Secondary Education in Africa (SEIA)

Main Paper

Beyond Primary Education for All:
Planning and Financing Secondary Education In Africa (SEIA)

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Beyond Primary Education for All:
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(SEIA)

Keith M Lewin

Introduction

Secondary education in Sub Saharan Africa faces several challenges. Most importantly the demand for access is increasing dramatically as primary schooling is universalised, the achievement of the Dakar and Millenium Development goals depends in part on expanded secondary systems, and economic growth is widely believed to be related to knowledge and skill above that provided by basic education alone. Investment in secondary education has been missing link in many recent education development plans.

The need to address the issues that surround the expansion secondary school systems in Africa was voiced strongly by the Executive Secretary of the Association for the Development of Education in Africa (ADEA) at the first Regional Conference on Secondary Education in Africa (SEIA) held in Kampala in June 2003.

“I am convinced that basic education for all is still indisputably a priority for Africa. Nevertheless, the very fact that it is still a priority calls strongly for increased attention and greater efforts with regard to other levels of the system…..Clearly from this perspective secondary education is a leading concern for several reasons… First, basic education is increasingly viewed with a long term vision that would extend compulsory schooling to the age of 16, thus including the first cycle of secondary education. Second, the progress made towards universal primary education directly results in greater pressure on secondary education and heightened demand from pupils and their families in both quantitative and qualitative terms. A third reason is that the continually increased complexity of human existence and the world of work, spurred along by the information society and our knowledge based economy, demand a level of preparation for young Africans that goes far beyond five or six years of primary education. …This is why we advocate a significant expansion of access to secondary education. The African governments and their development partners urgently need to provide proper responses to this need,
or else risk breakdowns and inadequacies that will create social and political tensions and conflicts that will prove increasingly difficult to handle”.

Ndoye 2003

Contributions to this conference, and to the Second Regional Conference on Secondary Education in Africa (Dakar, Senegal, June 2004), clearly indicate the growing importance African Ministries of Education attach to policy for expanded secondary schooling\(^1\). Several countries are now actively developing new policy. Uganda has developed its plans for post primary education and training and agreed these with development partners. Tanzania has reached agreement on the Secondary Education Development Programme which is supported by a loan from the World Bank. Zambia is currently reviewing the secondary sector.

This paper has been prepared for the October 2004 SEIA meeting of donor agencies in Amsterdam focused on “Success in achieving primary EFA in Africa: What are the consequences for donor support in junior and senior secondary education?” with support from the Norwegian Educational Trust Fund. It has four sections. First, it reviews the case for enhanced investment in secondary education systems to support EFA. For some policy systems this case has already been made and accepted, in others it serves as a reminder of why new approaches are needed. Second, the status of secondary schooling is described analytically to chart current issues and problems and draw attention to some cost and finance issues. Third, aspects of planning, costs and finance are discussed and some indications given of the magnitude of the resources needed to support different levels of secondary enrolment in SSA. Two appendices related to this section provide detailed projections for Tanzania and Uganda. Finally, a number of ways forward are outlined which provide an agenda for policy dialogue and the development of strategies for sustainable growth that can support investment in EFA and increase the chances of its achievement.

1. Why Secondary Education?

There are at least nine reasons why it is timely to revisit the issues that surround investment at secondary level in Africa.

**Primary Expansion**

First, the programmes to universalise primary education launched subsequent to the Jomtien and Dakar World Conferences are now leading to rapid increases in the numbers of pupils completing primary school in much of SSA. In Uganda the number of primary school leavers is increasing from 400,000 to over 1 million; in Tanzania, primary school leavers will increase from 450,000 to 1.2 million. In Malawi the numbers will grow from about 200,00 to over 500,000. Existing secondary school systems cannot absorb such large increases without reform and increased resources.

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\(^1\) See [www.worldbank.org/afr/seia](http://www.worldbank.org/afr/seia) for details.
The issues of access to secondary school will become a major political and social preoccupation in those countries with low secondary enrolment rates and successful UPE programmes. Over the last decade secondary enrolment rates have not increased substantially in many of the poorest countries. There has been very limited forward planning to meet the challenges created by rapidly rising demand. Access remains highly unequal both geographically and in terms of the socio-economic backgrounds of those who participate.

**Millenium Development Goals**

Second, expanded access is necessary because the achievement of MDG2 (universalising primary access and completion) and MDG3 (eliminating gender disparities in primary and secondary schools) are both unachievable without expanded post primary enrolment. So also are other MDGs and the Dakar Goals (Annex 1).

MDG2 depends on transition rates to secondary being maintained or increased. If they fall dramatically, retention in upper primary will decrease as it becomes clear that for many there will be no progression to higher educational levels. Transition rates to secondary have been static over the last decade in much of SSA. They are falling where primary enrolment growth has been fastest. This increases the number of schools where no child succeeds in being promoted to secondary. It reduces the chances of achieving high primary completion rates.

MDG2 also depends on an adequate supply of qualified primary teachers (Lewin and Stuart 2003). Quality, achievement and persistence at primary level will suffer without adequate numbers successfully completing secondary schooling and electing to train as teachers, and pupil teacher ratios will remain stubbornly high. Ghana would have to triple its output of primary teachers if it were to reach universal primary completion. Malawi continues to suffer from an insufficient supply of qualified applicants for teacher training as a result of the low output of its secondary system which has meant being forced to accept into primary teacher training candidates with only two years of secondary schooling.

MDG3 (gender equity at primary and secondary) cannot sensibly be achieved without greater enrolments at secondary level. There is only one country in SSA with Gross Enrolment Rates at Secondary (GER2) of less than 50% that has more girls than boys enrolled in secondary. This is Lesotho and migration explains the pattern. All other low enrolment counties have more boys than girls. All of those countries with GER2 greater than 50% have achieved parity or better. Girls, at least as much as boys, need role models to inspire them to continue their education and to reap the personal and social development benefits that this brings. Low GER2s (and hence low transition rates) limit the diffusion of these.

Gender differences in enrolment rates in SSA in favour of boys at secondary level are almost always greater than differences in the same systems at primary, until GER1 approaches or exceeds 100%. Achievement differences between boys and girls also often become more exaggerated at secondary level than at primary. MDG2 implies not only equal participation, but more equal levels of achievement. This is more likely with higher levels of participation.
Altogether there are eight MDGs and eighteen associated targets. At least six of the targets appear to depend directly on enhanced access to secondary schooling (Annex 2). Universalising primary schooling (T3), and gender equity (T4) have been discussed. Halving the proportion of people who live on less than a dollar a day (T1), reversing the spread of HIV (T7), implementing strategies for decent and productive work for youth (T16), and supporting the use of ICTs (T18) would all seem to require secondary schooling to be available to substantial proportions of the population.

HIV/AIDS

Third, HIV/AIDS (MDG6) is damaging prospects for development and has reached epidemic proportions in the worst affected countries. The consequences permeate all aspects of educational development. HIV/AIDS increases morbidity and mortality amongst teachers, creates unprecedented numbers of orphans in and out of school, and suppresses economic growth through its impact on the labour force.

Secondary schooling has special roles to play in influencing informed choice related to sexual behaviour, increasing tolerance and support for those infected, and through the reduced risk associated with higher levels of education. The pandemic is complex. What is known is that seropositive rates generally peak in the mid to late twenties (earlier for young women than young men), rates for secondary school age children tend to be much lower than for those in their early twenties, those with more education tend to have lower rates than those with less, and that teachers (who have higher levels of education than the general population) are in many cases at lower risk than others.

Those in school are less at risk than those out of school (especially females) (Gregson et al 2001:481). HIV prevalence rates are considerably lower among both female and male teenagers who are in rather than out of school in Burundi, Eritrea, Mozambique, Tanzania and Zimbabwe. There may be several mechanisms which generate these outcomes. Whatever the mechanism the simple conclusion is straightforward. Expanded access to secondary schooling, ceteris paribus, should reduce HIV/AIDS infection rates and increase the probability of achieving MDG6. It may also and incidentally reduce teacher mortality and reduce attrition making it more manageable to meet the demand for primary teachers which is central to the achievement of MDG2.

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2 Eight other targets appear to have indirect dependence. These include halving the proportion of those who suffer from hunger (T2), reducing child mortality (T5), improving maternal health (T6), reversing the incidence of malaria (T8), gaining support for sustainable development policies (T9), halving the proportion of people with out access to clean water (T10), improving the lives of slum dwellers (T11), and developing an open, rule based, predictable and non discriminatory trading system (T12). All these outcomes would seem to benefit from increased participation in secondary.

3 Thus in Uganda it appears that rates for those with primary education were nearly double those for those with secondary (AIDS Information Centre, Kampala,2000).

4 E.g. reduced opportunity for casual sex, greater understanding of causes and effects, recognition of safe sex messages, more motivation to remain healthy and invest in the future.
Equity and Mobility

Fourth, poverty reduction has direct links with investment and participation at secondary level. As primary schooling becomes universalised, it will be participation at secondary level that becomes a major determinant of life chances, and a major source of subsequent inequity. Access to, and success in, secondary will continue to be highly correlated with subsequent employment and income distribution patterns. Many groups are marginalized from attendance by high direct costs, absence of schools, and other historic disadvantages. This marginalisation will be increased not reduced if competition for scarce places in secondary increases.

In Tanzania it is likely that households outside the top two deciles of income are simply unable to afford a single child in government secondary schools. Participation rates of the richest 20% of households are more than 20 times those of the poorest 40% of households. In Uganda those from households below the second decile of household income are unlikely to be enrolled (Lewin 2002). In Ghana 40% of entrants to the University of Ghana originated from just 5% of the secondary schools, many of which were high fee paying private schools. The University of Science and Technology admitted 46% of its students from just 8% of relevant secondary schools. These heavily skewed patterns of access appear to be increasing over time (Addae-Mensah 2000).

In all countries on which there is data inequalities of access related to wealth increase by grade level. It is unlikely that any country will succeed in reducing unequal access to secondary without expanding access. Real improvements in the upward social mobility of the poor depend on this. Poverty is in part defined by denial of access to public services. Secondary schooling is a public good which should not be characterized by the exclusion of the disadvantaged. The more limited access, the more likely is this to be a reality

Economic growth

Fifth, national competitiveness, especially in high value added modern sector economic activity, depends on knowledge, skills and competencies associated with abstract reasoning, analysis, language and communication skills, and the applications of science and technology (Lewin 2000). Without this competitiveness, economic growth will stall, government revenues will stagnate, and public educational financing at all levels will problematic. There is much evidence to suggest that those with secondary schooling increase their chances of

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5 It is sometimes argued that investment at post primary level does not directly contribute to reducing poverty, is regresses financed by subsidies for the relatively wealthy, and is therefore not a priority. The reality is complex. The proposition that increased participation in post primary education is not poverty alleviating, or income enhancing, is not generally believed by the poor, who sacrifice disproportionate amounts of their income to have a chance of participating in post primary education. Neither do elites share this view, as evidenced by their general willingness to finance private schooling. If public subsidy is regressive, the solution is not simply to further limit access. More likely than not, this will worsen income distribution and exclusion. A more attractive conclusion is that the goal of poverty reduction will be served if more equitable access can be promoted through reductions of subsidies to the rich in favour of reduced costs of participation for the poor.
formal sector employment and informal sector livelihoods and acquire useful skills from secondary schooling, and that export led growth is associated more with investments at post primary than at primary level (Appleton 2001, Knight and Sabot 1990, Wood and Mayer 1999, Wood and Ridao-Cano 1996).

