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Challenges and Approaches to Expanding Learning Opportunities in Africa

Session 2

Presentations on the Development of Post-Primary Education

At the Crossroads: Choice for Secondary Education in sub-Saharan Africa

By Adriaan VERSPOOR with Jacob BREGMAN

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At the Crossroads:

Challenges for Secondary Education in Africa

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Foreword

Expanded access and improved quality of secondary education in sub-Saharan Africa is one of key ingredients for economic growth in the region. The SEIA synthesis report brings together the work of the Bank and many African and international partners. The report is timely because it discusses best practices and solutions for developing and implementing sustainable and high-quality secondary education systems in African countries. The report's objectives are to facilitate the dialogue between African countries and its development partners and to provide a "roadmap" to practical solutions facing Africa's secondary education systems in the 21st century.

This report also marks an important milestone because we are beginning to be successful in promoting primary education. Thanks to the progress made in boosting primary school enrolments through the efforts of African countries, supported by the Education For All campaign, the gross enrollment rate at primary school level increased from 63% in 1990 to 95% in 2006. Similarly, the primary completion rate increased from 49% to 65% over the same period. Consequently, the demand for secondary education is rising very fast in Africa: Faster than for primary education and faster than in any other region in the world. Where are all these primary school graduates going to go? If they do not find opportunities to continue their education to prepare them for productive employment, will parents continue to make the sacrifices to put their children through primary school? This is not likely. So, in order to sustain and improve on the progress made on primary school enrolment, we now need to focus also on secondary education and training.

We all agree that Africa needs more scientists, engineers, doctors, managers and skilled technicians, and that there is a strong desire to become competitive in today's globalized economy, so economies will grow faster and improve peoples' lives. We all know that the global world today is increasingly based on knowledge, technology and skills. This indicates that universal primary education is only the first step. In fact, can African nations fully justify the resources invested in primary and secondary education, if it does not produce trained labor forces with relevant skills and make economies competitive? Yet, secondary school enrolment in African countries averages only about 30%, compared to 65% for developing countries worldwide, and close to 100% in East Asia. And quality in most cases is not where it needs to be. In all middle-income economies quality and quantity of secondary and tertiary graduates are among the driving factors behind economic and social performance.

While we continue to seek progress on primary education, we need to now also increase our focus on secondary education. We need to expand access improve quality and relevance, and improve equity - both between boys and girls, between urban and rural areas, between the rich and poor, and across regions within countries. This is not going to be easy. It will require fundamental changes in the way we approach secondary education. For example, secondary curricula will in many cases need to be revised to make them more relevant to today's needs. In many countries in the region these have not been revised for decades. Most secondary systems in Africa continue to reflect the elite traditions of academic schooling that are inappropriate for today's rapidly changing society and labor market, and that cause significant wastage due to repetition and dropout. And where curriculum reforms have been attempted they have often had limited success.

The increased focus on secondary education will also require resources. Resources will have to come from three main sources: (a) efficiency (getting more from what is spent); (b) additional efforts from countries (governments and public-private partnerships) and hopefully external

development partners; and (c) economic growth. On average, the cost of a junior-secondary student in Africa is 3-4 times that of primary education, while the cost of a senior-secondary student is over 6 times that of primary. And the cost of Technical, Vocational Education and Training (TVET) is over 12 times that of primary. This report discusses what could be done to bring these cost ratios down and produce more and better graduates with the available resources.

Africa spends roughly the same percent of GDP on education as East Asian countries. In 2004, African countries spent 4.6% of GDP on education, comparable to the between 4.3% and 4.6% in Korea, Singapore, Thailand and Vietnam. One can find similar ratios in the 1960s and the 1980s. But the outcomes are very different, mainly because of the efficiency in the use of resources and just as important, faster economic growth that translates the GDP percentages in East Asia into significantly larger resources. So, to sustain progress in the secondary school agenda, we need more efficiency in the use of resources in education and sustainable policies to accelerate growth. Lastly, some countries may actually have to do much better in providing resources for education. Whereas the averages educational expenditure in Africa is about 4.6% of GDP, in some countries, it is as low as 2%.

As you can see we have a large agenda. In this synthesis report you can find conclusions and recommendations from the three regional SEIA conferences (Accra 2007; Dakar 2005; and Kampala 2003), the eight thematic studies, various international research reports and studies by country teams. All these products can be found at www.worldbank.org/afr/seia Our SEIA team, led by Jacob Bregman, will continue to work with our counterparts to address the key issues and "prepare the ground" for increased IDA investment in secondary education and training. The report will guide our technical and strategic dialogue. It provides much "food for thought". I hope it will contribute to making secondary education reform a priority and lead to increased investment and economic growth in the Africa Region.

