



**Consortium for Research on
Educational Access,
Transitions and Equity**

**Expanded Access to Secondary Schooling in
Sub-Saharan Africa:
Key Planning and Finance Issues**

Keith M. Lewin

**CREATE PATHWAYS TO ACCESS
Research Monograph No 8**

June 2007



**University of Sussex
Centre for International Education**



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Educational Access, Transitions & Equity
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The Consortium for Educational Access, Transitions and Equity (CREATE) is a Research Programme Consortium supported by the UK Department for International Development (DFID). Its purpose is to undertake research designed to improve access to basic education in developing countries. It seeks to achieve this through generating new knowledge and encouraging its application through effective communication and dissemination to national and international development agencies, national governments, education and development professionals, non-government organisations and other interested stakeholders.

Access to basic education lies at the heart of development. Lack of educational access, and securely acquired knowledge and skill, is both a part of the definition of poverty, and a means for its diminution. Sustained access to meaningful learning that has value is critical to long term improvements in productivity, the reduction of inter-generational cycles of poverty, demographic transition, preventive health care, the empowerment of women, and reductions in inequality.

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This study was commissioned by the Department for International Development in response to the need to re-examine approaches to long term planning and to investment strategies to expand access to primary and secondary schooling.

The paper draws on analysis undertaken by the Consortium for Research on Access Equity and Transitions (CREATE) <http://www.create-rpc.org>.

List of Acronyms

DFID	Department for International Development
DHS	Domestic Household Survey
EFA	Education For All
FTI	Fast Track Initiative
GDP	Gross Domestic Product
GER1	Primary Gross Enrolment Rate
GER2	Secondary Gross Enrolment Rates
GER2L	Lower Secondary Gross Enrolment Rates
GER2U	Upper Secondary Gross Enrolment Rates
GNP	Gross National Product
GPI	Gender Parity Index
HMT	Her Majesty's Treasury
MDGs	Millennium Development Goals
SEIA	Secondary Education in Africa
SSA	Sub-Saharan Africa
TEVT	Technical Education and Vocational Training
UPE	Universal Primary Education

Preface

This research paper is one of a cluster of CREATE papers which address planning, finance and resource mobilisation questions. It specifically addresses questions that arise from the newly prioritised concerns to manage the growth of access at secondary level within sustainable resource envelopes. This is becoming a key policy issue through Sub-Saharan Africa and is the subject of several regional conferences and sector planning workshops. The work is closely linked to the World Bank Secondary Education in Africa programme and the Association for Educational Development in Africa (ADEA) thematic group on secondary education.

Professor Keith Lewin
Director of CREATE

Summary

This paper makes the case for managed expansion of secondary schooling in Sub-Saharan Africa. The great majority of secondary age African children remain excluded from access to good quality secondary schooling. Increasing numbers are graduating from primary schools where enrolments are rapidly growing as a result of successful Education for All programmes. The knowledge and skill that secondary schools can provide is central to closing the gap between Sub Saharan Africa and the rest of the world in the capabilities in the labour force that can sustain growth.

The analyses undertaken for the Secondary Education in Africa (SEIA) programme of the World Bank have explored many dimensions of the challenges ahead. This paper complements this work and offers new insights into necessary reforms of policy and practice. It outlines the current status and structure of secondary provision, and the demographic issues that will influence expanded access. It then elaborates some of the key issues facing governments and development partners, and reviews the resources that would be needed to reach different levels of participation. It offers a set of policy options and strategies that can be used to shape managed growth within sustainable financial frameworks.

The analysis indicates that budget shares between educational levels and overall spending on secondary education need to be revisited if higher participation is to be achieved. More than 3.0% of gross national product (GNP) would be needed to achieve gross enrolment rates of 60% at lower secondary and 30% at upper secondary in low enrolment countries with existing cost structures. The costs per pupil have to fall if expanded access is to be sustainable. No countries with ratios of secondary to primary unit costs of more than 3:1 succeed in universalising access to secondary schooling but many countries remain above these levels.

New balances will have to struck between rates of expansion towards enrolment targets at primary, lower and upper secondary levels. Structural changes are needed that can facilitate higher secondary enrolment rates at affordable costs and diminish gender inequities. Better management of the flow of pupils could increase completion rates and lower costs per successful completer. Improved teacher deployment will be critical to successful expansion. Much more access could be provided if norms for pupil-teacher ratios (e.g. 35:1 at lower secondary, and 25:1 at upper secondary) could be applied and if class teacher ratios at secondary level fell from 3:1 to less than 2:1.

Trained teachers will be critical to secondary expansion. Where demand is greatest, and initial training lengthy and expensive, alternative methods will have to be considered which lower costs of training and increase supply. So also will be changes in school management that can provide some incentives to manage human and physical resources efficiently.

Secondary expansion without curriculum reform risks irrelevance and wastage. New populations of school children require curricula that address their needs, respond to changing social and economic circumstances, and recognise resource constraints. Alongside this physical capacity needs planned expansion in ways that optimise increased access.

Expanded secondary access will benefit greatly from successful mechanisms to generate support from the communities that schools serve. There are many possible methods of cost-sharing and cost-recovery that can and should be facilitated. These need to be linked to the

capacity of households to support fees and contributions so that they do not become exclusionary. Partnerships with non-government providers can make some contribution to expanded access. However, they are most likely to play a complementary role since they are unlikely to be the providers of last resort to those otherwise excluded by location, household income, or low achievement.

Expanding Access to Secondary Schooling in Sub Saharan Africa: Key Planning and Finance Issues

1. Introduction

Achieving Education for All (EFA) and the Millennium Development Goals (MDGs) requires expanded access to secondary schooling. This is evident from the expression of the targets and goals (see Annex 1). Many Sub Saharan Africa (SSA) governments are now placing policy priority on expanded access to a full cycle of basic education including lower secondary, and on economic growth strategies that require human resources with knowledge and skill above primary level. This reflects the socio-political realities of much larger numbers of children graduating from primary schools seeking secondary places and the systemic need to increase secondary output to provide a large-enough pool from which primary teachers can be recruited and trained. Many African countries have seen the gap between the proportion of secondary graduates in their labour forces and those in other parts of the world increase with implications for competitiveness and the economic growth needed to sustain high levels of enrolment from domestic revenue. Over 70 million children of secondary school age appear to have no access to secondary schooling in SSA, far greater numbers than are excluded from primary. Those excluded are overwhelmingly from poor households and, in some countries, disproportionately girls. Who goes to secondary school, and who completes it successfully is now one of the most important determinants of children's life futures in SSA. Poverty reduction, predicated on higher levels of knowledge and skill and inter-generational mobility, requires the democratisation of access to secondary schooling. So also do commitments to greater equity, and ambitions to integrate more into the global economy through the production of more knowledge intensive goods and services.

The UK Government (HMT and DFID) is committed to supporting additional investment in post-primary education and has pledged substantial sums to support more aid for secondary expansion and quality improvement¹. This is coupled with the invitation to develop long term and comprehensive education sector development plans up to and beyond 2015. The World Bank will shortly launch the final report of the secondary education in Africa programme² at its Ministerial regional conference in Africa, adding new impetus to its commitment to support the development of secondary schooling. These and other developments set the scene for a new emphasis on balanced educational system investment that can in part address the bottlenecks and missed opportunities that in some countries have led to very low participation rates and stalled growth and reform at secondary level for the last two decades.

Critical to progress will be reforms which restructure costs to levels that allow mass participation. No country with a ratio of secondary to primary costs per student of 5:1 or more succeeds in achieving mass secondary enrolment. Nor do any with secondary costs per pupil of more than 60% of gross domestic product (GDP) per capita. No country succeeds with class teacher ratios at secondary of 3:1 or more. These values are typical of low enrolment SSA countries. Successful high enrolment countries operate systems where the ratio of

¹ See <http://www.dfid.gov.uk/pubs/files/post-primary.pdf>

² See <http://www.worldbank.org/afr/seia/index.htm>

secondary to primary unit costs is less than 2:1; costs per student are less than 30% of GDP per capita, and teacher class ratios are less than 2:1. Without this kind of configuration mass participation is financially unsustainable.

2. What the Paper Does

This monograph focuses on issues that surround the development of secondary schooling in SSA. It first discusses the status and structure of secondary provision, and demographic issues that will influence expanded access. It then offers a new conceptualisation of the challenges facing governments and development partners, and reviews the resources that would be needed to reach different levels of participation. Finally it consolidates the discussion into a set of policy options and strategies. Annexes profile participation patterns, educational structures, growth parameters, gendered enrolments, the costs of achieving higher levels of enrolments, and options for expanded secondary schooling.

The analysis in no sense downgrades the high priority that must continue to be given to consolidating gains in access, participation and completion at primary level and the need to continue to improve quality and learning outcomes where universal primary education (UPE) is yet to be achieved. It does argue strongly that EFA and the MDGs require balanced investment across the education sector which recognises the interactions between levels, the importance of improving the higher level knowledge and skill base in SSA of the labour force, and the pressing needs for learning and pedagogic innovation that can increase relevance and utility to the new students who will enter secondary grades in large numbers.

3. Context

Schools in Sub Saharan Africa (SSA) exclude most of the 93 million children of secondary school age. Less than 25 million are formally enrolled and many of those attend irregularly and fail to complete lower secondary schooling successfully. Less than one third survive to enrol in upper secondary grades. Thirty five SSA countries have secondary Gross Enrolment Rates (GER2) below 40%, and fifteen are below 20%. Participation by wealth and gender is heavily skewed towards high income families and, in low enrolment countries, boys.

The gap in secondary enrolment rates between SSA and other developing regions has increased since 1990. The SSA average GER2 (25%) is now well below that for the Arab States and North Africa (60%), South and South West Asia (52%), East Asia and the Pacific (65%), and Latin America and the Caribbean (83%) and has been widening. This gap is likely to have consequences for competitiveness and economic growth in SSA.

Educational reforms are needed to expand participation in secondary schooling in SSA in affordable ways. These reforms will contribute to poverty reduction through greater levels of knowledge, skill and capability; diminish inequalities in access that limit social mobility and skew income distribution; and make the achievement of the Millennium Development Goals (MDGs) possible.

