachers etc, there would be more scope for linking rank to performance and for improving the incentive structure for them.

8.15 Managing a school improvement strategy would also require improvements in the information system, which at present fails to serve regional needs. Regional staff should be able to disaggregate information by school and supervision circuit etc., and they should also have access to data on school resources and expenditures, as well as examination results. An improved data management system would need to be accompanied by training for all professional staff to expand its utilization and efficiency.

8.16 Strengthening analytical capacity. For school improvement strategies to be fully effective, the regional offices would need strong central support. The MEC would also need to develop and use information on the effects of the strategies to reach decisions on what works, on costs, and on strategy modifications. Two of the key units within the MEC would be the PU and the SCU, and the role of each would need to be redefined if further decentralization of authority and functions to the regional offices were to take place. In particular, the PU could become responsible for the development and utilization of routine administrative statistical information, and for the management of special research studies primarily conducted by the University and other external research bodies. Under the proposed new approach, the SCU would strengthen its current primary function of being the central clearing house for problems and progress in improving schools. The regional offices rather than the SCU would be responsible for processing school inspection reports, and the SCU would have a broader monitoring and strategic role. The other key analytical unit within the MEC would be the CDU, the basic responsibilities of which are already consistent with school improvement programs. However, for the future the CDU would place more emphasis on the identification of problems in curriculum implementation, and on managing research on instructional processes.

8.17 To back up the work of all these units, research and evaluation would need to be strengthened, with a greater concentration of expertise within the Evaluation Section of the PU and also more collaboration between the MEC and the education research community. While strengthening links between the Government and outside institutions is not always easy, existing relationships are already established and could be built upon for the future.

8.18 Finally, the capacity of the EB would also need to be strengthened to improve the evaluation of the impact on student learning achievements of the school improvement program. In particular, this would require augmenting its technical expertise in tests and measurement systems, and also the provision of additional resources for routine statistical analyses of examination results. Some of the additional funding could be obtained from interest on examination fees paid directly to the EB and from reallocation of resources currently spent on ZJC hand-marking.

8.19 Financing quality improvements. To carry out the school improvement program would require some additional spending in selected areas. At the same time, however, education is already receiving a reasonable allocation of the Government's budget, and the Government has committed itself to bring down the fiscal deficit primarily through expenditure restraint.

While it is hard to quantify the trade-offs between changing budgetary shares between different sectors, it will be difficult for the government ever to prevent the share of the budget going to education from rising without policy changes concerning the training, deployment and compensation of teachers. Most of the MEC budget is presently taken up with the payment of teachers, and the budget will largely depend on the future course of teachers' salaries and the numbers of trained and untrained teachers. This report, therefore, recommends specific ways which could be explored to moderate the pace of teacher training and to improve the utilization and deployment of teachers.

8.20 Whatever the overall framework of available resources, particular attention will need to be paid to the allocation of governmental resources within the sector, especially as the data on student learning achievements suggest that most schools are performing equally effectively given their available resources. At present, the Government's budget for secondary education is not allocated equitably between students in the different categories of schools. Rather than spending more on students who are educationally more at risk, in fact the reverse is the case. This is for three reasons. First, even though the MEC pays all the teachers' salaries, the most educated and experienced (and expensive) teachers tend to be in the urban areas and especially in the elitist schools (which attract high-achieving students from wealthy homes). Secondly, the non-salary amounts spent by the Government on its own schools are significantly higher than the per capita grants given to the local authority schools, etc. And third, the system of financing does not take into account the inherited assets of the long-established schools; and, in particular, it fails to provide any additional resources for the newly established district council schools. The result is that, compared to an average per secondary student expenditure of Z\$394 (net of fees), the range of spending by the Government in 1989 was from Z\$303 to Z\$817 - and the students most in need received the least.

8.21 Although in the longer-term it may be desirable for the Government actively to move to a system of positive discrimination in its system of financing education, it is suggested that in the shorter-term consideration be given to a system whereby (i) some additional resources are provided by the MEC to selected high-priority expenditure items (particularly increased supervision and support for school improvement), and (ii) the existing per capita grant approach be extended to cover the entire governmental contribution (for teachers and materials) for secondary education. Specifically it is recommended that Z\$15 per student (or a total of about Z\$10 million) be set aside and placed in a regional school improvement fund, to be used for increased school supervision, for targeted assistance to bring up disadvantaged schools on a selective basis, and for additional in-service training etc. for teachers.

8.22 The balance of the Government's secondary school funds would then be allocated to schools on an equal per student basis. Under this proposed system, three types of schools would receive a reduced level of governmental support - Z\$438 less per student in the case of the former Group A schools, Z\$281 less per student in the case of the trust schools, and Z\$161 less per student in the case of the mission schools. The former Group B schools would receive a marginal decrease of Z\$29 per student, while the district council schools would receive an additional amount of Z\$75 per student. In order to

adjust to the reduced amount of governmental financial support, the presently better-financed schools would need to reduce non-salary expenditures or obtain additional resources (from parents through fees or levies). To the extent that these schools could not compensate for the reduced governmental contributions, they would need to replace trained staff with untrained ones - with the trained staff being made available for deployment to presently less well-financed schools. On the other hand, schools now receiving less from the Government than the average expenditure per student - i.e. mainly council schools - would benefit from additional resources which could be used to pay for additional trained teachers and/or for the school to purchase other critical educational inputs. In order to provide increased opportunities for the most capable children in poorer communities to have access to the best schools, however, it is also suggested that a scholarship program be introduced for children in forms 1-4 (with 50 percent of the scholarships being reserved for girls).