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PREFACE

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This SEIA Synthesis report "*At the Crossroads: Challenges for Secondary Education in Africa*" has benefited from the work of many. More importantly SEIA activities and studies were done in partnership with African country teams and our development partners. The SEIA task started in 2003 and was completed in 2007 because it was important us to establish fruitful dialogue with the many interest groups and to capture as much as possible the different viewpoints. Over these years the SEIA initiative brought together African secondary education specialists, officials of ministries of education, stakeholders from civil society, and representatives of international and local development partners to discuss best practices and exchange implementation experiences. The resulting synthesis report is a discussion document that contributes to the debate on the challenges facing secondary education and training systems in sub-Saharan Africa.

Adriaan Verspoor (senior education consultant) is the report's main author and is part of the SEIA team. Jacob Bregman (lead education specialist, Africa Region, World Bank) has been task team leader of the SEIA team since its beginning. He provided overall guidance and provided feedback for various drafts and the final version of this report. He also wrote the first draft of Chapter 6: *"Quality and Relevance in Curricula, Assessments and Examinations"*.

The SEIA study is an initiative of the Africa Human Development Department of the World Bank. It provides support the African countries for the development of sustainable strategies for secondary education and training. SEIA produced eight thematic studies, a literature study (with IIEP, UNESCO, several country studies and three regional SEIA conferences (Uganda 2003; Senegal 2004; and Accra 2007). These conferences were organized in cooperation with the Association for the Development of Education in Africa (ADEA: www.adeanet.org), the World Bank Institute (WBI at www.worldbank.org/wbi), UNESCO (www.unesco.org) and the Academy for Educational Development (AED www.aed.org). In October 2005 a workshop on SEIA sustainable cost and financing was organized in collaboration with the *Vrije University of Amsterdam,* for which Prof. Keith Lewin (University of Sussex and Alain Mingat (University Bourgogne, Iredu) contributed papers. During the regional conferences comments were received from representatives from 38 country teams. International education experts contributed papers during the conferences and workshop. These combined resources were used as inputs for the final SEIA Synthesis Report. All papers and outputs are published on the SEIA website at: http://worldbank.org/afr/seia/

The team thanks all contributors to the eight thematic studies and the literature study on "Trends in secondary education in industrialized countries: are they relevant for African countries?" (IIEP, UNESCO). These studies are available on the SEIA website and were used as inputs for the synthesis report.

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Abbreviations and Acronyms

ADBI	Asian Development Bank Institute
ADEA	Association for the Development of Education in Africa
AED	Academy of Education Development
AERC	African Economic Research Consortium
AGEPA	*Amélioration de la Gestion de l'Education en Afrique*
APL	Adaptable Policy Loan
APU	Academic Production Unit
BA	Bachelor of Arts
B-Ed	Bachelor of Education
BGCSE	Botswana General Certificate of Secondary Education
BOG	Board of Governors
BREDA	UNESCO Regional Office for Education in Africa
BSc	Bachelor of Science
BTVET	Business, Technical and Vocational Education and Training
CAS	Country Assistance Strategy
CBG	Chemistry, Biology, Geography
CBN	Chemistry, Biology, Nutrition
CDP	Continuing Professional Development
CEM	Country Economic Memorandum
CGE	College of General Education
CID	Center for International Development at Harvard University
CIDT	Center for International Development and Training
CONFEMEN	Conference of Francophone Ministers of Education
CSR	Country Status Report
DAC	OECD Development Assistance Committee
DANIDA	Danish International Development Agency
DEO	District Education Offices
DDSP	District Development Support Program
DFID	Department for International Development
DHS	Demographic and Health Survey
DPL	Development Policy Loans
DRC	Democratic Republic of Congo
DVD	Digital Video Disc
EAP	East Asia and Pacific
ECA	Eastern Europe and Central Asia
ECA	Economics, Commerce, Accountancy
ECD	Early Childhood Development
EDI	Economic Development Institute
EFA	Education For All
EFA/MDG	Education For All/Millennium Development Goals
EGM	Economics, Geography, advanced M
EMIS	Education and Management Information System
ENEM	National Secondary Education Examination
EU	European Union
FAWE	Forum for African Women Educationalists
FDI	Foreign Direct Investment
FEMSA	Female Education in Math and Science in Africa
FTI	Fast Track Initiative
FUNDEF	Fund for the Maintenance and Development of Basic Education and Teacher Appreciation