Increased secondary participation within current cost structures in SSA is severely constrained. The basic arithmetic of the dilemma is straightforward. Typical budgeting patterns in low enrolment countries in SSA allocate relatively small amounts of public expenditure on education to secondary level, sometimes less than 10%. In these countries, where the average GER2 can be less than 15%, increases in secondary level participation to, say, GER2 60% without reforms would require a quadrupling or more of allocations to

secondary. This may be problematic, especially where there are EFA and Fast Track Initiative (FTI) commitments to protect spending on primary.

The ratio of public expenditure per pupil at lower and upper secondary relative to primary across SSA countries averages about 3:1 and 6:1 respectively. The ratios may be several times greater for specialised technical and vocational institutions. Cost-per-pupil at the secondary level in SSA average at least 30% and 60% of GNP per capita for lower and upper secondary. In the SSA countries with the lowest enrolment rates, the cost of a secondary school place may be as much as 100% of GNP per capita and more than 10 times as much as a place at primary school. High unit costs at secondary are accompanied by high dependency rates (the ratio of school age children to working age adults). This compounds the difficulties of financing expansion since it is working age adults who can generate the revenue to finance school places.

These facts mean that substantial reductions increases in access will be difficult to finance in a sustainable way without reforms which change how secondary schooling is delivered and which transform the content of the curriculum to reflect new needs. Relative costs per pupil will have to fall to levels closer to those found in high enrolment countries where secondary places are usually less than twice the cost of primary places. Costs per pupil at lower and upper secondary will need to move towards 20% and 40% of GNP per capita. Investment in secondary schooling as a proportion of national education budgets will have to increase if the development gains associated with expansion are to be achieved.

This does not necessarily mean a reduction in investment at primary level, which must be maintained to support universal access. Country cases differ in terms of how much additional service delivery may be available from efficiency gains, the extent to which subsidies in higher education should be modified, and the extent to which budget growth and external resource flows can and should be directed towards provision at different levels.

4. The Case for Increased Investment at Secondary

Six reasons justify investment in expanded participation at secondary level in much of SSA where enrolment rates are low.

First, the output of primary school systems is set to increase by 200% or more over the next 10 years as UPE and completion is approached. This will create large unmet demand for secondary places with consequences for political stability arising from unmet aspirations and for equity.

Second, the progress towards the MDGs requires UPE. This depends on an adequate flow of qualified secondary graduates into primary teaching which will be compromised where secondary output is small. It also depends on sustained demand for primary schooling which will falter if transition rates into secondary fall. The MDGs commit countries to achieving gender equity in primary and secondary schooling. The evidence from SSA is clear that this is most likely where secondary Gross Enrolment Rates (GER2) exceed 50%, and is rarely achieved where enrolment rates are lower.

Third, HIV and AIDS have decimated the active labour force and undermined prospects for economic growth in some SSA countries. Several studies point to evidence that those with secondary schooling are less at risk than those with lower levels of educational achievement. In other countries conflict has seriously degraded capabilities. In both cases the human capital

that has been lost has to be replenished if prospects for recovery are to bear fruit and this requires more than basic education.

Fourth, poverty reduction will stall unless income distribution improves. Successful completion of secondary schooling is becoming the major mechanism for allocating life chances in much of SSA, acting as a filter for access to better paid livelihoods and occupations. Secondary schooling excludes most children from below the 20th percentile of household income in low enrolment countries. Patterns are strikingly different between countries (see Annex 2). This exclusion must be reversed if national pools of talent are to be fully accessed, equity in educational opportunities is to improve, and social mobility out of poverty is to be available to larger proportions of the population. Primary schooling alone, especially its extension to “the last 20%”, is unlikely in itself to be income redistributing or poverty alleviating for those it reaches, except on the margin.

Fifth, competitiveness, especially in high value-added and knowledge-based sectors of the economy, depends on knowledge, skills and competencies associated with abstract reasoning, analysis, language and communication skills, and the application of science and technology. These are most efficiently acquired through secondary schooling. Greater economic growth is associated with balanced patterns of public educational investment. Those countries which have grown fastest have more balanced patterns of investment across different levels of education than those with heavily skewed distributions, and have higher secondary participation levels at early stages of their growth.

Sixth, curriculum reform at secondary level is essential both because it has been widely neglected and because expanded access will enrol children with different learning needs and capabilities. Increased participation without more relevant, effective and efficient learning and teaching will not be fit for purpose and may create more problems than it solves. Curriculum issues are intimately linked to levels of achievement throughout the primary cycle which remain disappointing and continue to invite effective quality improvement.

5. Structure of School Systems

The education systems in SSA are very diverse, as are the challenges they face in expanding access to secondary schools. Most countries maintain a six year primary cycle, though there is a range of four to eight years. Lower and upper secondary schooling varies in length from two to five years. Typically systems have three or four years of lower secondary and two or three years of upper secondary. Secondary schooling lasts between three and seven years overall. Most commonly the complete school cycle is 12 years (22 cases), but a large number are 13 years long (20 cases). The shortest systems last 11 years (4 cases). An increasing number of countries are moving towards defining lower secondary as part of a basic education cycle lasting nine years (See Annex 3).

In most of SSA the number of children admitted to secondary education is limited by the number of places available and the direct costs of participation to households, not to the numbers who pass primary leaving examinations. Sometimes admission quotas are used (geographic location, ethnic group, gender). Non-government schools generally operate more flexible entrance criteria which are influenced by affiliation in faith based schools, and ability to pay fees in the for-profit private sector. Supply side constraints are most prominent in the lowest enrolment countries. Demand side constraints increase in importance as participation rates grow.

These structural features are significant for participation and costs, and have to be considered in planning reforms. Over-long primary cycles may result in low completion rates; two year lower secondary may not result in substantial learning gains over primary completion; three year upper secondary may be very expensive if highly specialised. Underlying demographic characteristics that will determine how many primary and secondary places are needed in the future for given enrolment rates must also be considered.

6. Demography and Enrolment Growth

The number of school age children in SSA countries is growing on average at about 2% with a variation between minus 1.4% and over 5%. The school age population represents different proportions of the total population in different countries from below 20% to nearly 40%. Demographic transition to low population growth (less than 1%) has occurred in some SSA countries, but high growth (over 3%) has remained in others. In some countries normal patterns have been severely affected by HIV and AIDS and conflict. Annex 4 shows the percentage of school age children in the population and school age population growth rates for SSA countries. The growth rates for the primary school entry age group have been used to estimate overall growth to 2015. The result is that the overall school age population is set to increase from about 207 million to 280 million or by about 35%. Lower secondary age children will increase from about 49.2 million to 66.2 million, and upper secondary from 45.1 million to 60.9 million.

Universal primary education is likely to require a GER1 = 110% in much of SSA to account for repetition and overage enrolment at modest levels. For this to be achieved the number of primary places needs to expand on average by 1.3 times those available in 2001. If the school population continues to grow at current rates the number needed will be 1.8 times greater by 2015. If lower secondary was to enrol 100% of those of official entry age on average 4 times as many places will be needed than were available in 2001, rising to 5.6 times by 2015. For upper secondary enrolments of 100% the figures are 10.9 and 15.5 times. Clearly for many countries levels of 100% lower secondary enrolment are unlikely to be attained without massive (and possibly unrealistic) increases in capacity (see Annex 4).

Increases in enrolments will require many new teachers if pupil-teacher ratios are not to increase rapidly. If pupil-teacher ratios at primary, lower and upper secondary are assumed to be 40:1, 35:1 and 25:1 the annual growth rate in the number of teachers needed is well above 10% for most SSA countries for the next ten years even if modest enrolment rate targets are set of GER2L (lower secondary) = 60% and GER2U (upper secondary) = 30% (see 4). 10% annual increases in teachers needed can generate needs to double or more teacher training output within two or three years since teacher demand is a derivative of the rate of increase in enrolments.

Analysis leads to conclusions that:

The total number of primary places needs to be increased by more than 30% by 2015 in about 70% of the countries in the data set. There are only eleven countries are likely to universalise lower secondary if the maximum sustainable rate of increase in lower secondary enrolments is 10% a year; if the maximum rate is set at 5%, then only five will achieve this goal.

It will be difficult for most countries to hold primary/secondary transition rates constant if all primary entrants complete the last year of primary school. Half the countries in the data set

will not be able to achieve this unless lower secondary enrolments grow at an average of 10% every year to 2015.

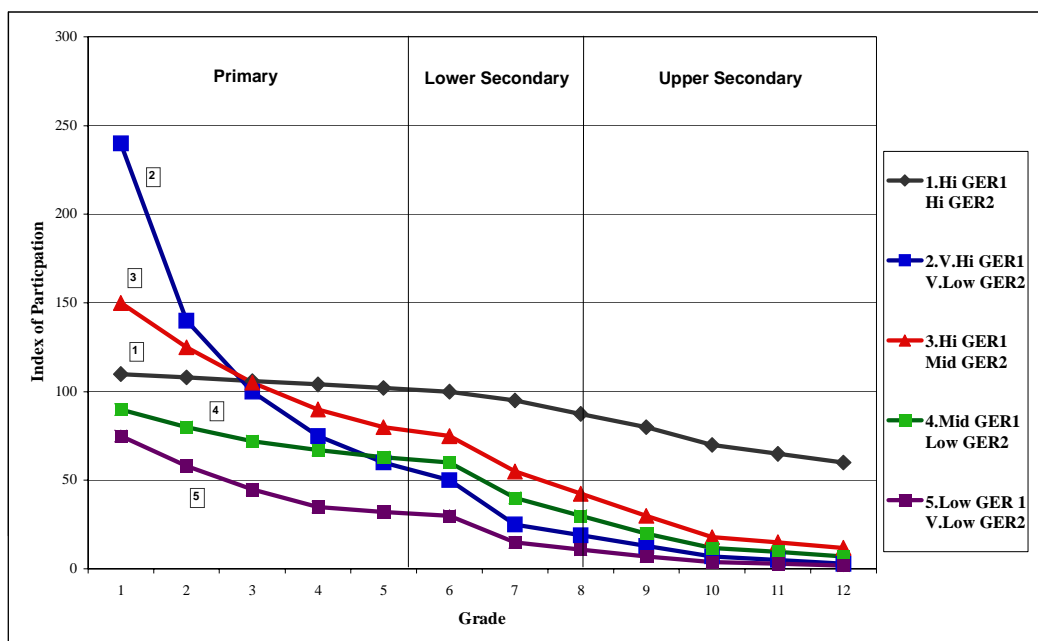
Targets less than GER2L 100% by 2015 may have to be set if they are to be achievable, and these will differ between countries depending on country prioritisation of increased access at primary and secondary levels, the resources available, and the costs of expansion. GER2L can continue to rise if growth is planned to ensure this outcome even if transition rates fall for a period.