Recent longitudinal data from Malawi, Tanzania, Uganda and Zimbabwe indicates that the incidence of unemployment amongst university graduates remains very low. Between 1 and 3 percent of graduates in the four countries were unemployed and looking for work, several years after graduating. Unemployment rates were also fairly low amongst secondary school leavers, with the exception of Zimbabwe. Between 5 and 10 per cent of 1990 secondary leavers were unemployed and looking for work in Malawi, Tanzania, and Uganda in 2001, with the majority in wage employment (Al-Samarrai and Bennell 2003). If there are signals of saturation, only a pessimist would take the view that over-education was the diagnosis and restrict access against a backdrop of skill shortages.

Curriculum

Sixth, there are widespread and legitimate concerns that secondary curricula often lack relevance and utility, are embedded in elite traditions of academic schooling unsuited to mass systems, use outmoded pedagogies, and are dominated by the narrow requirements of high stakes selection examinations, rather than led by demand related to livelihoods, jobs and social priorities. To the extent this is true it is a confirmation of the neglect of secondary schooling in the domestic and international policy debate.

In all the poorest countries textbooks and other curriculum materials are in short supply and much learning takes place without access to any printed material. Non salary budget allocations for learning material and to improve textbook quality and availability are often derisory. Few secondary curricula are outcomes based, rather than content driven, and most offer more to those who continue to study than to the majority who exit before or at the end of the cycle.

Critically if secondary is to expand, the characteristics of learners will change, and what they learn may need redefinition. Most secondary systems are ill prepared for the transition and remain embedded in modes of learning and conceptualisations of secondary schooling which are based on limited access by highly selected students, leading to higher education and employment in small modern sectors with a high proportion of public sector jobs. The future looks different. It invites support for strategic curriculum reform that can encourage creative and effective innovations in learning and teaching, new methods of assessment capable of capturing valued learning outcomes, and selection of content and thinking skills that are more rather than less relevant for entrants to diverse labour markets, and relevant to a much broader range of learners. This is most true in relation to science and technology, information and communication industries, and for a raft of higher level intellectual, language and social competences that can be traded domestically and internationally. It is at secondary school level that the foundation for relevant competencies can most readily be laid, and where generic thinking skills can be developed.
Post Conflict

Seventh, investment in secondary may be especially critical in post conflict situations. The reasons are obvious. Where a generation or more has missed out on secondary schooling, the labour force will be lacking in members with more than basic education. Positions in the infrastructure of government and in productive enterprises, which require analytic skill, will be filled with those lacking formal education and training to an appropriate level. Demobilised militia left with unfulfilled promises of some sort of opportunity to re-enter available employment and livelihoods, may well experience exclusion and feel betrayed, with adverse social consequences.

Costs and Finance

Eighth, increased access and participation at secondary level is unattainable with current cost structures (Lewin and Caillods 2001). The basic arithmetic of the dilemma is simple. Typical national budgeting patterns in low enrolment countries in SSA allocate relatively small amounts of public expenditure on education to secondary level. In Malawi, Tanzania and Ethiopia secondary absorbs less than 10%, and primary 65% or more. In these countries, where the GER at secondary level can be less than 10%, increases in secondary level participation to say GER2 50% would require allocations to increase dramatically. This is unlikely, especially where there are EFA and Fast Track related commitments to protect allocations to primary.

Public expenditure per pupil at secondary level across SSA countries averages about five times that at primary, and is as high as 8 to10 times in some of the lowest enrolment cases. This fact alone means that substantial increases in access will be difficult to finance in a sustainable way. Unit costs will have to fall if the development gains associated with expanded secondary are to be achieved.

There are several options. First, there is scope to increase the proportion of public expenditure allocated to secondary where this is exceptionally low. Where total allocations for secondary are less than those for the tertiary level (the case in several SSA countries) investment patterns may appear unbalanced. Allocations of more than 60% of education budgets to primary also raise questions about what is foregone. Second, efficiency gains could contribute considerably to increased access. Pupil Teacher Ratios can be below 15:1 in low enrolment countries in SSA, and teacher workloads may be as little as 30% of timetable teaching time. Where class teacher ratios exceed 2:1, more could be enrolled with more efficient working practices. Third, selective cost recovery, with appropriate safeguards to protect the participation of the poor, can ease the financial burden of expansion. Fourth, several low enrolment countries in SSA have seen a rapid growth in the numbers of non state providers, though much of this growth has been concentrated in low cost, low quality schools (e.g. Lewin and Sayed 2004, Chimombo et al 2003). Not-for-profit providers (NGOs, faith based organisations) have expanded, alongside for profit providers. The possibilities for the continued expansion of the non-state sector are uncertain (Rose, 2003). At some level of cost, which may be quite low, effective demand softens for reasons of affordability (Lassibille, Tan and Sumra 2000, Lewin and Sayed 2004). In most countries non state providers
are unlikely to open new schools in areas where there is least access, and least ability to support the cost of fees.

**Policy Neglect**

**Ninth**, secondary education is an area of policy neglect. Poverty Reduction Strategy Papers (PRSPs) are being developed for most poor countries. An analysis of 28 PRSPs from SSA confirms that policy on secondary is often at best an afterthought and a residual consideration, and at worst is conspicuous by its absence. More than half these PRSPs devote little or no attention to secondary level issues and identify no targets for secondary. About 25% refer to needs to expand secondary and improve quality but do so without linking developments at secondary level to the competing demands of other levels, or their resource implications. The remainder include some targets related to secondary, most often for increased primary/secondary transition rates. None appear to project costs and necessary budget shares for secondary; nor do they recognise the non financial constraints on secondary expansion.

Problems related to balanced growth across the education sector may be exacerbated by the realities of movement towards Sector Wide planning and the conditionalities placed on development partner assistance. Thus the Fast Track Initiative (FTI) broadly viewed identifies an indicative framework of targets that is focused on primary level indicators e.g. 20% allocation of public expenditure on education, primary to absorb at least 50% of the education budget, Pupil Teacher Ratios at primary of 40:1, non salary costs of 33% of recurrent expenditure, average teachers salaries of 3.5 times per capita GDP and repetition less than 10%. It is largely silent on secondary investment, despite the many ways in which its development interacts with the achievement of FTI goals at the primary level.

For all the reasons listed above policy on secondary needs revisiting. This should not detract from over riding importance of achieving universalised primary education (MDG2) and gender equity (MDG3). Rather, policy on secondary has to be seen as an integral part of strategies to reach these goals, and which also contributes to achieving several of the other MDGs.

**2. A Status Report on Secondary Schooling in SSA**

Secondary school systems exclude most of the population of the secondary school age children in SSA. Sub Saharan Africa has a total population of about 600 million. Of this population about 86 million are of general secondary school age\(^6\). Gross enrolment rates at secondary average 25%\(^7\) (school age population weighted). On this crude basis about 64 million (75%) secondary age pupils are not enrolled across SSA. The proportion of those excluded is likely to be higher than this, since school places are occupied by repeaters. It seems likely that somewhere between 70 and 75 million fail to enrol, or over 80% of the total of secondary school age children.

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\(^6\) Estimated using UNESCO secondary cycle length and UN age specific populations

\(^7\) Derived from EMIS based returns to UNESCO
In summary, the great majority of SSA countries have GER2s below 40%. Fifteen countries have a GER2 of less than 20%, and thirty seven of less than 40%. In the former it is likely that no more than 10% complete secondary successfully, in the latter perhaps 25%. There is a noticeable gap between the seven countries which have GER2 of more than 50%, and the rest.

**Basic Data and Enrolment Rates**

SSA has a variety of patterns of secondary enrolment and enrolment rates. Table 1 provides an overview of the age range of secondary schooling, the size of the age group, numbers enrolled, the proportion of female enrolment, values for Gross Enrolment rates at secondary overall and in lower and upper secondary, transition rates into secondary, primary enrolment rates, GNI/capita and secondary pupil teacher ratios.

Secondary schooling is most commonly between five and six years long. Often the cycle is split in two (lower and upper), with the former lasting two to four years and the latter two or three years (Figure 1). The great majority of SSA countries (75%) define the relevant age group as starting at either 12 or 13 years of age. These patterns of secondary schooling tend to be well established and firmly embedded in particular countries.

There is no simple relationship between GER2s and primary gross enrolment rates (GER1) in SSA (Figure 2). The average unweighted values for GER1 and GER2 are 85% and 28% respectively. Below GER1 = 100 it does seem the case that GER2 is related to GER1 i.e. the greater the level of primary participation the greater enrolment at secondary. For GER1 > 100 this relationship breaks down (see Figure 3). The most likely reason is that some of these countries are those which have been most successful in implementing EFA programmes. Primary enrolments have grown rapidly, without similar large increases in enrolments at secondary level. Malawi, Uganda and Rwanda appear to fit this pattern. In contrast South Africa, Namibia, Mauritius, Botswana and some others have high GER1 and high GER2 reflecting the fact that their systems developed earlier and growth has been more balanced across levels.

GER2 does have some relationship with GDP per capita in SSA. The highest levels of GER2 are found in the richest countries. However this relationship is not very strong for the group of SSA countries with GDP per capita below 400 USD. Figure 4 shows that among the lowest GDP countries there is a variation in GER2 of between less than 10% to over 30%. This suggests that policy choice is significant in these countries in determining participation in secondary education, and there is only a weak relationship between GER2 and GDP per capita.

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8 Based on 45 countries for which there is UNESCO data.

9 In contrast in South Asia all major countries except Pakistan have GER2s of more than 45%. However, the size of their populations means that large numbers are excluded even with these higher enrolment ratios.
Table 1 Basic Data on Secondary Education in SSA

<table>
<thead>
<tr>
<th>Country</th>
<th>School Age Pop</th>
<th>Enrolled</th>
<th>Unenroll ed</th>
<th>GER2 2000</th>
<th>GER2 Lower</th>
<th>GER2 Upper</th>
<th>F/M</th>
<th>Transiti on rate</th>
<th>GER1</th>
<th>GNI/Cap</th>
<th>PTR</th>
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<td>2270</td>
<td>1870</td>
<td>19</td>
<td>24</td>
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<td>740</td>
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<td>197</td>
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<td>41</td>
<td>73</td>
<td>86</td>
<td>52</td>
<td>1.06</td>
<td>96</td>
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<td>3430</td>
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<td>1752</td>
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<td>36</td>
<td>44</td>
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10 UNESCO Institute of Statistics
Figure 3

GER2 by GER1 SSA

Figure 4

GER2 by GDP/Capita (Countries Less than USD 1000) SSA
Gender Differences

In most of SSA more girls than boys are enrolled at secondary level. Figure 5 shows the pattern for the Gender Difference Index (GDI). Over 80% of countries are located in the lower left quadrant indicating they have more boys than girls enrolled. The few countries that have GER2 more than 50%, mostly have gender parity or a preponderance of girls enrolled. Though this is not enough to demonstrate a causal relationship, it does suggest that gender equity is unlikely to be achieved until GER2 exceeds 50% in SSA. GDI favours boys in almost all the countries with GDP per capita of less than 1000 USD. Above this the GDI tends towards parity (Figure 6).