FY	Fiscal year
GCSE	General Certificate of Secondary Education
GDP	Gross Domestic Product
GEEP	*Groupe pour l'Etude et l'Enseignement de la Population*
GED	Global Education Digest
GER	Gross Enrollment Rate
GMR	Global Monitoring Report
GNI	Gross National Income
GNP	Gross National Product
GPI	Gender Parity Index
GoM	Government of Mali
GoU	Government of Uganda
GTZ	*Gesellschast fur Technische Zusammenarbeit* (German Agency for technical Cooperation)
HED	Higher Education Department
HGL	History, Geography, English
HIV/AIDS	Human Immuno-Deficiency Virus/Acquired Immuno-Deficiency Syndrome
HKL	History, Kiswahili, Language
IEA	International Association for the Evaluation of Educational Achievement
ICT	Information and Communication Technology
IDA	International Development Association
IDB	Inter-American Development Bank
IEG	Independent Evaluation Group
IEQ	Improving Educational Quality Project
IIEP	International Institute for Educational Planning
ILO	International Labor Organization
INEP	National Institute for Educational Research
ISCED	International Standard Classification of Education
JICA	Japan International Cooperation Agency
JS	Junior Secondary
JSE	Junior Secondary Education
KEA	Kenyan Education Act
KSH	Kenyan Shilling
LAC	Latin America and Caribbean
MA	Master of Arts
METF	Medium Term Expenditure Framework
MIS	Monitoring and Information System
MLA	Monitoring Learning Achievement
MOE	Ministry of Education
NAYRL	National association for Year Round Learning
NEP	National Education Policy
NEPAD	New Partnership for Africa's Development
NIC	Newly Industrialized Country
NGO	Non-Governmental Organization
ODA	Official Development Assistance
ODL	Open and Distance Learning
OECD	Organization for Economic Cooperation and Development
OED	Operations Evaluation Department
PASEC	*Programme d'Analyse des Systèmes Educatifs des Pays de la CONFEMEN*
PCM	Physics, Chemistry, M
PE	Primary Education
PEAP	Poverty Eradication Action Plan

PER	Public Expenditure Review
PGM	Physics, geography, advanced M
PIRLS	Progress in International Reading Literacy Study
PISA	Program for International Student Assessment
PPEPT	Post Primary Education and Training Plan
PPPs	Public Private Partnerships
PROGRESA	*Programa de Educación, Salud y Alimentación*
PRSC	Poverty Reduction Support Credit
PRSP	Poverty Reduction Strategy Paper
PTA	Parent teacher Association
PTR	Pupil Teacher Ratio
RESAFAD	African Network for Distance Learning
SACMEQ	Southern Africa Consortium for Monitoring Educational Quality
SAEB	Basic Education National Evaluation System
SAGA	Strategies and Analysis for Growth and Access
SEDP	Secondary Education Development Program
SEIA	Secondary Education in Africa
SIL	Specific Investment Loan
SMICT	Science, Mathematics and ICT
SPRED	Strengthening Primary Education
SSA	Sub-Saharan Africa
SSE	Senior Secondary Education
STAN	Science Teacher Association of Nigeria
STD	Sexual Transmitted Diseases
SWAP	Sector Wide Approach
TF	Trust Fund
TIE	Tanzanian Institute of Education
TIMSS	Trends in International Mathematics and Science Study
TRANSE	University of Western Cape, Cape Town and NIFU, Oslo
TVE	Technical and Vocational Education
TVET	Technical and Vocational Education and Training
UACE	Uganda Advanced Certificate of Education
UCE	Uganda Certificate of Education
UDCM	University of Dar-Es-Salaam
UIS	UNESCO Institute for Statistics
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Cultural and Scientific Organization
US	United States
USA	United States of America
USAID	United States Agency for International Development
VSO	Voluntary Service Overseas
WAEC	West African Examination Council
WB	World Bank
WBI	World Bank Institute
WEI	World Education Indicators

AT THE CROSSROADS
Choices for Secondary Education in sub-Saharan Africa

EXECUTIVE SUMMARY

The challenges of education development in Sub-Saharan Africa (SSA) at the beginning of the 21st century are urgent and unprecedented. Faced with persistent gaps in the coverage of primary schooling, almost all countries have launched major efforts to ensure that all children will have the opportunity to complete primary education of acceptable quality. At the same time accelerating economic growth and social change create an urgent imperative expand access to further learning strengthen human resource base.

Today's African youth will live and work in changing societies that are increasingly open and democratic, driven by technology, and part of global networks of production and trade. The existing high cost secondary education systems were designed to educate a small elite; they will not be able to provide a much greater proportion of the SSA's youth with an education that effectively prepares them for work and further education and training in societies with labor markets that increasingly demand advanced knowledge and skills and that put a premium on the ability to learn and acquire new skills throughout life. In this environment, linear expansion of existing systems is not an option, especially not given the constraints on public resources available for secondary education

Change in financing and curricula will be inevitable, but even more important may be change in the mental models of schooling and governance that dominate African education policy and practice. Often ideology rather than pragmatism determines policy. Resistance to change is often deeply rooted in the education community. In many countries education policy is detached from a longer term vision for national development, remains the concern of professionals in the Ministry of Education and captive of the pursuit of short term problem resolution. Firefighting and politics rather than development and capacity building too often determine education policy.