7. Conceptualising the Challenge

Strategies for expanding access to secondary depend on existing patterns of participation and the rate of progress towards target levels of enrolment. SSA countries fall into five broad groups in terms of existing patterns of access. These are those with:

1. High participation in primary and secondary, with low rates of repetition and drop out
2. Very high initial enrolment rates in primary, but high drop out and repetition with low completion rates, and falling transition rates into secondary and low participation at secondary
3. High primary entry rates and mid levels of repetition, drop out and completion, with mid range secondary participation
4. Primary entry rates below universal levels, and low primary and secondary enrolment rates
5. Very low primary entry rates and very low participation though primary and secondary school.

A consolidation of these patterns is illustrated in Figure 1 showing how participation falls by grade for each group of countries (see also Annex 7). These patterns are very different and create different starting points for investment. Where the participation index (the number enrolled/the number in the age group for the grade) is around 100% through to grade 9, then most are already enrolled through primary and into lower secondary (Type 1). In Type 2 initial entry is much greater than the number of children of grade 1 age. However participation rapidly falls off such that by grade 6 enrolments are only about 20% of the age group. Type 3 countries have fewer overage pupils in grade 1 and manage to retain more of them through to grade 9 than is the case for Type 2. Type 4 and 5 systems fail to enrol many children in grade 1, and have low and very low participation rates at grade 9. Countries with patterns 4 and 5 may come to resemble pattern 2 if UPE programmes are introduced rapidly. However, ideally, future expansion will not create the exaggerated patterns of Type 2 whereby massive over-enrolment in grade 1 is accompanied by high drop out and little improvement in secondary participation rates. If it does, then the difficulties associated with falling transition rates into secondary will be exacerbated.

Figure 1 Generic Chart of Enrolment Patterns

Gendered enrolment patterns have different characteristics in different SSA countries. It follows that efforts to achieve gender parity at primary and secondary should have different trajectories. Annex 5 shows how in Tanzania girls enrol almost as frequently as boys through to grade 9 despite rapidly dropping participation rates. In Mozambique the proportion of girls falls from grade 1, suggesting differential drop out. In Ghana the same is true though the rate of deterioration is slower. In Tanzania the enrolment curve is above the age group curve until grade 4, and in Mozambique until grade 3, indicating high entry rates and high drop out, though this appears to be changing in Tanzania as a result of UPE. In Ghana the enrolment always appears to be below the age group curve.

In general gender parity at secondary level is only achieved where GER2 exceeds 50% in SSA. In most cases gender disparities in favour of boys are greater at secondary than primary (Annex 6).

In sum, decisions are needed which (i) balance progress on universalising access and completion in primary with the need to increase lower secondary participation; (ii) recognise the interactions between primary and secondary expansion (especially in teacher supply and transition rates); (iii) link upper secondary enrolment growth to labour market needs and those of post school education and training; (iv) identify sustainable frameworks to provide financial resources; and (vi) adopt a differentiated approach to reducing gender differences.

These patterns suggest different policy priorities for countries in different groups. Some indication of possible options is provided below in Figure 2.

Figure 2 A Typology of Challenges for the Expansion of Secondary in SSA

Group	Description	Countries	Prognosis
Group 1	High GER1, High GER2L and GER2U, Low Attrition	Seychelles, South Africa, Botswana, Mauritius, Namibia, Zimbabwe, Swaziland	High participation rates at all levels and low population growth. Mostly higher income. Secondary expansion needed is modest and likely to be well within domestic resources
Group 2	High GER1, Low GER2L and GER2U, High Attrition	Uganda, Rwanda, Malawi, Madagascar, Mozambique, Tanzania	High GER 1 but high attrition through primary grades. Transition rates likely to fall as large numbers of primary entrants flow through to the last grade of primary. Very high rates of secondary expansion needed to maintain transition rates. Financing of secondary expansion problematic even with reforms. More investment in primary quality, reduced repetition, and higher completion needed.
Group 3	High GER1, Mid Range GER2L and GER2U, Mid Range Attrition	Togo, Lesotho, ST + Principe, Nigeria, Benin, Cameroon	High GER 1 with mid range attrition through primary. Difficult to maintain transition rates if primary completion rates increase. Secondary expansion needed to enrol more than 50% through lower secondary. Financing of secondary expansion feasible but requiring reforms
Group 4	Mid Range GER1, Low GER2L and GER2U, Mid Range Attrition	Gambia, Zambia, Kenya, Comoros, Congo, Ghana, Cote d'Ivoire	GER1 below 100 with substantial numbers not enrolling or completing primary. Mid range attrition reflects low initial enrolment, high repetition and drop out. Transition rates mid range but participation in secondary low. Substantial expansion needed to reach 50% in lower secondary. Financing of secondary expansion challenging, and in competition with need for more investment to increase GER1. Strategic focus needed.
Group 5	Low GER1, Very Low GER2L and GER2U, Mid Range Attrition	Guinea, Eritrea, Ethiopia, Senegal, Mali, Guinea-Bissau, Burundi, Chad, Burkina Faso, Niger	Low GER 1 with most not completing primary. Mid range attrition reflects low entry rates, high repetition and drop out. Transition rates mid range but participation in secondary very low. Massive expansion needed to reach 50% GER in lower secondary. Priority likely to be to finance increased primary participation in advance of modest rates of strategically focused expansion at secondary

8. The Resources Needed

The financial resources needed to support expanded access depend on targets set for desirable enrolment levels. New estimates have been made for this memorandum. If targets for SSA are set at GER1 = 110%, GER2L = 100% and GER2U = 50% this would allow UPE, close to universal enrolment at lower secondary and greatly enhanced participation in upper secondary by 2015. The cost implications have been modelled for forty five countries using demographic and enrolment data linked to existing primary and secondary school systems. In the first instance costs per pupil have been set at 12%, 30% and 60% of GNP per capita for primary, lower and upper secondary respectively which are close to SSA averages. The costs of higher education and other education sub-sectors are not available in comparable forms across countries. An assumption has been made that these costs account on average for 20% of total public expenditure.

On average 2.3%, 2.6% and 2.0% of GNP per capita is needed to support primary, lower and upper secondary schooling at the projected enrolment rates across low income SSA. This is equivalent to about \$3.7, \$4.1 billion and \$3.3 billion per year in 2002 rising to \$5.0, \$5.4 billion and \$4.5 billion by 2015³.

Total expenditure on education would need to be about 8.6% of GNP on average to sustain systems with GER1=110%, GER2L=100% and GER2U=50% in low-income SSA. This is equivalent to about \$13.9 billion rising to \$18.5 billion per year by 2015.

³ Constant 2002 USD and including population growth of school age children.

Overall current educational expenditure in low-income SSA appears to average about 3.9% of GNP equivalent to \$6.4 billion for countries with GNP per capita below \$1,500. This is about \$7.5 billion (at 2002 prices) less than is needed to sustain systems with the targeted higher enrolment rates. More than 70% of this is accounted for by Nigeria, Cameroon, Uganda, Tanzania, Angola, Cote d'Ivoire, Madagascar and Senegal.

If recurrent costs per pupil could be reduced to 12%, 20% and 40% of GNP per capita through packages of reforms the amounts needed for education would fall to about 6.3% of GNP and the recurrent shortfall to about \$3.8 billion per year. These lower cost levels imply dramatic reductions in expenditure per pupil at secondary over current levels, especially in low enrolment countries. Efficiency gains of this magnitude would take several years to achieve and may be beyond reach in the short term.

If lower targets are used of GER1=110%, GER2L=60% and GER2U=30% then 6.3% of GNP would be needed for unreformed systems and 4.8% for systems adopting the lower unit costs. Annex 8 shows these results.

This method of indicating the recurrent financial resources needed compares what would be necessary with what is currently allocated in aggregate. Individual countries may not be allocating resources to primary, secondary and higher education in the proportions they need to achieve GER1 = 110%, GER2L = 100%, and GER2U = 50%. In the data set nine countries are already spending as much or more than they need to support these outcomes but are not all achieving them for this reason.

These costs are for recurrent expenditure only. The development costs needed across SSA to support expanded enrolment lie largely in the construction of buildings and classrooms. Classroom building costs vary greatly. If illustrative costs of \$10,000, \$15,000 and \$20,000 are used for primary, lower and upper secondary respectively and class sizes are targeted on 40:1, 35:1 and 25:1 costs can be estimated. To achieve GER1=110%, GER2L=100% and GER2U=50% would require \$16.9, \$19.9 and \$17.2 billion respectively totalling \$54 billion by 2015, or as much as \$5 billion per year. Building costs might be reduced with community support and competitive procurement. These costs however do not take into account the additional cost of lowering current pupil per classroom ratios where these are high⁴, or of rehabilitation and maintenance of sub-standard facilities.

Other development costs are impossible to estimate without detailed planning of separate systems. If provision of learning materials is regarded as a development expenditure then additional costs could be substantial. In 2001/2 about 25 million pupils were enrolled in secondary in SSA. By 2015 this number would rise to nearly 90 million if GER2L=100% and GER2U=30% were achieved. If four books were provided at an average cost of \$5, books lasted 5 years, and the book per pupil ratio was 1:1, then the cost would be about \$2.5-\$3 billion over ten years. At primary level numbers are projected to rise from about 100 million to 150 million. At \$10 for a set of textbooks per pupil the total needed would be about \$2.0-3.0 billion. These are very rough estimates but give some indication of orders of magnitude. These aggregated costs estimates indicate that maintaining GER1=110% and achieving GER2L=100% and GER2U=50% without lower unit costs will require more than twice as much resource as a percentage of GNP as is currently allocated. This is unrealistic. Lower

⁴ Or increasing utilisation where classrooms are partially occupied.

targets seem more plausible and more likely to be sustainable. The need to reduce unit costs at secondary level is evident. Reducing unit costs at primary level would almost certainly be counter productive.

9. Policy Options and Strategies

There are a wide range of options that could result in more participation at affordable costs⁵. The contribution each option can make is system-specific and depends on starting points, political will, and financial and non-financial constraints on growth. Prioritisation will also be influenced by the existing patterns of enrolment at different levels and the distance that needs to be travelled to reach target enrolment levels by 2015.