Figure 5

![Figure 5: GER2 by Gender Disparity Index (F/M x 100)](image)

Figure 6

![Figure 6: GDI Secondary by GDP/Capita](image)
The relationship of GDI primary to GDI secondary is illuminating. It shows that secondary GDIs are almost always less favourable to girls than the GDIs for primary. Most cases fall below the line indicating GDI (primary) = GDI (secondary) (Figure 7). Only when GDI primary is close to one (equal participation) does the tendency reverse in favour of girls at secondary level. In terms of participation, girls appear to be more marginalised at secondary level than at primary, amongst the cohorts of children who attend. The total numbers enrolled at secondary are generally much smaller than those at primary, especially where the GDI is least favourable to girls. An implication is that if gender equity is a goal, it has to be tackled at secondary level, as well as at primary. Its achievement is likely to require increased overall participation.

**Figure 7**

**Transition Rates from Primary to Secondary**

Transition rates from primary to secondary appear to have stagnated, and may be falling. The data from DHS surveys illustrates this. Figure 8 shows the crude transition rate (enrolments in the last year of primary divided by enrolments in first year of secondary) averaged across 22 SSA countries. For the older cohorts who were in school over the last 30 years, transition rates grew slowly, but then reached a plateau. For 15-19 year olds, some of whom are still seeking entry to secondary school, transition rates appear substantially lower. Though there is some adjustment upwards to the curve in Figure 7 that will occur as some of those above the age of 15 years succeed in entering secondary schools, it seems unlikely that this will be large enough to cancel out the apparent decline in transition rates amongst the latest group of secondary school age children. If transition rates are
falling the most likely explanations lie in the more rapid growth of primary completers when compared to growth in secondary school places.

Figure 8 also shows that on average urban transition rates are consistently much greater than rural ones, and that urban/rural differences have not been reducing. In strong contrast average differences in transition rates between boys and girls appear to have diminished. Amongst 15-19 year olds these differences on average disappear. This suggests that if differences in enrolment rates at secondary between boys and girls persist they are likely to be in large part the result of fewer girls completing primary, and subsequent differential drop out by older girls. They are generally not the result of differential transition rates, though this may be true in some cases.

**Figure 8**

![Transition Proportions SSA (Average) by Cohort](image)

**Growth in GER2**

Growth in GER2 over the last decade has been slow with some evidence of a quickening pace at the end of the 1990s in some of the SSA countries. South Africa, Mauritius, Cape Verde, Namibia and Botswana are amongst those where participation has been growing and is now high. For the majority of SSA countries GER2 has remained stable or grown by no more than about 1% percentage point a year. Figure 9 shows this. Overall GER2 in SSA appears to have risen from an average of about 21% in 1990 to about 25% by 1998.\(^{11}\)

From the latest DHS data sets\(^{12}\) a slightly different picture emerges (Figure 10). As noted above average enrolment rates of 15-19 year olds were about 13% for

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\(^{11}\) Based on data from the World Bank data set. This may be an over estimate and has yet to show up in available Household Survey data.

\(^{12}\) Data sets are the latest DHS available most of which are between 1997 and 2002
grade 9 level achievement (and in reality somewhat more since some of this population is still in primary school and may succeed in reaching grade 9 before the age of 20 years). The proportions of 20-29, 30-39, and 40-49 year olds who reached grade 9 in the past are 21%, 19% and 13% respectively. This suggests that secondary level participation, proxied by the achievement of grade 9 or better, has improved only very slowly over the last thirty years. If no more than 21% of the current group of 15-19 year olds ultimately achieve grade 9 or better, then it will have stagnated.

Figure 9

![Growth in GER2](image)

Figure 10

![SSA (median) Attainment Proportion by Cohort - All](image)
Participation and Wealth

Patterns of participation at secondary level are heavily skewed by household income. The DHS data sets allow some analysis of these patterns and indicate to what extent poverty marginalises large proportions of populations from participation at the post primary level. For simplicity 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 households. Gender is least 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. Figure 11 shows this.

Participation is also strongly related to location. Figure 12 shows that urban children have about 10 times more chance of being enrolled in grade 9 than rural children. Gender differences diminish for higher grades of attendance.

Figure 11

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13 Based on median values across countries in the data set for highest level of participation amongst 15-19 year olds.
These aggregations conceal very different patterns between countries which must be identified and considered before reaching general conclusions. Some illustrations of this from detailed analysis of the country by country data suggest that, for example, in Mali and Benin it is clear that at all grade levels that the rich rather than those from poor households, and boys rather than girls, are much more likely to be enrolled. In contrast in Tanzania and Uganda rich girls are more likely to be enrolled than rich boys. In Tanzania this is also true of middle income girls. In Uganda there is no difference between middle income girls and boys for grade 9. In Kenya household wealth is the major determinant of enrolment only after grade 4. Here even those with middling levels of wealth are not much better represented than the poorest at higher levels. Zambia has a similar pattern where wealth is again determinant, with a serial decline in rates by household income group. Here gender seems relatively unimportant as a determinant of enrolment (Figures 13-16).
Figure 13

Mali - Participation by Wealth and Gender

Figure 14

Tanzania - Participation by Wealth and Gender
Figure 15

Kenya - Participation by Wealth and Gender

Figure 16

Zambia - Participation by Wealth and Gender
Overview of Insights from the Data

Analysis of data and research and studies on the status of secondary schooling leads to the following observations.

**First**, enrolment rates at secondary level in SSA are substantially independent of primary enrolment levels and of GDP per capita within wide ranges across SSA. The implication is that to a significant extent secondary enrolment rates are influenced by the policy preferences of governments and their development partners.

The major determinants of enrolment rates in publicly provided secondary schooling are public expenditure allocated to secondary as a % of GDP, public unit costs at for secondary as a % of GDP per capita, and the proportion of the population in the relevant age group. The latter is a function of demographic realities which are not under the control of the policy system, and decisions about the structure (length, age range) of secondary provision which are a policy variable.

Analysis of these parameters in different countries leads to evaluations of whether low participation rates are the result of low public commitment to funding, or of excessive unit costs, or of both. Which is the case shapes the policy environment for growth and is discussed further in Section Three.

It needs noting that much secondary schooling in SSA is fee paying. Demand is therefore partly a function of affordability. Where public schools operate at levels of direct cost to households which are high, the constraint may be these costs, rather than those born by government.

**Second**, overall participation rates include those enrolled in the unsubsidised non-government sector. There is a high degree of variation in how significant these enrolments are across countries, and a scarcity of reliable data. There are critical questions that surround the potential for growth of the non-government sector. Affordability is a key issue. In the poorest countries full fee paying institutions employing qualified teachers at normal salary rates generally operate at levels that exclude most beyond the twentieth percentile of household income. Low cost providers, especially those characterised as dwelling house schools and small family run commercial businesses, may provide lower cost schooling. Often they do so outside licensing and regulations frameworks designed to ensure minimum standards, and may offer very low quality as measured by success in public examinations.

Other questions concern the nature and motivation of ownership and financing of private sector non-government providers, and the extent to which their operations interact with public provision. Rapid growth in some countries of small scale providers in the wake of economic liberalisation appears a *prime facie* indication that commercial owners see attractive rates of return. The general unwillingness of
domestic banking systems to finance private school start-ups suggests judgements that the risks are high and default on loans possible.

There is some evidence of destructive interference between private providers and public school systems. This can occur when proprietors have roles in both government and non-government systems, and where public school teachers work simultaneously in government and non-government schools. Local manifestations of the problems are complex, and may or may not be counter productive. Where non-government school growth is a response to declining public school quality as in Ghana and Malawi, there may be grounds for concern about the nature of the interactions.

**Third**, secondary enrolment rates in most of SSA have not increased over the last decade, with the exception of the more developed SSA countries\(^{14}\). Where enrolment rates have been static, the gap between these low enrolment rate countries and the others has widened. Consequentially, differences in the proportion of those in the labour force with completed secondary will also have widened. This is likely to have implications for competitiveness and future economic development.

**Fourth**, transition rates from primary to secondary school have ceased to grow in most of SSA, and may be falling in some cases\(^{15}\). This is clearly the case where GER1 has grown rapidly. Transition rates are strongly differentiated by household wealth, and urban rural residence, and less so by gender.

Transition rate fluctuations can be misleading, and targets associated with transition rates may be flawed. These rates are very sensitive to the numbers of primary completers passing primary leaving examinations and succeeding in gaining access to secondary schools. They may rise or fall independent of gross and net enrolment rates for secondary.

**Fifth**, very few countries in SSA with GER2 less than 50% approach gender parity. Most of those with GER2 greater than 50% have achieved this\(^{16}\). Achieving gender parity with low levels of GER2 may leave untouched exclusion related to household income. It may only be possible through the use of quotas and incentives targeted on girls, which may or may not be equitably accessed. It is clearly not the most attractive strategy.

Gender differences in enrolment rates in favour of boys at secondary level are almost always greater than differences at primary, until GER1 approaches 100% in SSA. Relative exclusion is therefore greater. This diminishes as secondary enrolment rates increase.

Gender differences in enrolment are often age sensitive. As systems develop it appear increasingly likely that transition rates reach or exceed parity, and age specific transition rates begin to favour girls. Increasing proportions of the

\(^{14}\) Unlike in South Asia over the last decade where there have been significant gains in secondary enrolment rates, except in Pakistan.

\(^{15}\) Most obviously where EFA has been most successful in universalising primary schooling.

\(^{16}\) In South Asia GER2 is above 45% wherever gender parity has been achieved.
differences observed between male and female enrolments then become attributable to disproportionate overage enrolment of boys, especially where average ages in secondary are high. If more girls reached secondary grades at younger ages (as a result of reduction in overage enrolment and repetition), gender differences would diminish.

**Sixth**, Wealth is generally a more important determinant of enrolment at secondary than either gender or location (urban rural). Household data sets show this across a large number of SSA cases. Patterns do vary with some cases indicating strong differentiation from Grade one. Most patterns indicate increased differentiation in higher grades, with greater differences for secondary schooling than for primary. Household survey data provides clear evidence of the extent of exclusion of the poor from secondary schooling. Data also indicates that whilst gender differences in participation rates have been diminishing, those associated with wealth have not. Nor has there been much change in SSA in urban rural differences. The latter reflects the fact that in most cases it is likely that the historic geographic disposition of secondary schools has not substantially changed\(^\text{17}\).

**Seventh**, data on curricula, pedagogy and learning materials is not systematically available. What there is suggests secondary curriculum revision has been a low priority in most of SSA. Syllabi and learning materials widely date from periods following independence, and the waves of investment in curriculum development in the 1970s. Learning materials remain in very short supply with several surveys indicating that the majority of learners have no text material available. Secondary teaching material in SSA is commonly expensive, based on imported books and/or domestically produced variants of variable quality, and orientated towards academic outcomes designed for highly selected groups of learners. Strikingly many curricula remain subject based and content driven, with few adopting outcomes based approaches linked to criterion referenced levels of attainment.