This Report addresses the education of youth from about 12-18 years, including education. It draws on the outcomes of the SEIA initiative[1] which supported workshops in Kampala, Dakar and Ghana and commissioned 8 thematic studies and several background papers which underpin key sections of this report. The emphasis is on general junior and senior secondary education complementing earlier work on Skills Development in Sub Saharan Africa. [2] Secondary education has often been neglected in education policy and practice. This is now changing. But still it is often addressed separately from other parts of the system. What is needed are secondary education plans that are integrated with national longer term plans for education development.

Mapping the Challenge

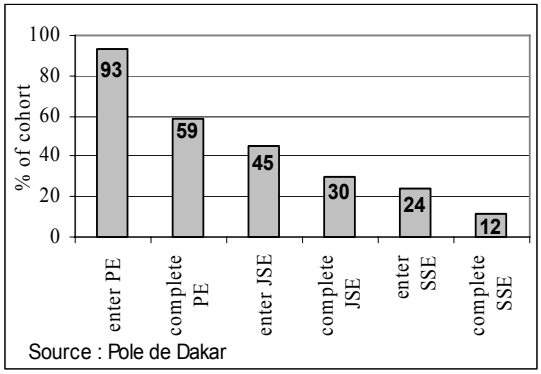
Virtually all countries need to address the triple challenge of expanding access,

[1] Launched by the World Bank in 2004 with the support of several other development partners to support reflection and discussion on secondary education policy issues.
[2] Johanson and Adams (2004).

improving quality and ensuring equity. Few systems are ready to respond effectively to the emerging challenges. Due to differences in history, culture and policy choices, the state of secondary education varies dramatically across the continent; nevertheless many countries share the key features summarized below.

Enrollment and completion rates are low. Of the respective age groups less than one in two youth enters junior secondary schools and less than one in four senior secondary schools. Technical/vocational education (TVE) generally occupies a small, often marginal position with less than 10% of total secondary enrollment. The poorest countries generally have the lowest participation rates.

Figure 1: Survival (%) of a Cohort of Students in Primary and Secondary Education in SSA,



Access remains inequitable. Secondary education mainly benefits the better off urban population and remains largely inaccessible for rural people, with girls at a particular disadvantage. The EFA/MDG target to eliminate gender disparities by 2005 has not been reached. Many poor children never enter primary school or drop-out early. For those that are successful in the secondary school selection process, tuition and other formal and informal cost are often unaffordable. Where scholarships are available they are often poorly targeted.

Curricula are outdated and increasingly inappropriate. Programs have rarely been adapted to the changes in the composition of the student body, life skills, or labor market demand. Many students leave school ill prepared for further learning and skill acquisition. Formal public technical and vocational programs have mainly focused on pre-employment training. Many have neglected the informal sector; have become supply driven; and slow to respond to the changing needs of the labor market.

Levels of learning achievement are poor. Student performance on international tests is lower than in any other region. Many students do not acquire the knowledge and the skills specified in the national curriculum.

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Public financing is unable to meet the demand for additional places. Enrollment growth has outpaced the increase in resources resulting in shortages of instructional materials and supplies, poorly stocked libraries and double or triple shift use of facilities. In most countries 50% or more of recurrent expenditure is allocated to primary schooling. Higher education typically absorbs 15-20% leaving some 20-25% for secondary education. Many countries have spread the same resources over larger number of students, attempted to mobilize private funding or most often did both. Secondary education per student cost is three to six times the primary per student cost; a much higher multiple than in most middle income countries. In countries where the secondary GER is above 70% the secondary/primary unit cost ratio is almost always less than 2:1.

Resources are used inefficiently. In country variations in per student cost are large. The cost of teachers is the main cost variable. Yet teacher deployment is often wasteful and ineffective. Moreover, in some countries teacher salaries are unsustainable multiples of GNI per capita. In others they are so low that teachers are almost forced to find a second job or leave the profession. Often the output of teacher training programs is insufficient to meet the demand. In other cases the government cannot afford to hire all those that graduate. Yet, teacher salaries often crowd out other expenditures.

High share of private funding. More than 13% of the secondary students in SSA are enrolled in private –for profit or non-profit- institutions. Some are high cost elite schools, while others are traditionally church sponsored schools that usually offer programs of acceptable quality at medium or low cost. Non-government providers of secondary level technical education and training are important. The private cost of public schooling - comprising tuition and boarding fees, contributions to school management committees as well as cost such as textbooks, learning materials, school supplies, private tuition, transportation and clothing- is often significant. Households are thus shouldering a large share -30-60%- of the cost of secondary schooling. In a region where GNI per capita in many countries is less than $500, secondary education with a cost often of US$ 200-$300 equivalent, represents a heavy financial burden, even for middle income families.