Annex 9 summarises policy options that could increase the probability of higher participation at secondary at sustainable costs. Many of these options also apply to improving access and quality at primary level.

Twelve key policy challenges and associated options can be identified which apply to a greater or lesser extent to all lower secondary enrolment countries in SSA.

First, the allocation of national resources to education has to be considered. The analysis indicates that in general expanded secondary enrolment is unlikely to be sustainable unless 6.0% of GNP or more is allocated to education, and at least 2.5% of GNP is available for lower and upper secondary schooling. In countries with longer secondary cycles and higher ratios of secondary costs as a proportion of GNP per capita, substantially more than 3.0% of GNP would be needed to achieve GER2L 60% and GER2U 30% at existing cost levels. More would be needed to universalise lower secondary.

Second, the salary and non-salary costs per pupil of secondary provision have to fall in most of SSA if higher levels of participation are to be financially sustainable. Public costs per pupil need to fall below 30% and 60% of GNP per capita for lower and upper secondary. Levels as low as 20% and 40% of GNP per capita would bring GER2L=100% and GER2U=50% within sight in most countries assuming a budgetary distribution designed to achieve this goal. No countries with ratios of secondary to primary unit costs of more than 3:1 succeed in universalising access to secondary schooling.

Third, a balance has to be struck between rates of expansion towards enrolment targets at primary, lower and upper secondary levels. What is appropriate is a policy choice determined in part by current patterns (especially distance from universalising primary), and partly by domestic prioritisation (especially the choice of expanding lower secondary whilst restricting publicly financed growth at upper secondary and in high cost TVET).

Fourth, structural changes in some countries could facilitate higher secondary enrolment rates at affordable costs and diminish gender inequities. The most important options are reducing elective boarding and/or withdrawing boarding subsidies except where these are essential through progressive transition to more and more day schooling; double shifting where this can

⁵ See: Lewin, K M (2006) *Seeking Secondary Schooling in Sub-Saharan Africa: Strategies for Sustainable Financing*. World Bank, Secondary Education in Africa Programme; and Lewin, K M and Caillods, F (2001). *Financing Secondary Education in Developing Countries; Strategies for Sustainable Growth*. International Institute for Educational Planning, Paris.

reduce constraints on school capacity pending new construction; and careful scrutiny of the cost benefits associated with high cost specialised secondary level schools when compared to general secondary alternatives.

Fifth, better management of the flow of pupils could increase completion rates and lower costs per successful completer. This implies strategic intervention to reduce repetition and drop out, diminish gender differences, lower direct costs to poor households, and review selection and promotion policy related to public examinations.

Sixth, improved teacher deployment is likely to be critical to successful expansion. Much more access could be provided if norms for pupil-teacher ratios (e.g. 35:1 at lower secondary, and 25:1 at upper secondary) could be applied; similarly class teacher ratios at secondary level should be less than 2:1. In both cases variations between schools could be reduced to say +/- 10% of the average, thus improving equity.

Seventh, an increased supply of trained teachers will be critical to secondary expansion. Where demand is greatest, and initial training lengthy and expensive, alternative methods will have to be considered. This will include shortening initial training, making more use of in-service and mixed-mode training, and agreeing appropriate levels of qualification for new secondary teachers that may be different from the past.

Eighth, changes in school management should be considered that provide some incentives to manage human and physical resources efficiently. This can be linked productively with changed methods of school financing that introduce more elements of formula funding, capitation, local accountability, and whole school development strategies.

Ninth, secondary expansion without curriculum reform risks irrelevance and wastage. New populations of school children require curricula that address their needs, respond to changing social and economic circumstances, and recognise resource constraints. Well-designed core curricula, teachable effectively in all schools leading to valued knowledge, skills and competencies, are essential.

Tenth, physical capacity needs planned expansion in ways that optimise increased access. This implies effective school mapping, efficient procurement, and medium term planning of construction programmes for new classrooms and schools.

Eleventh, expanded secondary access will benefit greatly from successful mechanisms to generate support from the communities that schools serve. There are many possible methods of cost-sharing and cost-recovery that can and should be facilitated. These need to be developed. They also need to be linked to the capacity of households to support fees and contributions so that they do not become exclusionary.

Finally, partnerships with non-government providers should be explored to see what contribution they can make to expanded access. There are four central policy questions: First what kind of relationships should be facilitated? Second, how should non-government providers be regulated? Third, to what extent should public subsidies be directed towards which kinds of non-government providers? Fourth, how far down the household income distribution can unsubsidised private providers can offer educational services?

Expanding Access to Secondary Schooling

This agenda of policy responses offers a menu of possibilities that could make expanded access to secondary schooling a reality for African children. Different systems have different starting points and different priorities that will determine which of the options have most relevance. Expansion in the image of existing systems is not an option since it is financially unsustainable and will fall short of providing the quantity, quality and relevance of secondary schooling that Africa's children deserve, and that Africa's parents should expect from their governments.

Appendices

Appendix 1 The Six Dakar Goals and the MDGs

Goals	Comment	Importance of Secondary Education
1. Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children	Post primary education and training is desirable for early childhood carers and educators; increasing the proportion of ECCE staff who are from marginalized groups would benefit from increasing access and participation at secondary level	Medium
2. Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to and complete free and compulsory primary education of good quality	Teacher supply is a major constraint on the achievement of UPE. Primary teachers need secondary level certification. In many low enrolment countries primary teachers are predominantly male. More female role models may be needed. Transition rates to secondary are one determinant of persistence and completion; if they fall this goal will not be achieved	High
3. Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes	Expanded secondary level access to diverse programmes a the major mechanism through which this might be achieved with complementary programmes for those out of school	High
4. Achieving a 50%improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults	If basic education includes lower secondary the access to secondary level provision is implied Secondary level institutions can contribute to access for adults	Medium
5. Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring that girls full and equal access to and achievement in basic education of good quality	Requires expanded access to secondary and gender balanced enrolment. Requires more gender balanced teacher recruitment from secondary level institutions Requires increased transition ratios into secondary	High
6. Improving all aspects of the quality of education and ensuring excellence of all so that recognised and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.	Requires effective secondary level curriculum development and learning and teaching and examination reforms. Needs focus at lower secondary on consolidating basic skills which may not be achieved through primary education	High

Source: Dakar Framework for Action: Education for All; Meeting our Collective Commitments, (2000). UNESCO, Paris.

The Millennium Development Goals

Goals and Targets	Comment	Importance of Secondary Education
<p>Goal 1. Eradicate extreme poverty and hunger Target 1. Halve, by 2015, the proportion of people whose income is less than one dollar a day. Target 2. Halve, by 2015, the proportion of people who suffer from hunger.</p>	<p>Reducing poverty requires economic growth; secondary education contributes to high level human capital. Incomes are associated with educational levels Access to secondary to rural and marginalised groups should raise their incomes Those with secondary education are more likely to have sustainable livelihoods</p>	<p>Medium Medium</p>
<p>Goal 2. Achieve universal primary education Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.</p>	<p>Teacher supply is a major constraint on the achievement of UPE. Primary teachers need secondary level certification. In many low enrolment countries primary teachers are predominantly male. More female role models may be needed. Transition rates to secondary are one determinant of persistence and completion; if they fall this goal will not be achieved</p>	<p>High</p>
<p>Goal 3. Promote gender equality and empower women Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education</p>	<p>Requires expanded access to secondary and gender balanced enrolment. Requires more gender balanced teacher recruitment from secondary level institutions Requires increased transition ratios into secondary</p>	<p>High</p>
<p>Goal 4. Reduce child mortality Target 5. Reduce by two-thirds, by 2015, the under-five mortality rate.</p>	<p>Child mortality is associated with the educational level of mothers and of other family members Health care workers benefit from secondary level education</p>	<p>Medium</p>
<p>Goal 5. Improve maternal health Target 6. Reduce by three-quarters, by 2015, the maternal mortality ratio.</p>	<p>Maternal mortality is associated with the educational level of mothers and of other family members Health care workers benefit from secondary level education</p>	<p>Medium</p>
<p>Goal 6. Combat HIV/AIDS, malaria and other diseases Target 7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS. Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.</p>	<p>Those with secondary education and above are likely to have lower morbidity rates for common diseases Secondary age students, especially girls, enter a period of becoming at risk of HIV/AIDS</p>	<p>High</p>

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<p>Goal 7. Ensure environmental sustainability Target 9. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources. Target 10. Halve by 2015 the proportion of people without sustainable access to safe drinking water. Target 11. By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers.</p>	<p>More educated citizens are more likely to appreciate the issues and trade offs concerned with environmental sustainability</p> <p>They are also more likely to hold rational views of infectious water bourn diseases and their causes</p> <p>Secondary level participation should improve quality of life</p>	<p>Medium</p> <p>Medium</p> <p>Medium</p>
<p>Goal 8. Develop a global partnership for development Target 12. Develop further an open, rule-based, predictable, non-discriminatory trading and financial system. (Includes a commitment to good governance, development, and poverty reduction – both nationally and internationally.) Target 13. Address the special needs of the Idcs. Target 14. Address the special needs of landlocked countries and small island developing States Target 15. Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable Target 16. In co-operation with developing countries, develop and implement strategies for decent and productive work for youth. Target 17. In co-operation with pharmaceutical companies, provide access to affordable essential drugs in developing countries. Target 18. In co-operation with the private sector, make available the benefits of new technologies, especially information and communications.</p>	<p>Markets work better with information and the abstract ability to interpret data which should be acquired at secondary level. Civil society organisations benefit from more educated members</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>Strategies for the creation of jobs frequently require training and skill acquisition. Trainability is enhanced by secondary schooling; work related skills can be taught more easily to those approaching working age</p> <p>-----</p> <p>Information and communication technologies require abstract analytic skills to maintain, to use, and to develop value added applications. Secondary schooling can provide relevant basic skills</p>	<p>Medium</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>High</p> <p>Low</p> <p>High</p>

Interpretation of Appendix 2

Patterns of participation at primary and secondary level are heavily skewed by household income. The Domestic Household Survey (DHS) data sets allow some analysis of these patterns and indicate to what extent poverty marginalises large proportions of populations from participation. Households in these data sets are divided into the richest 20%, and the middle and poorest 40%. Children from the richest 20% of households have on average more than 11 times the chance of reaching grade 9 than those from the poorest 40% of households⁶. Gender is less important in explaining differences in enrolment amongst the richest 20% where boys are more likely to be enrolled in the ratio of 53% to 47%. Amongst the poorest 40% the ratio boys/girls is 79%/21% for participation at grade 9 on average across the data set. Gender differences tend to diminish for higher grades of attendance. Urban children have about 10 times more chance of being enrolled in grade 9 than rural children in the data set.