**Eighth**, teacher education for secondary schools varies across an enormous range. Many SSA countries retain ambitions to have secondary grades taught by university graduates. In most this is far from a reality, nor is it feasible with expanded provision in the short term. Training programmes at graduate level can be lengthy (four years full time is not uncommon) and there are many problems associated with low rates of take up of initial postings and subsequent attrition related to alternative labour market opportunities for graduates. Costs may be more than those for conventional undergraduates, and much more than for College based training.

Training curricula for secondary teachers are largely unresearched. Casual empiricism suggest that training curricula lag behind the modest rates of secondary school curriculum reform\(^\text{18}\), and many thematic areas of professional practice are at best lightly addressed (large classes, multi-grade teaching, outcome

\(^{17}\) i.e. disproportionate numbers of secondary schools are urban or peri-urban and recruit urban and town children

\(^{18}\) Thus although for example science curricula at lower secondary level are generally integrated, many pre service training systems still retain separate subject science programmes.
based learning, less didactic pedagogies). In Service Training and Continuing Professional Development for secondary may also have suffered relative neglect, especially where emphasis and external funding have been concentrated overwhelmingly on the primary level.

**Ninth,** examination reform, which is intimately linked to curriculum reality where assessment is high stakes, has not received much attention. Most public examination systems have moved towards multiple choice methods of summative assessment which can favour low level cognitive demand questions. Few systems have succeeded in adopting continuous assessment to broaden what is assessed, and therefore what is learned.

Achievement levels are difficult to assess in the absence of criterion referenced tests administered consistently within and across countries. Most poor countries have not taken part in international achievement studies. National examination data often indicates cause for concern in terms of pass rates and raw scores, but these are often not easy to compare over time. If the quality and relevance of secondary are to improve, and selection to be more valid and reliable, more competence based assessment would seem essential. So also is support to maintain the reliability, validity and integrity of national examining systems.

**Tenth** expanded access to secondary has many implications for recurrent financing (Lewin and Caillods 2001). These are both domestic and external. Some of the main dilemmas have been noted above. Secondary schooling in SSA has been relatively expensive both for public expenditure and for households. In several public systems private contributions (i.e. predominantly fees) exceed public subsidies per student. Direct costs to households are at levels that exclude all but the richest in public as well as private systems. Internal efficiency, closely connected with teacher utilisation, is often well below levels found in countries with mass access to secondary schooling, and skews in resource allocation often favour university entrance grades over investment at lower levels. Where community financing has been adopted this can have regressive urban rural characteristics.

Development financing in most low secondary enrolment countries in SSA has been preferentially allocated towards primary schooling, sometimes as a condition for support. This is consistent with the MDG and Dakar commitments. The question is partly whether the budgetary allocation patterns this has produced serve over arching developmental goals. It may be that in some cases the development of secondary school systems has been inhibited to the point where the achievement of the education related MDGs has been adversely affected.
3. Planning, Costs and Finance

Enrolment Rates and Unit Costs

On the basis of the most recent UIS data the number of secondary age children in SSA is about 85.9 million. Of these it appears about 22.5 million are enrolled and 63.4 million are excluded. Very crudely this suggests an overall regional gross enrolment ratio of 26%, which is consistent with other estimates cited.

Table 2 shows SSA countries ranked in order of the number of children of secondary school age who are unenrolled. Most of those not enrolled in secondary school systems are concentrated across the larger, poorer countries. 19 out of 43 SSA countries account for 87% of those not enrolled (average GNI/capita $380). Four countries (Nigeria, Ethiopia, Dem. Rep. Congo and Tanzania) account for 46% of the total (average GNI/capita $340).

Table 3 shows SSA countries ranked by overall Gross Enrolment rate at secondary. 15 countries have GER2 below 20%, and 37 are below GER2 50%. Niger, Burkina Faso, Tanzania, Burundi, Chad, the Central African Republic, Mozambique, Madagascar, and Rwanda stand out as the lowest cases. Mali, Uganda, DR Congo, Ethiopia, Angola and Senegal are in the next group. The high enrolment rate countries are Namibia, Cape Verde, Botswana, Mauritius, South Africa and the Seychelles and these all have GER2s of 79% or more. These countries have a GNI/capita of over $3500 on average.

Data on the unit costs of secondary is incomplete and unreliable. UIS (2004) indicates that average secondary unit costs as a percentage of GDP per capita average 25% to 40% depending on the year taken (based on 10-15 cases in different years). This can be compared with other recent estimates (Mingat 2004) that suggest that unit costs average about 31% of GNP per capita at lower secondary, and 63% at upper secondary.

If these kind of levels are taken as indicative, then for the countries with most unenrolled secondary age children which have a GNI/capita of about $340, the average unit cost would translate into about $100 per student at lower secondary and $220 at upper secondary. Given all the uncertainties of these kind of estimates these seem plausible magnitudes which are consistent with several low income country cases – the overall public unit costs of secondary in Tanzania, Malawi, Rwanda, Uganda and Ghana all fall in the range of $100-$150. The high income countries have greater unit costs but not necessarily greater costs relative to GNI/capita – South Africa’s public unit costs for secondary are about $750 which is about 25% of GNI/capita.

19 The UIS GER2 for Uganda appears to be a substantial under estimate, possibly because it may exclude private enrolments. A more reliable estimate for 2001 was that the GER2 was about 35% if all lower secondary schools were included (Lewin 2003).
Table 2 SSA Countries Listed by Number of Secondary Children Unenrolled (UIS Latest Date)

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<td>1870</td>
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<td>96</td>
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<td>108</td>
<td></td>
<td>116</td>
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</table>
Costs of Additional Enrolment

The additional recurrent costs of enrolling 100% of children of secondary school age in SSA can be roughly estimated on a very simple basis that computes the numbers to be enrolled and multiplies by their average unit costs. If all of the 63 million who are unenrolled were to be enrolled an additional $6.3 billion in annual recurrent expenditure would be needed, assuming average unit costs are about $100 per student. This is more than three times current allocations.

A slightly more informative way of calculating the magnitude of additional resources that might be needed, is to set a more plausible target for secondary enrolment rates – say overall GER2 = 50%. This would be sufficient for GER2 for Lower Secondary to exceed 60%. The amounts needed to support this level of enrolment can then be estimated country by country by multiplying the number of additional places needed by the average unit cost (taken as 0.31% GNI/Capita).

Table 4 shows the result. Across SSA the total additional amounts needed appear to be of the order of $2.3 billion p.a. On this basis DR Congo, Nigeria, Tanzania, Angola, Cote d’Ivoire all require more than $150 million additional each year, and account for about 58% of the total needed.

Classroom building costs in low income SSA appear to average about $10,000. New school building costs are a multiple of the cost of the constituent classrooms to account for land, infrastructure, common facilities, teacher housing etc. The average cost of a classroom in a new school may therefore be three or more times the basic unit cost per classroom. $30,000 would seem a minimum figure for a classroom in a new school. If this is so, then development expenditure requirements to reach GER2 50% would be over $10 billion, assuming half the expansion was in additional classrooms and half in new schools. More than half of the expenditure would be located in the four countries with the largest numbers unenrolled. This development expenditure relates to buildings and facilities that should have a working life of 30-50 years. The costs might be less if community based methods of construction could be used successfully on a large scale.

These simple estimates are based on education systems as currently configured and thus do not account for changes in unit costs that might arise from reforms of structure, curriculum, or working practices or from changes in repetition and dropout rates. Neither do they factor in future growth in numbers of school age children. They cannot show how cost might evolve over time. Nor can they indicate how much additional expenditure might be met from domestic resources, and how much might need external assistance. They also ignore limits to

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20 Reforms are clearly needed since expansion of inefficient, high cost, and ineffective systems would not be desirable, nor sustainable.
21 Rates of growth in the age cohort are less important to demand than rates of successful primary graduation in all but the longer term. The growth in primary graduates in the wake of EFA is not at all smooth in many SSA cases.
22 This depends on how growth is managed and the financial and non financial constraints on its progress.
23 This depends critically on growth in the size of the government budget (linked to changes in their fiscal base), macro-economic growth, budget shares allocated to education in general and secondary in particular, and limits to levels of external budget support that may exist.
effective demand arising from high direct costs\textsuperscript{24}. The only way these things can be established is through costed planning of policy choices made at the country level.

### Table 4  Expansion Needed to Reach GER2 50% and Related Recurrent Costs

<table>
<thead>
<tr>
<th>Country</th>
<th>Multiple of secondary enrolments needed to reach GER2 50% overall</th>
<th>Additional recurrent cost per annum at US$ 100 per secondary student (Millions US$)</th>
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</thead>
<tbody>
<tr>
<td>D Rep. of the Congo</td>
<td>2.8</td>
<td>470.5</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1.8</td>
<td>335.2</td>
</tr>
<tr>
<td>United Rep of Tanzania</td>
<td>5.0</td>
<td>192.1</td>
</tr>
<tr>
<td>Angola</td>
<td>2.6</td>
<td>168.0</td>
</tr>
<tr>
<td>Côte d'Ivoire</td>
<td>2.2</td>
<td>151.7</td>
</tr>
<tr>
<td>Cameroon</td>
<td>1.5</td>
<td>81.7</td>
</tr>
<tr>
<td>Senegal</td>
<td>2.6</td>
<td>80.6</td>
</tr>
<tr>
<td>Uganda</td>
<td>2.9</td>
<td>78.5</td>
</tr>
<tr>
<td>Madagascar</td>
<td>3.6</td>
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</tr>
<tr>
<td>Ethiopia</td>
<td>2.8</td>
<td>74.2</td>
</tr>
<tr>
<td>Mozambique</td>
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<tr>
<td>Guinea</td>
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<td>49.3</td>
</tr>
<tr>
<td>Kenya</td>
<td>1.6</td>
<td>49.3</td>
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<tr>
<td>Mali</td>
<td>3.3</td>
<td>47.8</td>
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<td>Niger</td>
<td>8.3</td>
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<tr>
<td>Ghana</td>
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<td>Chad</td>
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<td>Benin</td>
<td>1.9</td>
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<tr>
<td>Rwanda</td>
<td>3.6</td>
<td>28.0</td>
</tr>
<tr>
<td>Central Af. Republic</td>
<td>4.2</td>
<td>18.1</td>
</tr>
<tr>
<td>Burundi</td>
<td>4.5</td>
<td>13.6</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>1.2</td>
<td>13.0</td>
</tr>
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<td>Liberia</td>
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<td>Comoros</td>
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<td>0.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2342</strong></td>
</tr>
</tbody>
</table>

\textsuperscript{24} High direct costs will exclude poor households from secondary schooling. Subsidies will be needed. This will add substantially to costs
The Determinants of GER2 and a Policy Framework

Gross enrolment rates at secondary level are determined by:

\[ \text{GER2} = \frac{x}{ac} \]

where:
- \( x \) = Public expenditure as a percentage of GNP
- \( c \) = Public recurrent expenditure on secondary schooling per student as a percentage of GNP per Capita
- \( a \) = The proportion of the population of secondary school age

In SSA \( a \) is generally within the range 10%-15% and tends to be closer to 15% in the low enrolment countries. A secondary gross enrolment rate of 50% then requires an average allocation of about 2.3% of GNP to secondary alone (assuming unit costs of 31% of GNP per capita), which is almost double current average allocation to secondary in SSA\(^{25}\). Higher enrolment countries generally have lower relative unit costs for secondary.