Many forms of public-private partnerships are developing. Various schemes have been established to help students overcome the financial obstacles to enrolling in secondary education. These include fee waivers in public schools, government scholarships or vouchers that students can use to attend private schools and free textbooks. Other strategies are designed to expand the capacity of private providers to enroll students by providing loans for the construction of additional classrooms, payment of the salaries of teachers in private schools or grants-in-aid to private providers (often churches). Public-private partnerships for technical education and training are increasingly common with public resources channeled through national training authorities, which use competition for funding by public and private TVET institutions, norms and output based allocations and student vouchers as financing instruments.

Secondary Education and Development

The role of education and human capital in promoting the growth of economies and improvements in human well-being is well recognized in the economic literature. Recent findings highlight the significant contributions to economic growth and social outcomes of secondary education. Conversely, sustained economic growth is essential if the resources for accelerated secondary education development are to be mobilized.

Emerging micro-economic evidence. Economic research has traditionally found that private rates of return to education decline for higher levels. Recent evidence suggests, however, that in many cases they increase with the level of education. But there are also studies that show low returns to education especially where economic growth stagnates.

The impact on economic growth. A large number of studies suggest that secondary education is associated with an acceleration of economic growth, can make a significant

contribution to national economic performance, and has human-capital threshold effects that help attract foreign direct investment. But there are two important provisos. First, the quality of secondary education, especially in math and science, is more important than the number of years of schooling. Second, equitable access for poor students and especially girls, is an additional factor enhancing economic growth performance.

Evidence on social outcomes. There are powerful development interactions between the various aspects of the human resource. Secondary education has been found to contribute to better health of mothers and children, exercise downward pressure on fertility, enhance HIV/AIDS awareness and risk, and provide adolescents with skills that foster social cohesion and transmit the cultural and ethical values necessary for active participation in a democratic society and create opportunities for social mobility.

Implications. Sustained growth and development in SSA requires a rapid strengthening of the human capital base. This will involve improvements in the quality of primary education, increases in the primary completion rates and the expansion of access to junior secondary education as immediate priorities. Action in all three areas will need to be sequential in relative emphasis but balanced to support a dynamic process of economic growth that can draw on increasingly educated and trained personnel and at the same time strengthen the resource base for education and training. Take-off on a path of sustained economic growth will require a threshold level of "education stock" in the work force, and continuous -often ambitious- investment in the improvement of human capital.

While the potential benefits of an increase in a nation's human capital driven by investments in secondary education are substantial, they are by no means automatic. They are critically dependent on effective macro-economic and institutional policies. A good investment climate lets the private sector expand, helps trade flourish and will support economic expansion. Mitigating market and policy failures responsible for rigidity and segmentation in the labor market will enhance employment opportunities. Strong institutions – such as stable political systems, secure property rights, efficient financial systems, honest and accountable public officials- are key productive assets. Only in these environments are ambitious education investments feasible and justified.

At the same time the nature of education policies matters. Policies that accommodate demand pressures without attention to quality and relevance can lead to a vicious circle of declining quality, stagnation in the growth of human capital, inability to increase productivity of capital and labor, stagnating public and private resources and further declines in education quality. Similarly policies that ignore the imperative of an equitable distribution of education opportunities -between girls and boys; students who rich and poor; irrespective of where they live- carry within them the seeds of social conflict and reduced growth performance. On the other hand where the macro-economic and political conditions create a favorable environment, investments in secondary education can help accelerate economic growth.

Lessons of International Experience

The experience of countries where the transformation of secondary education from elite to a mass system has already been completed is important for African policy makers. Four lessons are especially important to consider:

- The balanced development of different sub-sectors of the education system is a bottom-up process; broad access to primary education of acceptable quality must be in place for successful development of secondary education.
- How resources are spent is as important as the amount of resources available;.
- Government direction and leadership is important to accelerate and sustain progress and ensure equity; yet decentralization and local autonomy holds considerable promise especially in the early stages.
- Public-private partnerships are essential to mobilize the necessary resources, nurture community support and ensure that secondary education responds effectively to the expectations of local communities and national leaders.

But there is a limit to the relevance of international lessons of experience as the economic and education environment in Sub- Saharan Africa is very different than the one that prevailed in other regions at the early stages of secondary education development:

- Progress towards the goal of universal primary completion and improvement in learning achievement remains incomplete; in the US, Europe, and East Asia this had largely been achieved when large scale secondary expansion took place.
- Economic growth in SSA, while much improved in recent years, remains uneven and is often fragile and still lower than East Asian rates.
- High fertility in SSA results in a growing school age population; falling birthrates eased the challenge of expanding access to secondary education in other regions.