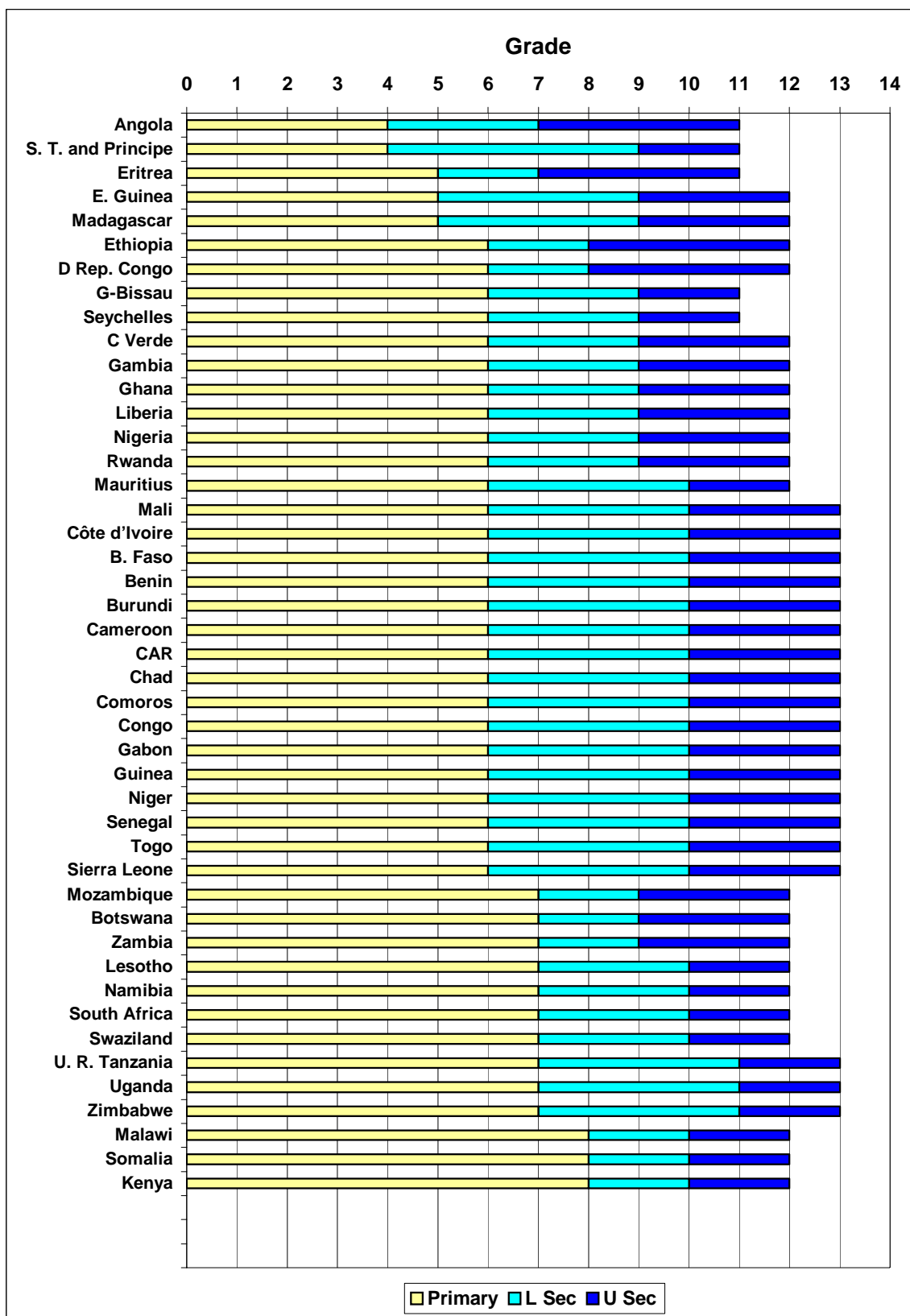
There are very different patterns of participation by wealth and gender between countries. In Ghana differences related to wealth relatively small throughout the primary grades, as are those for gender. Attrition accelerates in the secondary grades and differences increase. In Uganda poor girls seem more disadvantaged than other groups, and wealth differences appear more important than in Ghana, especially at higher grade levels. In Mozambique there are large differences in participation linked to household income from grade 1, and large differences related to gender. Attrition is high throughout the primary grades. In Tanzania rich girls out enrol rich boys but the opposite is true of poor girls. The effects of low transition into secondary grades are very striking. In Rwanda differences in participation between boys and girls are relatively small and remain fairly constant across grade levels and often favour girls. Wealth is a less important determinant of enrolment than in many other countries. In Zambia though wealth is relatively unimportant in grade 1 it becomes much more so in the higher grades of primary and in secondary. Girls and boys are enrolled in nearly equal numbers. In Malawi wealth is important from grade 1 and poor girls appear especially disadvantaged. Attrition in participation is rapid. In Ethiopia the effects of wealth are very strong from grade 1 and attrition much faster amongst those from middle and poor income families. In contrast in Kenya almost all enrol through to the mid primary grades, above which wealth becomes important. Within income groups girls and boys enrol equally.

The different patterns, and their causes, are very important to understand since they define starting points against which to progress towards greater equity. In some cases gender differences are embedded at every grade level, in others the differences are minimal. In all cases household wealth is a significant determinant of participation and is generally more important than gender.

Strategy to expand access to both primary and secondary depends on the nature of participation and the causes of exclusion which differ between countries. The participation profiles and other data indicate that in some cases primary drop out and completion remains a critical problem despite increasing gross enrolment rates. In others primary/secondary transition is a striking problem. Household income is especially important at secondary level since fee paying is common and often exceeds the ability to pay of those below the 20th percentile of household income.

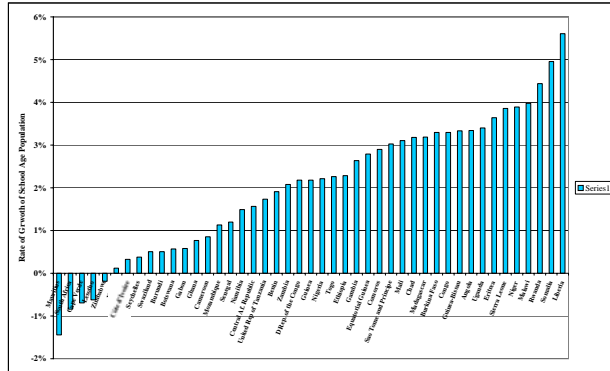
⁶ Based on median values across the 26 countries in the data set for highest level of participation amongst 15-19 year olds.

Appendix 3 Structure of Education Systems in Sub-Saharan Africa

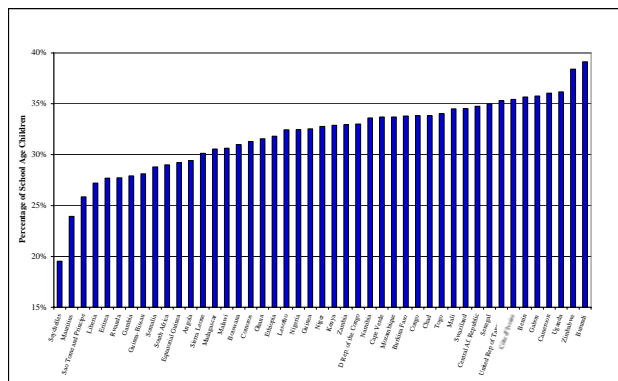


Appendix 4 Some Projections

School Age Population Growth Rates in SSA



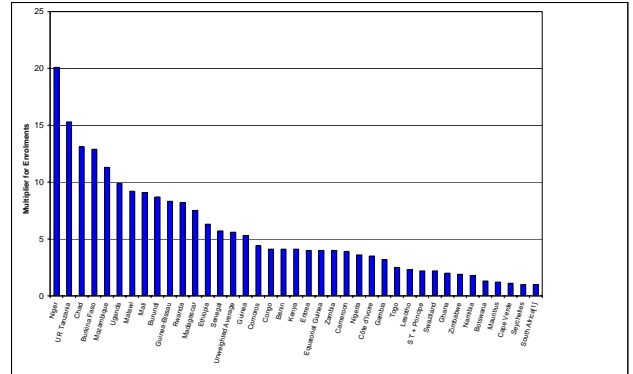
% of School Age Children in the Population



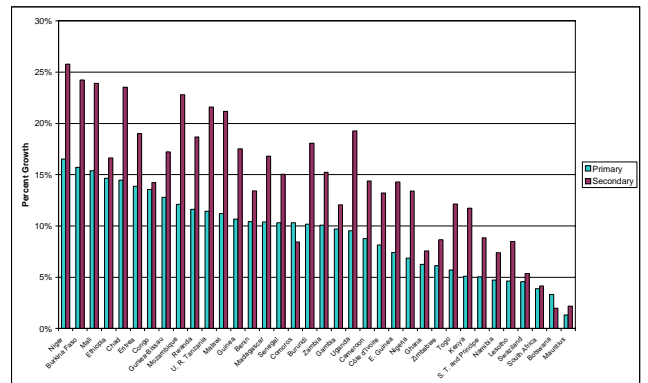
Interpretation

School age population growth rates vary from minus 1% to over 5% p.a. In the latter case the number of children will double in less than 15 years. The % of school age children in the total population varies from under 20% to over 40%. The average is over 30%. In many cases the dependency ratio of children to working age adults will be over 60% and may approach 100%. This limits the extent to which domestic revenue from working age adults can be available to support the costs of schooling either through the tax base or through cost recovery.