Figure 17 profiles different possible cases for values of \( x \), \( c \) and \( \text{GER2} \) with a speculative interpretation of their significance\(^{26}\). Where both \( x \) and \( c \) are low, and \( \text{GER2} \) is low (1), it suggests that there is not much commitment to expanding participation in secondary and that the education budget as a whole is a small proportion of GNP. The most obvious way of expanding access is likely to be to give education in general and secondary in particular more budgetary priority. Where budgetary allocation is low and unit costs high (2) participation will be very low. The implication is that small numbers of students are benefiting from secondary schooling, which ought to be of relatively high quality given its costs. Expansion will be constrained by high unit costs. Where budgetary allocation is high and costs are high (3) participation will also be constrained by costs which need to fall if access is to be expanded. Countries with low allocations to secondary and low public unit costs (4) can have relatively high participation if large proportions of costs are met outside the public budget from community support and through private schooling. This may have equity implications. Where budgetary allocations are high and unit costs low (5) participation should be high but its quality may be questionable.

\(^{25}\) From UIS data
\(^{26}\) See Lewin and Caillods 2001
This framework for analysis gives some insights that can be applied to specific country cases. The framework is not sufficient on its own to guide policy development, but it is illustrative of where problems may lie. It should be noted that:

- Public expenditure on secondary education as a proportion of GNP has to be considered along with the overall allocation to education and the balance between different levels of education (primary, tertiary etc) and administration. It should also take into account secondary level allocations that may be channelled through training budgets of other ministries in addition to the Ministry of Education.

- Whether GER2 is regarded as low or not depends partly on its absolute value, and partly on labour market signals and macroeconomic development strategy. It also depends on what judgements are made about the relative importance of increasing GER1, the primary enrolment rate. If this is already high, the case for increasing GER2 as a priority may be greater than where it GER1 is low. If increased resources for secondary schooling were to draw investment away from primary schooling to the extent that participation diminished it is unlikely to be the best option.

- The relationship between expenditure and enrolment rates will be modified if there are significant amounts of private schooling or private contributions to public institutions. Practice varies so widely that they cannot be included in this framework explicitly.
• Unit costs depend mainly on teacher’s salaries and how teachers are deployed. Differences between countries will partly depend on salaries of comparable groups in the rest of the economy, and on the cost of living for such groups. They will also depend on what are thought to be appropriate and necessary levels for the pupil teacher ratio at secondary and on patterns of school organisation (curricula constraints may lead to large numbers of teachers in small schools to cover all subjects, boarding costs may be substantial etc.).

This framework cannot help make firm judgements about school quality and of the value for money currently delivered by secondary schooling. These judgements must feature in any realistic policy analysis since expanding enrolments or allocating more resources to already inefficient or ineffective school systems is clearly not desirable. Thus where class teacher ratios are unacceptably high, they should be encouraged to fall; where indicators of achievement for particular types of school are unsatisfactory they should not be expanded until the causes are understood and addressed.

**Modelling Expansion**

The crude estimates generated for recurrent and development expenditure are interesting but are of limited value since they depend on average costs (marginal costs of expansion may be less than existing costs, they might conceivably be more depending on where new provision is located), and assume existing structures continue (cycle length, curriculum, teachers salaries, pupil teacher ratios, repetition rates, proportion of boarding etc.). They take no account of how the number of school age children and of qualified primary leavers may grow, how unit costs may change, and how policy on selection, repetition, fees and many other things might affect growth. They simply indicate the additional cost of an expanded system, rather than the evolution of costs year by year related to a programme of managed expansion.

To cost secondary expansion it is necessary to develop clear views on how growth may occur in different countries. In each country some configurations for expansion are possible and others are not. In general we have already noted that universalisation of secondary schooling in a typical SSA low enrolment country is not feasible at existing levels of unit cost. It appears to require resources of the magnitude of 4% of GDP or more – similar to entire education budgets. This only covers the public cost of expansion. Privately born costs are often as much or more than public costs. Even if the public resources were available, poor households would not be able to afford the private costs of public schools as currently configured, and even less the costs of unsubsidised non-state providers. Expanded access thus appears to need reforms which reduce costs relative to GDP per student. It may also need increased subsidies that lower the direct costs to poor households, especially if equity is a concern.

SSA countries allocate on average about 4% of GDP and 18% of public expenditure to the education sector as a whole (UIS data). Within this there is wide variation in the proportions allocated to the secondary sector. In some low secondary enrolment countries this is much less than 1% of GDP (and less than that allocated to higher education though the number of students enrolled is much
greater). If it is low it could be increased. In some countries, conditions on loans and grants ensure that 50% or more of the education budget is allocated to primary education, leaving little headroom to increase allocations to secondary. A number of SSA countries have become more than 50% dependent on external budget support, a level above which some may not wish to proceed. More resources may or may not be available to support secondary expansion from budget reallocation, additional external support, and growth in government revenues. Which are the most realistic possibilities differs greatly from case to case.

The conditions that surround growth in demand for places also vary widely. Different SSA countries are at different points on curves of expansion in the number of primary school leavers seeking access to secondary schooling. Premature expansion could create empty places; alternatively and much more likely, failing to anticipate future growth in primary output will result in rapidly falling transition rates. Some systems continue to use primary leaving examinations to limit admissions to government schools, and employ high stakes promotion examinations which limit flows through secondary schools and generate repetition and drop out. These can act as a constraint on growth if failure rates increase with expansion. So also can the direct costs of secondary schooling which can limit participation to those in the top 20% of household income. So possibly may declining quality. If teacher supply, quality and commitment is insufficient to staff expanded systems and quality falls, effective demand may weaken, especially where direct costs are a significant part of household income.

These observations lead to the conclusion that aggregated modelling of secondary expansion across countries in SSA is unwise and may be misleading. Starting points are too varied, constraints on policy variables are too diverse, and the systems themselves are often complex and differentiated by institutional types, ownership, costs, fees, working practices etc. Moreover, the cross national data sets available are not yet reliable, contain many omissions of key data, and conceal important differences in their aggregations.

It is possible and desirable to model separate systems. This is likely to be the only way to capture their specificity and validate baseline data through sufficient checking at country level. Annex 3 and Annex 4 draw material from two country cases (Tanzania (Lewin 2003) and Uganda (Lewin 2002)) where costed projections of primary graduates have been developed and linked to plans for secondary expansion. In Tanzania this has been undertaken with an expectation of substantial growth in expenditure on secondary schooling financed by the Secondary Education Development Programme of the World Bank. In Uganda the baseline assumption has been of expansion within the resource envelop created by the Medium Term Budget Framework supported by the consortium of development partners. Tanzania starts from a very low enrolment level and wishes to expand rapidly. Uganda has higher participation rates and anticipates more modest growth rates.

In both countries the projections are not driven by the number of primary completers. It was decided that this was not a good basis from which to estimate likely secondary intakes. There are several reasons. First, the shape of the “wave” of primary students who will graduate from primary school is irregular. In both
countries the rate of increase of primary leavers is so steep no conceivable expansion of places in the first year of secondary schools could keep pace in the short term. Transition rates are likely to fall before recovering. Second, enrolment increases in secondary are physically constrained by the number of places available, which will be determined mostly by the rate at which governments create new capacity and employ new teachers. Thirdly, enrolment growth may stall if direct costs exceed household capacity to pay. A better way of projecting growth is to identify rates of growth in secondary entrants that could be sustained and which would result in the achievement of policy goals within affordable budgets.

Various reforms are included in the projections which are designed to improve quality, enhance equity, and increase financial sustainability. These arise from discussions with stakeholders. These are extensively detailed in documentation related to the plans. Common aspects include increases in pupil teacher ratios up to about 30:1, enhanced capitation arrangements, pro-poor bursary schemes, learning material subsidies, curriculum reform to focus on core subjects, more cost efficient and effective teacher education, and support for some specialised institutions especially where the serve disadvantaged populations. Other dimensions are specific to each case.

Some general observations from the modelling include:

- The likelihood that transition rates from primary to secondary will fall before recovering as a result of successful EFA programmes at primary level

- The importance of increases in internal efficiency for greater participation at affordable costs since unit costs must fall if participation is to grow substantially

- The difficulties of reaching and sustaining GER2 much greater than 50% in all but the longer term in much of SSA because of high public and private costs and high dependency ratios

- The importance of understanding admissions and progression policy at secondary level and its consequences for increased participation, repetition and drop out

- The curriculum issues related to expansion which have cost implications (numbers of core and elective subjects, revision in the light of different quality of new learners, implications of language competence where medium of instruction is not the mother tongue)

- The need to invest in affordable learning materials to ensure reasonable access to books etc.

- The need to reduce the uncertainties that surround further expansion of the non-government sector, both for profit and not for profit, especially in relation to its impact on the poor and on government provision
The impact of the affordability of fees and other direct costs on participation in both public and private schools (participation cannot grow at current levels of direct costs where these begin to exceed households ability to pay)

The problems that arise in ensuring a timely and affordable supply of newly qualified teachers (who may require long lead times to train), and the difficulties of retaining them in schools (where graduate attrition rates may exceed 10% p.a.)

The apparent variability of projected construction costs and the difficulties of maintaining control over costs and quality in both community and commercial contracting

The need to identify the scope for shifting budget allocations between sectors, increasing the size of the education budget, and managing cost recovery in ways which are pro-poor.

The “gaps” in funding that can be identified when the projections are run into the future depend on many things, not least the assumptions of growth rates in GDP and the government budget. Gaps related to secondary may be partly covered by surpluses arising in other parts of the education budget (e.g. primary expenditure may grow slower than overall budget growth for a period once universal enrolment has been achieved). Recurrent and development budgets are sometimes vired, with recurrent costs being paid from development budget lines, adding to confusion about how “gaps” may evolve. What is clear is that the gaps and their characteristics need to be identified country by country, and that these gaps will be a constraint on growth in many low enrolment countries.

If higher rates of participation at secondary level are desirable, and if the politics of provision make them almost inevitable, then the simulations can be used to iterate different configurations of cost related parameters to inform policy dialogue and indicate the magnitude of resource constraints and needs for assistance of different kinds. They can also draw attention to some of the non-financial constraints on growth which can limit the pace at which expansion can take place.
4. The Way Forward

The case made for revisiting policy on secondary, and the insights that emerge from analysis of recent patterns of development, lead to the identification of several specific challenges.

**On Policy, Planning and Finance**

The place of investment in secondary in poverty reduction strategies needs to be securely established. It has a role to play through its interactive contributions to the MDGs that relate directly to education, and through the relationships with wealth generation and income distribution. This suggests that:

Sector reviews should seek to include consideration of secondary investment strategies as an integral part of their discussions. This assumes appropriate domestic prioritisation and both sympathetic and realistic dialogues with development partners. It also assumes that PRSPs and will recognise the linkages between secondary investment and more general development objectives.