Towards an African strategy for secondary education development

Providing a place in schools of acceptable quality for larger cohorts of children every year, keeping these children in school longer in an environment where external assistance and national public expenditures are confronted with many competing priorities, is an intimidating policy conundrum. Increasing public funding for education –with an increasing share for secondary education is almost always the preferred solution of education planners and policy makers. In practice this will often be difficult given competing priorities in other sectors and within the education system itself. Most often reordering priorities will only have a marginal effect on the availability of resources for secondary education. Economic growth, increases in the share of GDP available for public expenditures will have to be the main source of additional public resources for education. But even large increases in public spending will be inadequate to generate increases in education attainment and learning achievement unless accompanied by reforms that aim at a more efficient use of available resources and recognize the specificity and the unique constraints of the SSA context.

It will be essential to sequence priorities, define specific medium term objectives and recognize that several desirable goals need a longer term time frame. Four objectives can be expected drive secondary education policy in the medium term:

- Significantly increase the number young people that have the opportunity to complete a basic education cycle of 8 to 10 years that incorporates all or part of junior secondary education.
- Create opportunities for further formal and informal learning for all students interested and capable of doing so.
- Ensure that opportunities for learning of acceptable quality are available to poor students, especially girls.
- Prepare students for work in an economy that is participates in a technology driven global economy.

Given the different initial conditions of each country there can be no rigid African model. At best such a model can provide guidance and policy options that countries may consider as they formulate national. Most countries are likely to face the challenge of a high (or at least rapidly increasing) coverage in their primary system and a low or at best medium coverage of secondary education. As country situations are converging in this direction several common elements of strategy can be identified, most importantly:

- Resource requirements consistent with the available means.
- Curriculum content relevant to national development opportunities;
- Opportunities to learn for all and equitable access for the disadvantaged.
- Effective governance and management: Local school administration, multiple delivery mechanisms, and broadly conceived public private partnerships.

Resource requirements consistent with national means

All projections of the cost of secondary education make it abundantly clear: enrollments in secondary education can not be expanded at present unit cost levels. This makes it imperative to use available resources as intensively and as efficiently as possible. This may imply that teachers teach a full load of 25 hours or more; buildings are used in double shift, six days a week; curriculum options and choice in small schools are limited; boarding is the exception not the rule; public-private partnerships are developed to expand access with particular attention to the needs of poor students. Bruns et al (2003) propose indicative resource mobilization benchmarks to guide primary education development. Based on these and some service delivery bench marks accepted in international practice table 1 suggests a set of indicative bench marks that may be considered for a financial framework for secondary education development.

Personnel cost are the largest expenditure item in secondary education budgets. Inefficiencies in teacher deployment often are a major cause of high per student cost. But in some countries teacher salaries are at a level that effectively precludes significant enrollment expansion because salaries are an affordable high multiple of GNI per capita. An affordable salary structure may require moderation in salary increases and a review of recruitment policies and qualification requirements. In other countries salaries are so low that teachers will only provide a minimal effort, with adverse consequences for quality. There, an efficient use of the teaching force may require an increase in teacher salaries with the understanding that teachers will teach a full load –even if it means teaching in

Table 1: Towards Indicative Benchmarks for Secondary education Development		
Domestic resource mobilization	***2015 Indicative benchmarks***	***Comments and explanations***
Government revenues as percent of GDP	14–18	As suggested in Bruns et al (2003)
Education spending as percent of recurrent	20-25%	As access to secondary education expands this ration may have to increase from the 20% suggested by in Bruns et al , 2003. (see Lewin 2006)
Primary percent of recurrent education budget	42–64	As suggested in Bruns et al, 2003. ; in countries at the high end of this range , the share will have to decline as primary enrollments stabilize and secondary increase.
Secondary percent of recurrent education s budget % Junior secondary of secondary budget % Senior secondary of secondary budget	25-30 55 45	Assuming a higher education share of 15-20% See estimates Lewin 2006 under reform scenarios with 60% JSE and 305 SSE GER
Share of total secondary cost privately funded (%)	35	Where share is currently low it should increase where it is high it will decrease as more poor student gain access and affordability calculations (Lewin, 2006)
Cost of classrooms	$10,000	Assuming simple structures and decentralized management of construction (see Theunynck, 2006)
Service delivery indicators		
Average teacher salary (x average GDP) Primary Junior secondary Senior secondary	 3.8 4.75 6.25	 Based on WEI primary/ secondary multiple and Bruns et al (2003) primary multiple. See chapter 5
Pupil-teacher ratio Junior secondary Senior secondary	 40 35	 Based on East Asian multiples and assuming efficient deployment of teachers. See chapter 5
Non-teacher salary share of recurrent spending (%) Junior secondary Senior secondary	 35 40	 See Lewin (2006) and the discussion on textbook provision in chapter 7
Repeaters (%) Junior secondary Senior secondary	 10 5	Some decrease from current levels and assuming that senior level will remain more selective

more than one school; that preferential increases will be granted to teacher who can teach several subjects; and that teacher who do not have a full load will be paid in proportion to the number of hours they teach. Efficiency gains associated with such policies should result in changes in the cost structure of secondary education with a significant increase in spending on non salary items, especially textbooks and other instructional materials.
Expansion of access to secondary education will have to take place largely through day schooling. Boarding facilities are expensive to build and operate. Only students who do not have access to day schools within a reasonable distance from their home should be allowed to enroll. Financial support should be available for poor, academically qualified students who live too far from a day school.