Increase Needed in Lower Secondary Places to reach GER2L = 100% for 2015



Annual Growth Rate of Primary and Secondary School Teachers Needed to Achieve GER1 110, GER2L 100% and GER2U 50% in 2015



Interpretation

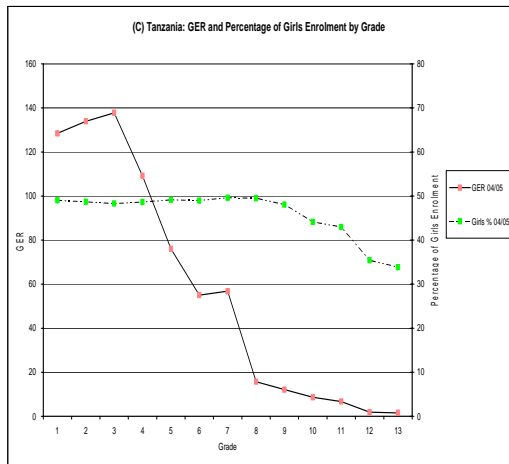
The additional number of places needed to reach GER2L =100% by 2015 varies from about 2 to over 15 times in the lowest enrolment countries with the highest population growth rates. The number of additional teachers needed is a derivative of the growth rate of school enrolments. Primary teachers will need to grow in excess of 10% p.a. and secondary by 15% p.a. in many cases. This requires much greater rates of expansion in training output which may be five or more times current output. This may create bottlenecks arising from capacity constraints and from limited number graduating from

Expanding Access to Secondary Schooling

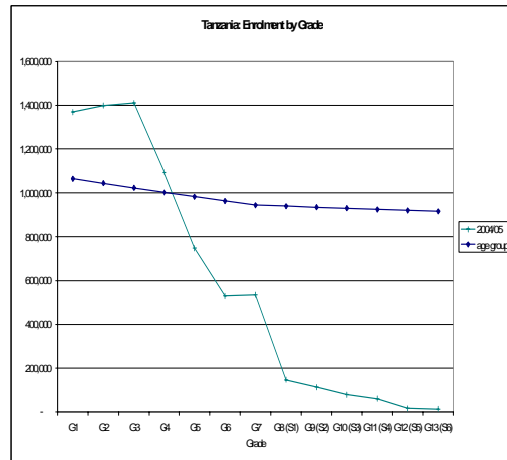
secondary schools willing to become teachers.

Appendix 5 Enrolments by Sex and Age Group

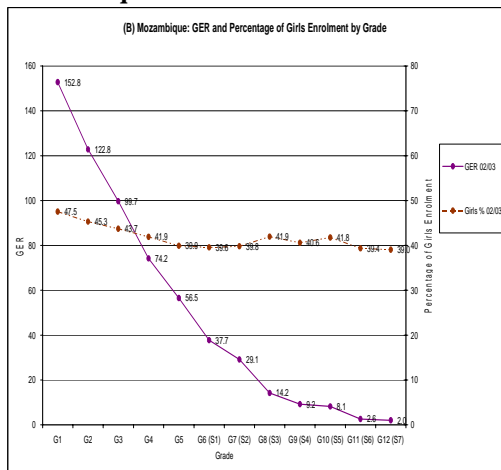
Tanzania 1



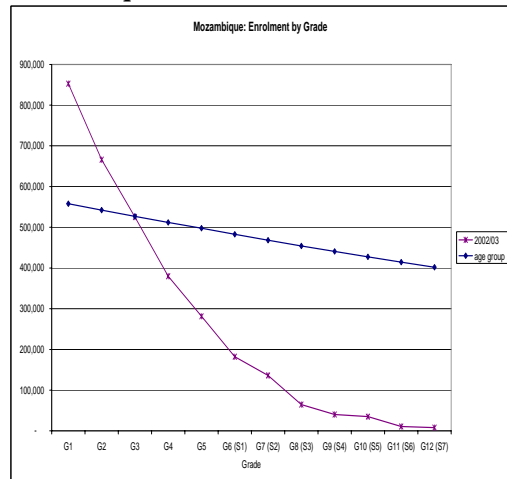
Tanzania 2



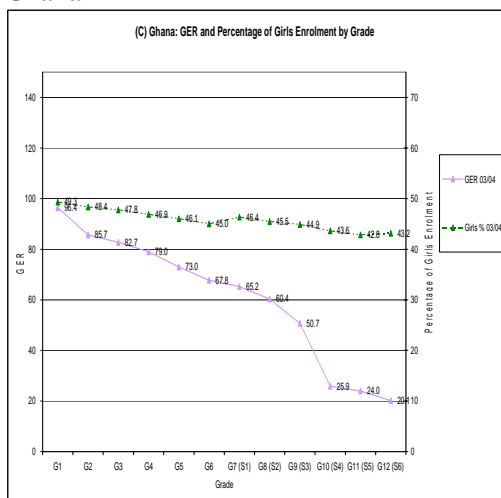
Mozambique 1



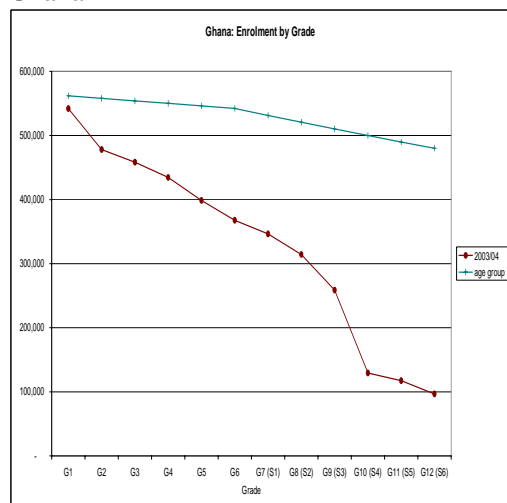
Mozambique 2



Ghana 1



Ghana 2



Interpretation Appendix 5

Gendered enrolment patterns have different characteristics in different SSA countries. It follows that efforts to achieve gender parity at primary and secondary should have different trajectories. At primary level 42% of countries have gender disparities outside the range 47%/53% all in favour of boys. 58% have differences which are smaller. At secondary level 71% of countries are outside this range. In 18% of the cases the difference favours girls. These, however, are high enrolment countries.

In Tanzania (1) effects of UPE can be clearly seen in enrolments in grades 1-3. Attrition from grade 4 reflects previous cohorts and historic attrition rates which should now change. Boys and girls are equally enrolled through to grade 8 (lower secondary). Girls then begin to leave school more frequently than boys. Actual enrolments (Tanzania (2)) are such that up to grade 5 more are enrolled than there are children in the grade/age group. Above this the opposite is true. Many more places will be needed at upper primary if all are to be enrolled through to primary completion, though some of the places will be released in lower grades as over age entry diminishes.

In Mozambique (1) girls leave school more frequently than boys from grade 1. Above primary level girls remain enrolled at a fairly constant ratio. In Mozambique (2) it can be seen that up to grade 3 there are more children enrolled than there are in the age group for each grade. Above this the opposite is true.

In Ghana (1) girls leave school more frequently than boys from grade 1. Their relative position improves slightly at entry to lower secondary (JSS) but then falls again. In Ghana (2) it appears that there are always more children in the grade age group than there are enrolled in school, though this may reflect unreliable population projections. This is a different circumstance than in the other two countries.

The charts indicate that gendered enrolment patterns vary by grade and across countries. In some cases differential attrition is a problem at every grade level, in others only in particular grade ranges. In all cases there is a substantial demand for upper primary places to reach UPE, though some of these may be provided by redistributing space occupied by over age children in lower grades, as the systems reach new equilibrium points.

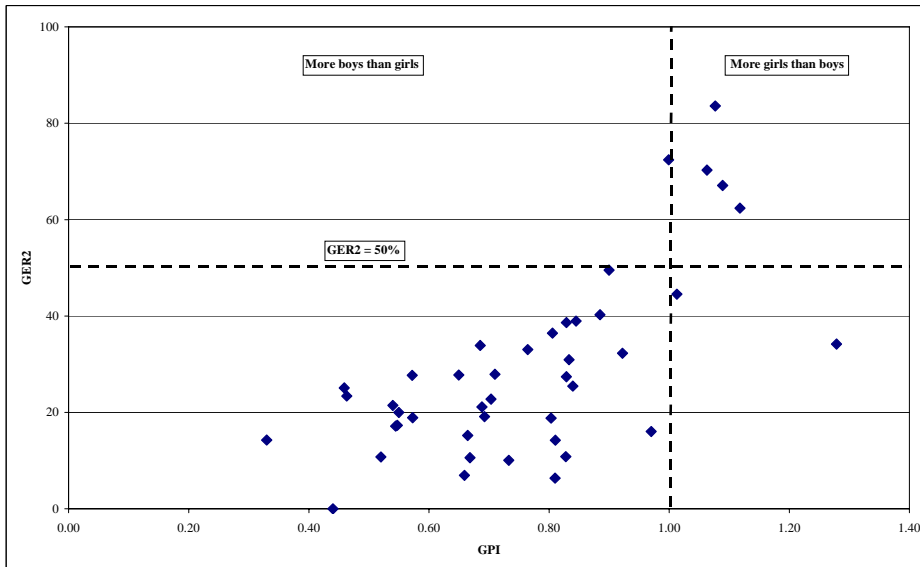
Interpretation Appendix 6 (below)

Very few countries in SSA achieve gender equity at secondary with GER2 below 50%. The ones that do are those with special circumstances (e.g. Lesotho with differential male migration to RSA). All those with GER2 over 50% have more girls than boys enrolled at secondary.

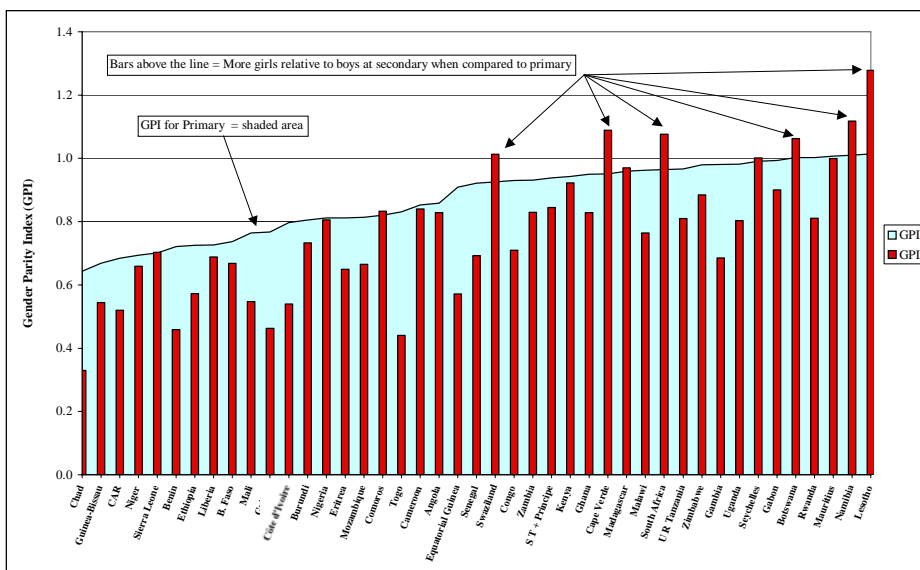
The Gender Parity Index (GPI) is more favourable to girls at primary than at secondary in all but six countries in SSA. These six are generally higher enrolment countries and/or those with special circumstances. GPI primary is not correlated with GPI secondary in a systematic way suggesting a large element of policy choice in the differences. If gender equity at primary and secondary is the goal (MDG3), then the larger differences at secondary need to be addressed. This may be most effectively addressed by increasing overall secondary enrolment rates.