Strategies for secondary expansion need to be developed which are pro-poor and make more equitable and more efficient use of public resources. There is no general prescription for this since starting conditions in different countries vary widely. However, a combination of new policies are needed where participation rates are low, access is highly skewed to the relatively wealthy, transition rates are likely to fall as the number of primary leavers increases, and where there are indications that existing patterns of provision have high costs related to internal inefficiencies.

Financing the development of secondary is a key issue. Without attention to the resource implications of expanded access MDG targets will be missed and desired outcomes remain elusive. This invites the development of integrated and costed plans for the development of secondary education linked to investment at other levels. Unless these shape Medium Term Expenditure frameworks, and feature in Sector Wide approaches where these are in place, they will not be implemented.

The planning and implementation of such strategies needs to recognise both the quantitative and the qualitative implications of expansion. The former revolve around realistic projections of growth and its consequences for both recurrent and capital investment at levels that can be sustained. Questions for planners include:

- What should be the sub-sectoral allocation patterns that are most likely to result in achievement of the MDGs? How should the competing demands for investment at different levels be resolved?

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27 In some systems lower secondary is already regarded as part of basic education. In others it is seen as beyond this level. Clarity is needed in whether the case made is integral to basic education policy, or stands on its own merits as a necessary complement to investment in basic education.

28 Many budgetary systems have had a strong element of historic and incremental approaches to this question, rather than a strategic approach based on medium term goals.
• How should efficiency gains be achieved that will allow expansion at affordable levels of cost without unacceptable diminution of quality? Which aspects of school funding systems, teacher deployment, and non salary expenditure might be most open to reforms that increase internal efficiency and learning effectiveness?

• How can cost recovery systems be profiled to allow expansion with more equitable participation that is pro-poor? What are the limits of affordability which will constrain effective demand for secondary schooling as those who participate are drawn from lower income households? What options might lessen the limits on access this imposes?

• To what extent are non government providers willing and able to complement publicly subsidised secondary schooling in ways that are pro-poor, based on appraisals of current provision and likely future developments? What mechanisms can or should be used to subsidise non government providers bearing in mind the opportunity costs for public systems?

• How much development expenditure needs to be budgeted to service planned expansion and to replenish stock and infrastructure where these have been under funded in the recent past?

Qualitative improvements concern reforms in the structure, content and process of secondary schooling designed to meet the needs and capabilities of students drawn from a wider range of backgrounds than has historically been the case. These need to recognise that school leavers will enter changing labour markets where new knowledge and skills will be needed, and that majorities will neither find livelihoods and jobs in public sector employment, nor proceed to degree level courses.

The range of possible responses to qualitative concerns is wide. It includes consideration of structures related to cycle length, location, and specialisation. Secondary schooling can and probably should be differentiated after a core cycle has been completed. At some point selection into different curricula tracks may be both necessary and desirable. How this is achieved carries cost and efficiency implications.

It also embraces curriculum issues, pedagogy, learning materials, and assessment and selection systems. These run beyond the scope of this paper. Where ways forward can be defined they need to costed and planned. Without clear understanding of the resource implications reforms may be still born.

**On Targets**

Some target setting for the secondary school cycle is desirable. This should refocus attention on planned development at this level, remind stakeholders of the interdependence of targets at one level on activity at the next, and provoke policy
dialogue that balances ambitions with realistic judgements of what is needed to support growth. Manifestly any targets identified would complement those for primary education systems. Some possibilities are:

- Generate a consensus amongst key stakeholders of useful and measurable indicators for the development of secondary schooling

- Identify plausible targets, different for different systems, which reflect starting points, priorities, political possibilities and resource constraints and which are feasible to achieve over defined time periods taking into account stated priorities across the education sector

- Encourage commitment to the achievement of agreed targets through expression in forms that can be understood by the key stakeholders who have some accountability for outcomes at different levels

- Establish (or include in existing monitoring systems) methods of periodic review of progress linked to the planning cycle

**On Data and Evidenced-Based Policy**

Many aspects of secondary schooling remain informed by inadequate data and lack a robust knowledge base. Improving this situation is a precursor to more evidence based policy. Important analytic needs are for:

- Basic data on patterns of participation in public and non-government institutions disaggregated by household income, gender, residence, and other disadvantaged groups. This should include age and grade specific enrolment rates and given insight into differential drop out, repetition and transition rates at different levels and their causes

- Gender analysis of enrolments, achievement, and social development of learners designed to locate systemic reforms, as well as special programmes, that might improve equity.

- Assessment of the redistributional effects of bursary schemes, quotas and other mechanisms to increase equitable access to secondary schooling

- Achievement data, based wherever possible on criterion referenced assessments of what is learned, by which learners, at which level, with which consequences for selection

- Analysis of secondary curricula to assess relevance, teachability, antecedent assumptions about learners, timetable demand, level of specialisation, prioritisation of core and elective subjects, and desired learning outcomes to assess development needs
• Exploration of the feasibility of more modularised curricula that can mitigate the effects of irregular attendance and seasonality, explore multi-grade approaches to secondary level learning and teaching that recognise wide age ranges and capabilities with the same grade group, and which might offer more effective curriculum implementation in small schools

• Reviews of learning material (e.g. textbooks) availability in quantity and quality related to main subject areas

• Reviews of teacher training supply and demand and methods to establish whether these represent value for money and are capable of meeting expanded demand at affordable costs

• Assessment of secondary teachers’ career trajectories to establish how many teach for how long, and provide insight into attrition rates arising from different causes with a view to increasing the efficiency and effectiveness of training

• Investigation of constructive and destructive interactions between public and non government providers where these co-exist

• Analysis of secondary teachers’ workloads and working practices designed to identify areas where internal efficiency gains may be possible

• Tracer studies of secondary graduates to determine absorption rates into different types of employment and livelihoods and identify signals of over and under supply, and curricula areas which need reform

• Evaluation of the learning gains and costs associated with uses of information and communications technology in replicable learning environments

Concluding Remark

This paper has reviewed the case for revisiting investment strategies for secondary education in Sub Saharan Africa and identified some of the core challenges. It provides an agenda of items for discussion to shape new approaches to an area of policy that will become more and more important over the next decade. The case made is that the MDG and Dakar goals will only be met through a balanced approach that recognises that investment above the primary school level interacts with the development of universal primary policies, that gender equity is more likely with higher rates of participation at secondary level, and that finance and cost structures for secondary invite reform if there is to be much prospect of mass participation in SSA. More generally the sustainability of EFA will depend on economic growth, and this is more likely with the strategic development of secondary schooling than without it.

In conclusion several points stand out.
• Expanding access to secondary level in low enrolment countries in SSA invites a range of strategies designed to increase policy commitment to the development of the sub-sector, identify critical constraints, and resolve resource issues.

• In some systems much could be achieved through improved internal efficiency that might double enrolments without adding much to overall costs through reductions in unit costs. In other systems, it will be very important to increase the share of the budget that is allocated to secondary schooling.

• Major structural reform at secondary level (e.g. changing the length of cycles, adding lower secondary grades to primary schools) may be an option in some cases but depend on consistent political commitment. Transition costs may be high.

• The direct costs of participation are a constraint on participation throughout SSA; generally they result in the exclusion of most of the poor. Planned expansion should be more rather than less equitable. If so it will have to address questions of affordability. Community initiatives may be able to share the development costs of new schools. They are unlikely to support recurrent costs except in relatively rich communities.

• Non-government providers can and do support a proportion of enrolment secondary level. There are limits to future growth of the sector determined by affordability, by concerns with effective regulation and quality, and with equity. It is unlikely to be the method of choice in expanding participation in most SSA systems to GER2 = 50% or greater.

• Expanded participation requires curriculum development to reflect new goals for an expanded cohort of pupils with different qualities to those selected for secondary schooling in highly selective systems. A focus on a limited core of subjects, movement towards curricula linked to criterion levels of achievement, and an adequate supply of learning materials inappropriate languages are obvious starting points.

• The non-financial constraints to growth may prove definitive. Planned growth that does not undermine quality depends on new and expanded physical facilities appropriately located, an adequate supply of trained teachers, sufficient learning materials, curricula and pedagogy sufficiently attractive to retain pupils, and valid and reliable assessment systems. The lead times associated with overcoming these constraints have to be part of planned growth.

• Greatly increased numbers of primary school graduates seeking admission to secondary schools will become a highly visible feature of the political landscape in SSA. Without a strategic approach transition rates into secondary schooling will fall, access may become less equitable, and sustained EFA will be jeopardised.

• The role and magnitude of external support that should be committed to enhancing participation at secondary level depends on a consensus about the importance of investment in the sub-sector, the length of time over which enrolment goals are to be met, the balance of existing domestic investment between education sub-sectors, and the profile of external assistance from multi and bi-lateral sources.
Globally across SSA sustaining a GER2 of 50% would require more than $2.3 billion a year in addition to current allocations. Less might be needed if efficiency gains were substantial; more might be needed if extending secondary schooling to unserved populations turned out to be much more expensive than current provision. Better estimates of costs are needed which are grounded in data from each system, and are linked to feasible programmes of reform designed to maximise more equitable access and preserve quality.

Participation at secondary level in SSA will grow, and will contribute to achieving the education related MDGs and Dakar Targets. The central issue remains how to finance and manage this growth in ways that are more equitable and efficient, which recognise the non-financial constraints on growth, and that offer the prospect of improved quality, competence and relevance to those who subsequently enter increasingly competitive national and international labour markets.

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Annex 1 The Six Dakar Goals

The Dakar Framework for Action for Education for All identifies six goals. All of these imply the need for systematic policy on access and participation at secondary level, and for sustainable ways of financing development. So also do the Millennium Development Goals.

<table>
<thead>
<tr>
<th>Goals</th>
<th>Comment</th>
<th>Importance of Secondary Education</th>
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<tbody>
<tr>
<td>1. Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children</td>
<td>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</td>
<td>Medium</td>
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<tr>
<td>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</td>
<td>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</td>
<td>High</td>
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<tr>
<td>3. Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes</td>
<td>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</td>
<td>High</td>
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<tr>
<td>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</td>
<td>If basic education includes lower secondary the access to secondary level provision is implied Secondary level institutions can contribute to access for adults</td>
<td>Medium</td>
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<td>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</td>
<td>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</td>
<td>High</td>
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<tr>
<td>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.</td>
<td>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</td>
<td>High</td>
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Dakar Framework for Action: Education for All; Meeting our Collective Commitments. UNESCO; Paris; 2000
## Annex 2. The Millennium Development Goals

<table>
<thead>
<tr>
<th>Goals and Targets</th>
<th>Comment</th>
<th>Importance of Secondary Education</th>
</tr>
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| **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. | 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. | Medium |
| **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. | 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 |
| **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. | 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 |
| **Goal 4. Reduce child mortality**  
**Target 5.** Reduce by two-thirds, by 2015, the under-five mortality rate. | Child mortality is associated with the educational level of mothers and of other family members. Health care workers benefit from secondary level education. | Medium |
| **Goal 5. Improve maternal health**  
**Target 6.** Reduce by three-quarters, by 2015, the maternal mortality ratio. | Maternal mortality is associated with the educational level of mothers and of other family members. Health care workers benefit from secondary level education. | Medium |
| **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. | 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. | High |
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.