None of the above policy options are easy to implement. They deviate from the way things have always been done and they require different ways of thinking about how schooling is organized and how the available infrastructure is used; they also require different ways of employing and deploying teachers and structuring their contracts. But innovations in the way schooling is delivered that target resources on those inputs that

most cost-effectively produce student learning and use these intensively, can result in reductions in the cost per students while improving achievement.

Curriculum content relevant to African development opportunities

Education development will need to be part and parcel of national development strategies. Where it progresses on a separate path it will very rapidly become irrelevant and be considered an item of privately or publicly funded consumption, rather than an essential investment in economic and social progress. The experience of East Asian countries suggest the importance of an education development strategy that evolves with the national economy and helps young people adopt values and attitudes that help them function as responsible citizens and productive workers.

In many countries secondary curricula and examination systems have changed remarkable little for decades. Curriculum reform is an important part of the transition of secondary education in SSA. Many countries will need to consider:

- *Including all or part of junior secondary education in a basic education program of 8 to 10 years* which emphasizes instruction in mathematics, science and an international language; ensures that students acquire analytic and problem solving skills and have the motivation and the competence for further learning and skill acquisition; and recognizes the importance of healthy living and active participation in rapidly changing, increasingly democratic societies.
- *Strengthening the linkages with and preparation for the world of work* through vocational preparation modules in general senior secondary schools or occupation specific training in TVET institutions. For students that do not gain admission in these, training opportunities in non-formal institutions, through apprenticeships, or in centers operated by private providers and enterprises should be available.
- *Improving mathematics and science teaching* by establishing an integrated core science curriculum at JSE, improving teacher qualifications and ensuring an adequate supply of instructional materials thus providing incentives for students to select math and science streams at senior secondary level.
- *Incorporating ICT in the curriculum* and improve the quality of instruction by establishing linkages with non-government and private providers of training and technical support to ensure basic understanding of and competence in ICT
- *Reforming examination and assessment systems* by moving towards curriculum referenced examinations, regular national assessments of student learning and participation in international or regional assessments

Vocational training is often considered as trigger for economic growth and a way to reduce youth unemployment. In fact there is scant evidence that it has done so. But in countries with strong economic growth it has played an important role in preparing a workforce that has supported a rapidly growing modern industrial sector. And where this happened, students had strong basic education skills. Effective vocational training accompanies the development of a modern industrial sector and takes place mainly through flexible training programs following junior secondary education or more formal schooling at the tertiary level for advanced technical and engineering training.

Emphasis on learning and equity
Without ensuring the quality of opportunities to learn, expansion of access to secondary education is a meaningless waste of resources. In the resource constrained environment of education in SSA protecting quality may mean slowing down expansion to protect learning. Ultimately it is the "quality imperative" that must determine the pace of development of secondary education. This makes it imperative to invest in those inputs that most cost-effectively affect student learning achievement, specifically:

- *Capable and motivated teachers* with the necessary subject matter knowledge, expertise in teaching and classroom management skills;
- *Instructional materials* in particular textbooks, basic equipment and supplies in particular for teaching math, science and ICT;
- *Curricula* that respond to the demands of development and students' needs and aspirations;
- *School leaders* who create an environment focused on learning, where all school personal accept accountability for results, i.e. student learning.
- *Instructional time* that is optimally used to promote learning,
- *District and central services* that monitor school's progress in improving student learning and provide support as and when needed.
- *Communities* that provide a supportive home environment to students and assist schools to carry out their mission.

Schooling of acceptable quality should be accessible equitably to all that qualify. But poor parents often cannot afford the direct and indirect cost of secondary education. In addition distance and socio-cultural traditions are make rural parents reluctant to enroll their children -especially their daughters – in secondary schools located so far away that boarding is inevitable. Strategies that effectively address these inequities will have to be multi-faceted. They will need to include actions to enhance the overall effectiveness of secondary schooling –of which disadvantaged students usually benefit disproportionally; interventions that target specifically the institutional and educational obstacles faced by specific groups of students –most importantly girls; and measures which eliminate financial barriers, possibly through conditional cash grants.

This will mean increasing the density of network of day-schooling opportunities beginning at the junior secondary level. A system of local junior secondary schools would meet the needs of the local communities who often cannot afford boarding fees. Such schools could be associated with nearby basic schools, possibly in the form of upper primary classes and rural secondary schools. But equity cannot be limited to access. It also needs to apply to the quality of the opportunity to learn that is provided in these smaller schools. Targeted financial support will often be a necessary policy instrument to ensure equitable access for the most disadvantaged students to ensure that qualified poor students are not excluded from pursuing secondary education because of inability to pay.