Appendix 6 Gender Disparities

GER2 by Gender Parity Index (GPI)

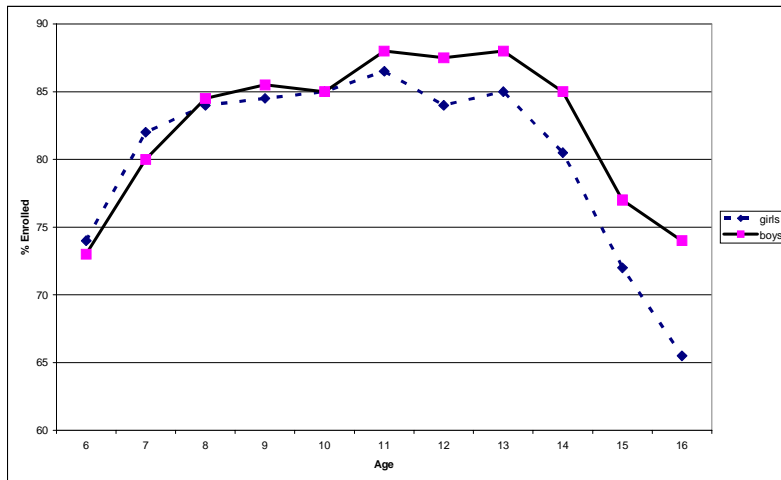


GPI 1 Primary and GPI 2 Secondary by Country

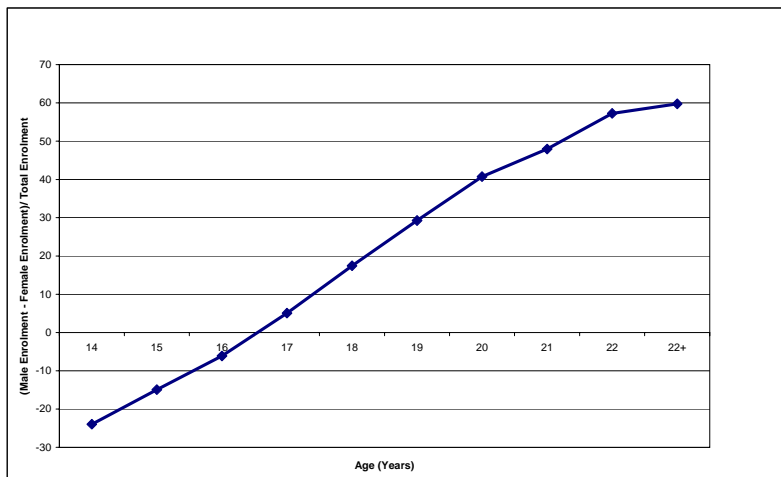


Part of the reason for persistent imbalances in enrolments by gender lies in the different patterns of enrolments of girls and boys. Thus in Ghana household survey data indicates that girls enrol more frequently than boys below the age of 8, but subsequently enrol less frequently in primary schools and drop out at a faster rate. Here it would seem gender parity is partly an issue of retaining older girls in primary school. If all finished by the age of 13 then gender differences in enrolments would diminish, suggesting over age entry and repetition are central parts of the problem. In Tanzania at secondary level there are more girls than boys below the age of 17. After this boys quickly become the majority. If girls graduated from secondary school age the age of 17 it is probably that gender parity would be achieved in secondary.

Enrolment in Primary School by Age – Ghana

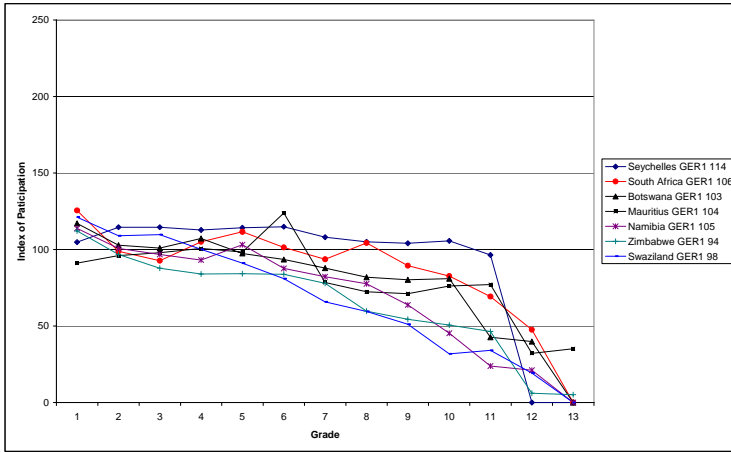


Enrolment in Secondary Schools by Age - Tanzania

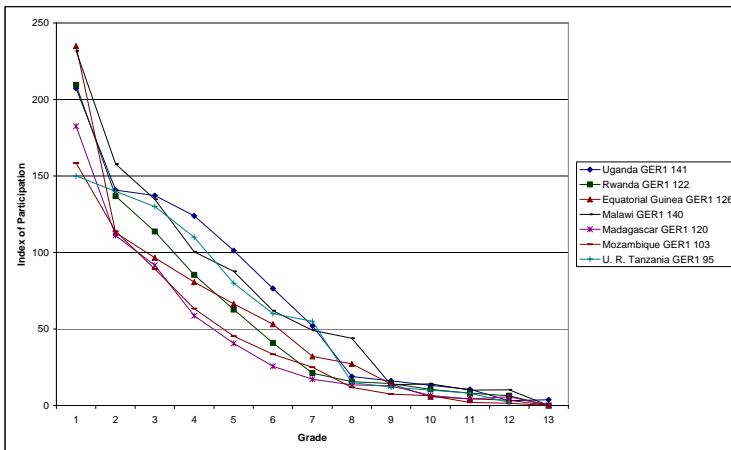


Appendix 7 Typology of Enrolment Patterns

(1) high participation in primary and secondary, low rates of repetition and drop out

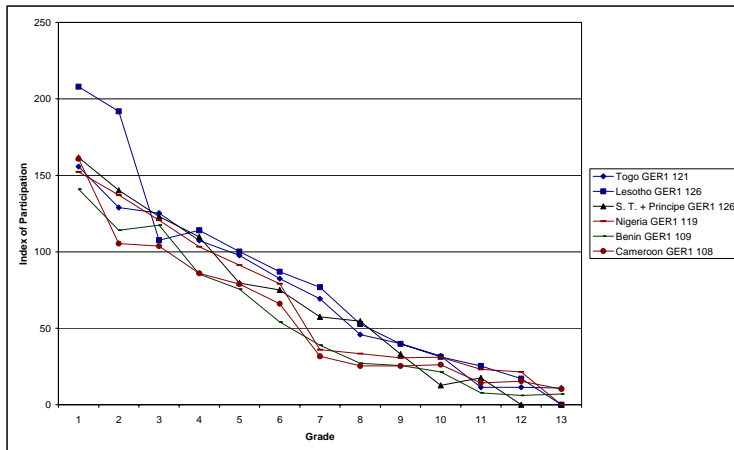


(2) very high initial enrolment rates in primary but high drop out and repetition with low completion rates, falling transition rates and low participation rates in secondary;

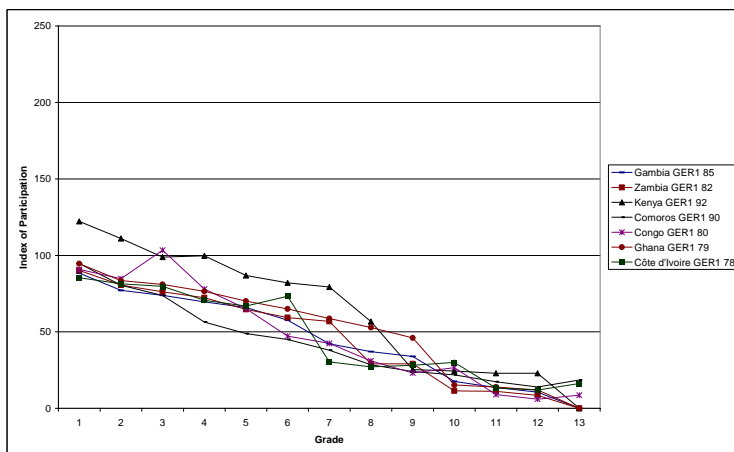


(3) high primary entry rates and mid levels of repetition, drop out and completion, with mid range secondary participation;

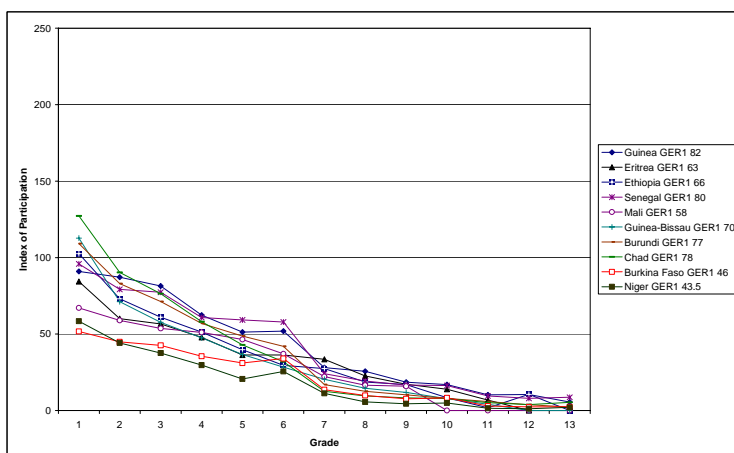
Expanding Access to Secondary Schooling



(4) primary entry rates below universal levels, and low primary and secondary enrolment rates;



(5) very low primary entry rates and very low participation though primary and secondary school.