More educated citizens are more likely to appreciate the issues and trade-offs concerning environmental sustainability.
They are also more likely to hold rational views of infectious water-borne diseases and their causes.
Secondary level participation should improve quality of life.

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 LDCs.
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.

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.

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.

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.
Annex 3 Tanzania

A Projection Model for Secondary School Expansion has been developed to plan enrolment growth and expenditure. This comprehensive model includes enrolments at primary and secondary level, and uses costs derived from salaries and wages, non-salary allocations, and estimated costs for building and other development expenditure requirements. Enrolments at secondary level will not simply grow at the rate of increase of primary graduates. In the past the flow into government schools as been regulated to reflect the number of places available and this will continue to be the case with expansion. The Model therefore sets rates of expansion for new enrolments in Form 1, and derives subsequent enrolments from this making assumptions about repetition, promotion and drop out rates based on MoEC ambitions to increase internal efficiency and increase GER2. Projected growth rates for the non-government sector are based on estimates derived from analysis of recent expansion and the constraints to further growth that arise from questions of affordability and school location.

The central projections presented below are based on a Medium Growth variant of the model which is judged to be financially sustainable and which responds to the stated intention of the GOT to increase participation rates at secondary level to closer to the average for similar Sub Saharan African countries which is about GER 25%. In 2003 GER secondary in Tanzania appears to be about 7% for government schools and 4% for non government schools.

The Medium Growth variant is designed to be financially sustainable and achieve the highest rates of growth in enrolment compatible with the non financial constraints on expansion which include physical capacity in schools, teacher supply, and levels of student achievement. A variety of reforms are planned to enhance internal efficiency, and to encourage more equitable and pro poor access to opportunity to attend secondary schools.
Assumptions

The main assumptions of the Tanzania Projection Model are:

- The number of primary 7 leavers will grow in line with the flow of current primary enrolments.
- Secondary Form 1 places will grow at a rate determined by the main targets for the participation rate (GER); transition rates will follow a pattern determined by this.
- PSLE Pass Rates will not restrict entry to an expanded secondary school system; the Form II progression examination will not lead to more drop out than it currently does.
- More growth will be in subsidised government schools as the costs of non government education become an obstacle to the enrolment of those below the 20th decile of household income.
- Teacher demand will be projected on the assumption that all new teachers (public and non government) will be qualified at Diploma or Graduate level in similar proportions as currently.
- Costs of teacher training will be advanced over annual demand for new teachers to account for lead times in training.
- Attrition amongst graduate teachers will remain high.
- Primary teacher training will be sufficient to bring PTRs down to 45:1 by 2010.
- The Pupil Teacher ratio in secondary schools will move from about 22:1 to 30:1 by 2010 and remain at this level.

Enrolments

Total enrolments at primary level will grow until about 2008 and then fall until 2012 after which they should grow at the rate of population growth. The numbers reaching the end of primary school will rise sharply from 2005 to 2008. They will then fall until about 2014. There is therefore unlikely to be a smooth growth in demand for secondary school places but rather a sudden increase followed by a period of relative stability. This arises from the current pattern of enrolment growth through the primary grades in the wake of UPE. Currently many are excluded from secondary because they fail to pass the primary school leaving examination. It is assumed that this will cease to be restrictive and that by 2010 most will pass, consistent with UPE policy.
Enrolments at secondary level will be determined by the availability of places in the short term. The model allows increases in Form 1 entrants of about 20% a year over the period until 2008 falling to 10% after 2010. The private sector is assumed to grow at 15% falling to 5% after 2010. Its growth will be constrained by the costs of attendance and the returns to owners. During the period of growth pupil teacher ratios will increase from about 22:1 to 30:1. This will reduce new teacher demand and costs.
Enrolment and Transition Rates

Under this scenario GER2 will grow from about 11% to nearly 40% by 2015 (with a gradual reduction in those outside the official age range). Transition rates will first increase to 35% by 2006, then fall to 23% by 2009, before recovering to nearly 50% by 2015. This cannot be avoided and results from the wave of expanded primary school leavers reaching secondary entrance level.

Figure 22

Gross Enrolment Rates Secondary
(Currently 40% enrolment outside 14-17 years old)

Figure 23

Transition Rates from S7 to Fm I Public and Non Government
Teacher Demand

The number of new teachers needed becomes substantial. It will require a tripling or more of training capacity. Trainees will have to be enrolled between one and three years in advance of demand since this is the proposed length of reformed training (decreased from two to four years to reduce costs and increase supply). Demand is such that new trainees would need to constitute more than 25% of all upper secondary school leavers at peak demand. This may not be realistic given alternate opportunities.

Figure 24

![Additional Teachers Needed - Graduate and Diplomates](image)

Figure 25

![Percentage of Form VI Leavers to Entrants into Diploma and Degree Training](image)
Graduate teacher training is very expensive (up to 20 times the costs of Diploma training per trained teacher) and currently takes four years. It seems likely that attrition is at least 50% within five years of graduation. New policy is needed on graduate training and posting. The model assumes shorter training for both graduates and diplomates.

**Figure 26**

![Unit Cost (TSh Millions)](image1)

**Figure 27**

![Teacher Training Expenditure Diploma and Graduates Only T Sh Million](image2)
Unit Costs

Unit cost at secondary are planned to increase initially (reflecting improved quality related inputs) and then stabilise over the projection period.

Figure 28

The number of new schools and additional classrooms in existing schools needed is substantial. It will require a systematic approach to location, contracting and site management. Some cost sharing with some communities may be feasible.

Figure 29
Costs

The costs of the whole system including primary and tertiary sectors have been considered. To achieve all the outcomes projected requires additional finance.

Figure 30

The “finance gap” for secondary (the difference between what is needed and what would be available from the education budget assuming IMF projected growth) initially grows but then stabilises. Expenditure on primary slows for a period after 2007 as total enrolment contracts, hypothetically releasing resources.

Figure 31
The projections can be realised with an increase in the budget share to secondary from 7% to about 25% by 2015. Higher education allocations would grow at a slower rate than budget growth and therefore shrink as a proportion of the total.

Figure 32

The proportion of GDP allocated to education would rise to just over 4% and the percentage of the government budget allocated to education would need to settle at about 30%.

Figure 33
Annex 4 Post Primary Education and Training (PPET) in Uganda

The goals of new investment in PPET Uganda can be defined as:

- Expanding access to populations currently excluded in an equitable way
- Improving quality, relevance and consequently achievement in knowledge, skills and competencies that are fundamental to subsequent learning, employment and livelihoods
- Providing opportunities to develop higher level knowledge, skills and competencies which have utility and are valued.
- Encouraging values, motives, and behaviours consistent with national aspirations and needs.

A framework for policy has been developed through a broad consultation, the identification of achievable policy goals, and the construction of a detailed projection model which is costed to fall within a realistic budgetary envelope. The Uganda Baseline Projection for PPET is most feasible version of the model. It contains within it a number of assumptions and a range of programmatic activities designed to achieve stated government goals for PPET at sustainable cost. Specifically, it would allow the UPE “bulge” to be absorbed without a serious decline in transition rates, and with an increasing GER2. It anticipates the building of a secondary level institutions operating at costs similar to day secondary schools in every sub-county currently without such a facility by 2011. It would also support a substantial programme of classroom and institutional rehabilitation to make full use of existing assets.

Reforms envisaged as a complement to expansion include those focused on improved access and equity through school and classroom building, pro poor capitation, fee waivers, and bursary schemes, and new provision in under served areas. Improved efficiency is needed and can be achieved through management reforms, raising the pupil teacher ratio, increasing teachers time on task, reducing repetition, adopting formula funding of schools, improving accountability, using matching grants to generate additional resources, and reducing the number of small schools. Improved quality should arise from a reformed core curriculum with more a concentrated core, a more outcomes based curriculum linked to attainment targets, much improved text book provision, more school based teacher education, and more effective regulation of the private sector.
### Outcomes Achievable with an Integrated PPET Policy

- Increased participation to levels where more than half of all children could complete four years of secondary level education and training;
- Provision of secondary level institutions in all sub-counties with low fee schools in the poorest areas;
- Improved access for girls and other disadvantaged groups through an expanded bursary scheme and other measures;
- Rehabilitation of existing BTVET institutions;
- Creation of some specialised science and technology institutions to serve marginalized areas;
- Improved efficiency through better school management of teachers and other resources;
- The implementation of a core curriculum focused on basic and generally useful knowledge and skills, relevant both to school leavers and those who continue studying, consisting of a limited number of subjects teachable in all types of schools including the smallest;
- The provision of curriculum pathways that could include more activity based work, focused on skills and competencies valued by the labour market, and offered in schools which decided to offer a broader range of options;
- The development of more competence based and attainment target related curricula and examinations linked to minimum and desirable standards;
- The realisation of the goal that all children have access to textbooks in core subjects;
- The promotion of "outreach" activities using school and other facilities to offer short modularised skill based training at community level and at affordable costs;
- The integration of school level PPET provision within a coordinated strategy inclusive of secondary schools and BTVET institutions;
- The reconfiguration of post-secondary pre-university further education and training into a coherent system;
- The rationalisation of systems of qualifications, which recognises equivalences between pathways to certified competence in employment related skills.
The Baseline Model

The Uganda Baseline Model assumes that the Medium Term Budgetary Framework will allow growth in resources at 6.5% p.a. and that overall transition rates to primary to secondary can be sustained between 40% and 50% as the wave of increased primary enrolments passes through the system. Gross Enrolment Rates (GER2) will climb from 30% to over 45% towards a level at which gender parity is more likely. Entrants to government schools would grow at 7.5% p.a. for the first five years and then slow to 5% p.a.. It is assumed that private sector growth will continue but begin to slow as price constraints exclude low income households. Enrolments would climb in government schools to about 610,000 and private schools to 720,000. The latter may be optimistic. This would occur alongside a rise in the pupil teacher ratio from about 23:1 to 30:1. The demand for newly trained teachers would be somewhat less than 1500 p.a. for government schools and around 2,000 p.a. for private schools.

The Baseline Model requires about 16% of total public recurrent expenditure on education to be allocated to secondary, and about 4% to BTVET. The latter is likely to be an over estimate given the past performance of the sector. Overall about 20% of the recurrent education budget would need to be allocated to PPET. The proportion of development expenditure needed would be less. This scenario is plausible, especially if growth in subsidy at tertiary level was restrained.

Figure 34 shows total primary enrolments are likely to grow from about 7 million to a peak of 8 million in 2005. By 2012 they fall back to 7 million as the effects of UPE work their way through. If drop out falls then the total enrolment will remain at higher levels. Falling repetition would decrease total enrolments as the cohort move through grades more quickly. Age cohort growth is assumed at 3%.

Figure 35 indicates how many pupils are likely to reach Primary 7 and how many will pass the PLE assuming the pass rates remain at present levels. These PLE graduates constitute the cohort seeking access to Secondary 1. Their numbers peak in 2005 (650,000) and 2009 (825,000) and then decline.