Appendix 8 Costs of Different Enrolment Targets

GER1=110,GER2L=60,GER2U=30 Scenario 1						
Cost Per Pupil - Primary=12%GNP/Cap; L Sec = 30% GNP/cap; U Sec=60% GNP/Cap, HE+ 20%						
	%GNP Needed 2002	Amount Needed US\$ 2002	Amount needed US\$ 2015	% GNP Available 2002	Amount Available US\$ 2002	Annual Shortfall US\$ 2002
		000	000		000	000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	1.5%	2,432,571	3,221,321			
Upper Secondary	1.2%	2,007,447	2,670,555			
Other incl HE	1.3%	2,046,696	2,711,286			
Total	6.3%	10,233,479	13,556,431	3.9%	6,390,486	3,842,993

GER1=110,GER2L=100,GER2U=50 Scenario 2						
Cost Per Pupil - Primary=12%GNP/Cap; L Sec = 30% GNP/cap; U Sec=60% GNP/Cap, HE+ 20%						
	%GNP Needed 2002	Amount Needed US\$ 2002	Amount needed US\$ 2015	% GNP Available 2002	Amount Available US\$ 2002	Annual Shortfall US\$ 2002
		000	000		000	000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	2.6%	4,054,284	5,368,868			
Upper Secondary	2.0%	3,345,745	4,450,925			
Other incl HE	1.7%	2,786,699	3,693,265			
Total	8.6%	13,933,494	18,466,327	3.9%	6,390,486	7,543,008

Baseline Enrolment Targets, Cost Saving Reforms						
GER1=110,GER2L=60,GER2U=30 Scenario 3						
Cost Per Pupil - Primary=12%GNP/Cap; L Sec = 20% GNP/cap; U Sec=40% GNP/Cap, HE+ = 15%						
	%GNP Needed 2002	Amount Needed US\$ 2002	Amount needed US\$ 2015	% GNP Available 2002	Amount Available US\$ 2002	Annual Shortfall US\$ 2002
		000	000		000	000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	1.0%	1,621,714	2,147,547			
Upper Secondary	0.8%	1,338,298	1,780,370			
Other incl HE	0.7%	1,183,746	1,567,529			
Total	4.8%	7,890,524	10,448,715	3.9%	6,390,486	1,500,037

Higher Enrolment Targets, Cost Saving Reforms						
GER1=110,GER2L=100,GER2U=50 Scenario 4						
Cost Per Pupil - Primary=12%GNP/Cap; L Sec = 20% GNP/cap; U Sec=40% GNP/Cap, HE+ = 15%						
	%GNP Needed 2002	Amount Needed US\$ 2002	Amount needed US\$ 2015	% GNP Available 2002	Amount Available US\$ 2002	Annual Shortfall US\$ 2002
		000	000		000	000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	1.7%	2,702,856	3,579,245			
Upper Secondary	1.3%	2,230,497	2,967,283			
Other incl HE	0.9%	1,532,041	2,029,714			
Total	6.3%	10,212,160	13,529,512	3.9%	6,390,486	3,821,673

Interpretation Appendix 8

A data set of SSA countries with GNP per capita less than \$1500 was used to generate estimates of the costs of reaching target enrolment levels. The table shows the results for GER1=110%, GER2L=60%, GER2U= 30%, and GER1=110%, GER2L=100% and GER2U=50%. In each case existing average unit cost levels as a proportion of GNP are used (primary 12%, lower secondary 30% and upper secondary 60%) and the model is re-run using lower unit costs (primary 12%, lower secondary 20% and upper secondary 40%).

Scenarios 1 and 2 assume unreformed systems with current average costs and 20% allocated to all non school expenditure (including higher education). Scenarios 3 and 4 assume reduced costs in reformed systems with 15% allocated to all non school expenditure.

The results show that between 4.8% and 8.6% of GNP would be needed to sustain these systems. On average SSA countries allocate about 3.9% currently. The implications are that all scenarios require substantial additional funding of the magnitudes indicated (excluding development costs). The most realistic scenario is scenario 3 which is probably within reach of a majority of SSA countries with low enrolments given political will to allocate resources and sufficient external support.

The percentage allocation of the budget between levels implied by the scenarios is shown below. From this it is clear that only scenario 3 approaches the current indicative benchmark of 50% allocated to primary. Though some SSA countries exceed this 50% benchmark they achieve this either by underspending on secondary (i.e. maintaining lower enrolment rates than projected and using large scale cost recovery) and/or by spending less on higher education and other costs.

Mass participation at secondary level is therefore only affordable if secondary unit costs fall relative to GNP per capita. Primary unit costs should not in general fall below 12% of GNP per capita. It is probably unrealistic to assume lower/upper secondary costs of less than 20%/40% of GNP per capita. Reaching these levels would challenge most systems and require fairly radical reforms.

Percentage Budget Allocation Required for Different Scenarios

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Primary	36.6%	26.9%	47.5%	36.7%
Lower Secondary	23.8%	29.1%	20.6%	26.5%
Upper Secondary	19.6%	24.0%	17.0%	21.8%
Other incl HE	20.0%	20.0%	15.0%	15.0%
Total	100.0%	100.0%	100.0%	100.0%

SSA countries have very different budget allocation proportions currently. The model can be used to simulate what would be necessary in each country case to achieve desired enrolment levels. This can then identify the financial gaps that may exist. Since managed expansion requires attention to quality as well as quantity of service provision a parallel analysis is needed of non financial constraints on growth that takes into account e.g. lead times on training and school building, necessary quality inputs, teacher time on task in relation to pupil teacher ratios etc.

Appendix 9 Options for Expanded Secondary Schooling

Topic	Options	Options	Options	Options	Options
Allocation of National Resources	Increase share of GNP for Education where it is low	Increase share of education in public expenditure	Increase allocations to secondary within public expenditure	Increase external contributions to financing education	
Structures	Shorten the length of education cycles where this is 13 years; consider 6:3:3 pattern or 6:4:2	Extend primary schools upwards to cover lower secondary grades	Limit enrolments in high cost technical and vocational secondary schools linked to labour market demand	Increase average school size, especially at secondary level	Phased expansion of lower secondary before growth in upper secondary
	Double shift schools where population density is high	Reduce subsidised non-essential boarding			
School Financing	Review teacher salaries, scales and ratios of salary costs as % GNP	Reduce non-teaching salary budgets where these are excessive	Reduce non-salary costs but protect expenditure on learning materials	Formula based school funding to improve equity and flow of funds to schools	School improvement grants targeted on quality improvement
Improve Flows of Pupils	Reduce repetition to release school places for new entrants, consider automatic promotion	Reduce drop out to increase completion rates, reduce direct costs to households where this is a cause of drop out	Change selection and promotion methods and improving the flow of pupils; Review promotion and selection policy	Improve attendance to 95% or more to maximise learning opportunities	Pro-poor bursaries and scholarships to encourage participation from low income households
Teacher Deployment	Increase pupil teacher ratios where these are low to a maximum of 35:1 at lower secondary and 25:1 at upper secondary	Reduce class teacher ratios where these are high to below 2:1 at secondary level	Reduce variation in pupil teacher ratios and class teacher ratios between schools towards +/- 10% of the average	Increase the proportion of teaching assistants and temporary teachers where these can complement the use of trained teachers, encourage younger teachers to remain in teaching	Include periods of self instruction, peer to peer learning, distance and mixed mode delivery for senior pupils
School Management	Provide incentives to increase efficiency of school management of human and physical resources	Reduce teacher absenteeism to less than 5%	Increase time on task of pupils through effective timetabling and full use of the teaching days in the year	Increase teaching hours in contact with pupils through better timetabling and monitoring of workload norms.	

Expanding Access to Secondary Schooling

Reformed Curricula and Pedagogy; More Learning Materials	Systematic curriculum reform at lower and upper secondary level to increase relevance and teachability	More modularisation of learning, possible use of multi-grade, greater emphasis on outcomes	Develop core curriculum with reduced number of subjects, produce core learning materials at low cost	Develop effective methods to finance and distribute learning materials to meet target text book per pupil ratios for core subjects.	Consider textbook loan schemes and revolving funds to build stock of learning materials.
Restructured Teacher Education	Review teacher training structures to establish if they can meet growing demand at affordable costs.	Decide mix of qualification levels of teachers (completed secondary +? Graduates etc.)	Consider shorter initial training supplemented by in-service support, mixed mode training	Review teacher education curricula for fitness for purpose and decide mix of subject upgrading and pedagogic training	Train teachers to teach several subjects
Construction	Develop procurement system for expanded programme of school and classroom construction	Develop standardised school and classroom designs within affordable costs	Undertake school mapping exercises to locate new secondary schools in areas of need	Identify specifications and needs for specialised facilities especially at upper secondary level	Explore multi use designs for new buildings
Cost Recovery	Review policy on tuition fees at secondary; consider fee waivers and bursaries as an alternative to fee free provision.	Review policy on facilities fees and other levies to establish costs of attendance and need for subsidies to low income house holds.	Consider textbook loan schemes and revolving funds for learning materials	Withdraw subsidies for non essential boarding	Facilitate voluntary fund raising by communities and schools; consider matching grants
	Facilitate contributions in kind to school feeding programmes and labour and materials for construction	Facilitate revenue generating activity where appropriate e.g. sale of goods and services, charges for the use of facilities	Facilitate links with local employers and sponsorship	Consider efficacy of educational taxes	Consider efficacy of loan schemes and micro credit financing
Non Government Providers	Locate non-government providers in secondary development strategy and map contributions they may make to expanded provision for different household income groups.	Review what level and type of facilitation is appropriate for non-government providers (for profit and not for profit)	Decide what regulation is desirable and necessary for non-government providers; identify the costs and benefits	Consider providing access to subsidised and low cost learning material to non-government providers.	Consider extent of access to government services e.g. in-service training, for non-government providers.



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Report summary:

This paper addresses questions that arise from the newly prioritised concerns to manage the growth of access at secondary level within sustainable resource envelopes. This is becoming a key policy issue through Sub-Saharan Africa and is the subject of several regional conferences and sector planning workshops. The work is closely linked to the World Bank Secondary Education in Africa programme and the Association for Educational Development in Africa (ADEA) thematic group on secondary education.

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