In 2002, about 102,000 PLE holders were selected for entry to S1 in government schools (Figure 36). Private schools provided 131,000 places. High rates of growth in the private sector are unlikely. It seems probable that secondary school fee rates are approaching the limit of affordability for the marginal household.

In 2002 the nominal transition rate into S1 government schools was about 23% and to private schools 32%. The projection (Figure 37) illustrates that transition rates will decline and then recover over a ten year period on current assumptions about growth in resources and places. This is unavoidable unless the secondary schools system is reformed more radically to provide places at much lower unit costs. Public primary unit costs are about USh32,000, and secondary about USh160,000. If almost all pupils were to reach Primary 7 and all were admitted into Secondary 1 and almost all remained for four years, then allocation to secondary would have to be nearly three times that for primary. This is clearly impossible.
Figure 34 Primary Enrolments

Figure 35 Primary Enrolments P7 and PLE
Figure 36 Enrolment in S1

Figure 37 Nominal Transition Rate
Enrolment Growth

Secondary school enrolments are likely to grow as shown in Figure 38. This indicates that government schools could see their enrolments increase from about 375,000 to over 720,000 and private schools might grow from perhaps 420,000 to over 610,000 over the projection period to 2012. Technical/farm schools and technical institutes would enrol less than 20,000 by 2012. Even this is optimistic given the current pattern of preference for such schools. 3,400 candidates applied for technical/farm school in 2002 and less than 2000 were accepted on the basis of the lowest grade of PLE pass. This is less than 1% of P7 enrolment.

Enrolment patterns in secondary schooling are assumed to remain static in terms of repetition (which is already low), and drop out (widely established as related to direct costs). If drop out reduced, enrolments would increase but there is no current reason to expect direct costs to drop. Fees and other costs could be reduced in government schools. Most obviously increased Pupil Teacher Ratios would reduce salary costs per child and some of the benefit might be passed on in the form of reduced fees. Other cost saving measures might also be possible, assuming management systems were introduced that were sensitive to costs and efficiency.

Enrolments in the BTVET system as a whole are projected in Figure 39. This assumes that enrolments in the post school Colleges, and technical institutes, and technical schools/farm schools, grow at 5% p.a. The output from the NTCs is above that justified by new demand, and does not take into account the stock of trained teachers who have recently graduated and have not been employed as teachers – these may number as many as 20,000. NTC enrolments should therefore fall. However the cost implications of this cannot be simulated until a decision is made on what would be done with the staff of these institutions. Enrolments and the costs in the NTCs have been held constant in the baseline model. The other BTVET Colleges have significant enrolments and high unit costs. Their enrolments could grow faster than 5% under different arrangements whereby their structures, governance and financing were substantially reformed and cost recovery applied to areas of effective demand. Figure 6 only accounts for Window 1 enrolments (government pays costs), since there is considerable uncertainty about the numbers of Window 2 students (privately financed) actually enrolled. Window 1 enrolments would increase by about 60% over the projection period to about 40,000 if NTCs are included. Figure 6 also includes enrolments that would result from the creation of 14 community polytechnics which may come into being as a pilot project. It assumes that there would be sufficient demand for these institutions to enrol 4,200 pupils over and above those in technical and farm schools though it might be difficult to attract candidates.
Figure 38 Total Enrolment Government and Private

Figure 39 Enrolments BTVET
Demand for Teachers

The proposed increases in PTR from about 22:1 to 33:1 by 2012 are central to the affordability of increases in the supply of government school places. If these do not occur then public costs will escalate and participation rates not rise fast in the absence of large budgetary increases for PPET.

The total number of teachers needed if PTR target are met is indicated in Figure 40. This estimates 2002 employment of on-payroll teachers as about 14,400. This may be slightly optimistic - at the end of 2001 about 13,000 were employed. Since then an uncertain number have been taken on to the payroll as some grant maintained schools have been taken over. The number of teachers employed rise in the simulation to about 17,000 by 2012. This ceiling is necessary to stay within the resource envelope.

About 15% of teachers in government schools are not on the payroll but are financed from other income primarily school fees. It has been assumed that this proportion stays constant. This does not preclude these teachers joining the payroll as teachers retire or leave the service and being replaced by others.

Figure 41 shows the demand for newly trained teachers. The model assumes the proportion of graduates increases at 2% p.a. from current levels. The indications are that less than 1,400 new teachers are required in government schools p.a. as a result of expansion, attrition at 5%, and an increasing PTR. This is well below the output of the NTC system and the output of other providers of teachers at tertiary level, which appears to exceed about 7,000 p.a.. Even if new demand from private schools is considered the totals are still within current training capacity. When it is remembered that there is a stock of unemployed teachers (perhaps 20,000 or more) available from previous years training as a result of recruitment freezes, the real demand for newly trained teachers is further diminished.
Figure 40 Teachers On and Off Payroll

Teachers on and off Payroll (Govt Schools)

Figure 41 Total New Teachers Needed

Total New Teachers Needed

66
Unit Costs

Unit costs for different sub sectors are shown below for 2001 (Figure 42). This indicates that public unit costs for secondary level provision vary from about USh 145,000 to over USh 700,000 and that Colleges often exceed USh 1 million. University costs usually exceed USh3 million per student (not shown). Community polytechnics have been costed at two levels - that proposed in the last BTVET development plan, and that suggested by the constrained figures used to define the low cost pilot suggested in this report.

Figure 42 draws attention to the relative cost effectiveness of general secondary schools in providing additional places to expand access. Pass rates are also higher in secondary schools than in technical/farm schools and technical institutes, raising the differential for costs per successful graduate to over 4:1 i.e four secondary school places cost as much as one technical/farm school place (Annex 4). Simply put the mix of school types chosen for expansion will determine the number that can be afforded within the resource envelope in a ratio similar to that of their recurrent costs.

**Figure 42 Unit Costs**
Development Activities

Figure 43 indicates the profile of major development activities related to increasing capacity in secondary schools. The resource envelope created by assumed growth of 6.5% p.a. in the MTBF is sufficient to allow the construction of up to 300 new classrooms p.a. accommodating 50 pupils at a cost of USh8 million per classroom; rehabilitation of up to 140 unusable classroom spaces p.a. at USh 2.5 million; up to 60 new schools p.a. at a cost of USh 140 million; and construction of up to 40 laboratories/workshops p.a. at about USh 20 million. It would allow the construction of 14 community polytechnics at USh 200 million. This would allow the increased enrolments in government schools indicated in previous Figures. Changing the cost assumptions would change the volume of activity that could be sustained. If cost management could successfully reduce building costs, more structures could be provided.

In sum these activities would result in the development of 470 new schools and 14 community polytechnics by 2012 which is more than enough to ensure every sub-county currently lacking a secondary school had one, over 2,300 new classrooms could be added to existing schools, about 1,200 classrooms could be rehabilitated, and over 350 laboratories or workshops could be built. This is a substantial rate of construction which could be afforded along with the recurrent cost burden it creates, but it would require efficient procurement and quality assurance systems, and adherence to planned PTR increases if recurrent costs were to be sustainable.

There are a range of other activities that are included in the projection which would incur costs. These include USh 25 billion over the plan period for targeted textbook support programmes in addition to capitation and normal non-salary recurrent support; USh 14 billion for equipment and learning infrastructure; and up to USh3 billion p.a. for about 10,000 targeted bursaries. Each of these inputs is designed to be focused on improved access and equity and is not intended as a flat rate addition across the system.

In addition to the 14 community polytechnics currently included, BTVET development funding includes rehabilitation costs for technical/farm schools (USh 3 billion), and technical institutes (USh5 billion). These figures may be unnecessarily large. They assume that the institutions continue as they are and are not integrated into the general school level system and operate at lower costs, which is an option. USh 20 billion development expenditure is available across the College system over the period on the assumption that it could be wisely used in rehabilitating space, improving learning resources and revitalising the post school provision of programmes under a restructured system of governance, management and accountability. In advance of a focused review of this level of provision the amounts included are speculative but within the envelope.
Under this scenario the Gross Enrolment Rate at secondary would increase from about 35% to over 45% by 2012 (Figure 44). Enrolments would be distributed between government and private schools in similar ratios to those that currently exist. For reasons mentioned above, it is not realistic to expect private sector enrolments to continue to grow faster than in government schools because of cost constraints related to the distribution of household incomes. Figure 11 shows projected gross enrolment rates for four years of secondary only. These estimated GERs might be higher if census data establish that population growth rates are falling. At the end of the projection period they reach about 45%. Faster progress is not possible within the resource envelope.
Figure 44 Nominal GERs

Recurrent and Development Expenditure

The impact of the various development initiatives incorporated into the ten year projection model on recurrent and development costs are illustrated in Figures 45 and 46. It is assumed that the MTBF budgets grow at 6.5% from baseline levels in 2002. Secondary recurrent expenditure tracks the MTBF with little more than a 5% overspend over the period. Secondary development expenditure is in greater proportional deficit on a much smaller base as a result of the substantial investment in construction to create capacity. This should not be problematic and is an investment that will be repaid in future years as enrolment rate growth falls and development needs diminish. Construction to appropriate standards should be discounted over the lifetime of buildings which should be at least 50 years. If growth was as low as 5% in the government budget then larger deficits would appear over 10% of the recurrent budget which would need addressing.

The BTVET recurrent budget is in surplus even when the recurrent cost of the 14 pilot community polytechnics is included (the CPs are costed at USh 200 million to build, 24:1 PTR, and USh50,000 per pupil (i.e. three times normal secondary school capitation). The surpluses are a little less than the projected secondary deficits.

Figures 47 and 48 show how the balance of expenditure varies over time when projected expenditure is compared with the MTBF growing at 6.5%. Though both parts of the budget are close to balance they deliver different levels of access and participation per Shilling because of their related unit costs. The secondary school system currently costs about USh65 billion p.a, and enrols an estimated 370,000 pupils (2002). The BTVET technical/farm schools and technical institutes appear to enrol about 12,000 at a recurrent cost of about USh5 Billion.
Figure 45 Recurrent and Development Expenditure Secondary

![Graph of Recurrent and Development Expenditure Secondary]

Figure 46 Recurrent and Development Expenditure BTVET

![Graph of Recurrent and Development Expenditure BTVET]
Figure 47 Balance of Recurrent Expenditure with MTBF 6.5%

Figure 48 Balance of Development Expenditure with MTBF 6.5%
The proportion of the recurrent education budget that would be needed to sustain the projection and its activities is shown in Figure 49. Secondary would require about 17% of the education budget and BTVET 3%. This totals 20% which is more than the allocations in recent years which have totalled about 18%.

**Figure 49 % Government Recurrent Budget Needed assuming 6.5% Growth**

The baseline projection requires an increase in the allocation to secondary and BTVET if it is to be realised. The shortfall may be reduced if:

- initial teacher training in NTCs and for CP teachers is scaled down
- BTVET recurrent costs are overestimated as a result of projecting enrolment growth from baseline enrolment figures and unit costs that are themselves overestimates.
- faster progress towards PTR targets is achieved since this would reduce growth in teachers salaries.
- new arrangements are made for medium term strategic development of the post school Colleges which involve greater cost recover for those in demand and redeployment in those with few students.