Effective management and governance. Diversity in patters of provision, local administrators with resources and authority and broad ranging partnerships are essential to improved secondary education service delivery. *Provision* can be organized in several different ways: upper primary classes covering a few or all years of the secondary

curriculum; separate middle schools; combined junior secondary and upper secondary schools; distance education supported by ICT when appropriate; and a range of formal and informal vocational programs. Secondary education policy should allow for different ways of provision to respond to different conditions in different parts of the country and the different demands for education and training of students especially beyond the junior secondary level. A similar flexibility will need to apply to the curriculum, especially at the senior level where options and choice become increasingly important. Not all schools will be able to offer all options. Especially smaller schools will be able to offer only a core curriculum with a limited choice. Even in larger schools offering options chosen by only a few students can be very costly and often offers adds little value.

Strengthening the *autonomy of local administrators* for the operation of schools should be an essential feature of African secondary education strategies. This will allow schools to choose the most appropriate way of providing secondary education and allow them to take responsibility for school development and improvement. There is considerable evidence that local autonomy in the management of schools can have a positive effect on school performance. Within a framework of national core instructional objectives, supervised and supported by central and district authorities with money and technical assistance, schools can be asked to take explicit responsibility for student learning. Tapping into the readiness of communities and parents to support the development of secondary schools in their community –financially and otherwise- may be a cornerstone of secondary education development in SSA.

In such a system the principal role of central government agencies will no longer be to deliver secondary schooling but rather to monitor quality, make available core financing, provide support to schools in difficulty and ensure equity in access and opportunity to learn. Such a strategy will require intensifying and accelerating the ongoing decentralization processes and rethinking the responsibilities of staff and administrators at different levels of the system. The result would be a system that within a centrally defined framework is managed at the service delivery level by school administrators and staff- with meaningful involvement of students, parents and communities. But this can only happen in an environment where competent local administrations exist. They exist in some countries but not in others. In the latter case strengthening the capacity of local administrations is a pre-requisite for effective decentralization.

Partnerships with non-government providers will almost inevitably be a key element of successful secondary education development strategies. They can occur in a number of different ways but will most often include government financial support to private and community provision; and private financing for public schooling. The challenge is to structure these partnerships in such a way that they work effectively and that public and private sector partners can contribute in those areas where they are best placed to do so.

Implementing Reforms

Discussions on education reform usually focus mainly on the substance of the reforms that countries may want to consider. Yet much of the literature on school reform and change emphasizes that ultimately it is the quality of implementation that will determine

the success of the reform, i.e. the extent to which schools adopt the reform. The readiness of schools and local administrators for change will determine to a large extent the feasible pace of implementation. But the mental models of change will be determined by the way change strategies are designed, communicated and practiced by central level authorities.

The politics of change

Secondary education policy reform is almost always controversial. It is not only a technical problem, it is almost always a political issue with potential winners and losers lobbying to protect their interest. Successful implementation requires political will and the readiness to take difficult decisions and sustain them over a long period of time. It typically will involve efforts to build national support through consultations on policy options, effective communication strategies, transparency in decision making and a willingness to consider evidence and lessons of experience even when that questions preconceived ideas and conventional wisdom. Success has more often been associated with pragmatism than with ideology or paying-off political opponents.

Political will often derives from a national development vision which links education development to national development strategies. This involves the interaction between education and the economy, with a clear understanding that they are mutually dependent and reinforcing. But –as the experience of East Asia demonstrates- the emphasis on education development role is driven by priorities that go well beyond economic issues, as education can play a key role in nation building, including building the moral values and national cohesion required to make a multi-ethnical society work. And it is particularly at the secondary level –with adolescents- that both labor market preparation and the moral aspects of education are particularly important.

The practice of change

Secondary education reform in particular is a complex and multifaceted process that has often failed to produce the promised results. The best ideas often have faltered on the rocks of implementation. Fortunately experience is accumulating and lessons are being learned -in Africa and in other regions. Several trends are apparent

- *School systems* are increasing transforming themselves into a *system of schools* where the responsibility for improvement and performance is shifting from the central level managers to the school level.
- *Sequencing* of reform measures is critical. No country will be able to implement all at the same time. Setting priorities and packaging them in politically and technically feasible packages that combine policies that are desirable with some that are more difficult to accept is central to successful implementation.
- *Evidence based strategies* are at the root of successful reform. Where rigorous evaluations-using quantitative and qualitative information are absent, learning becomes based on anecdotes, opinion and prejudice.
- *Broad communication of challenges and achievements*, public discussion of policy options and transparency in decision making are key ingredients of effective implementation strategies.

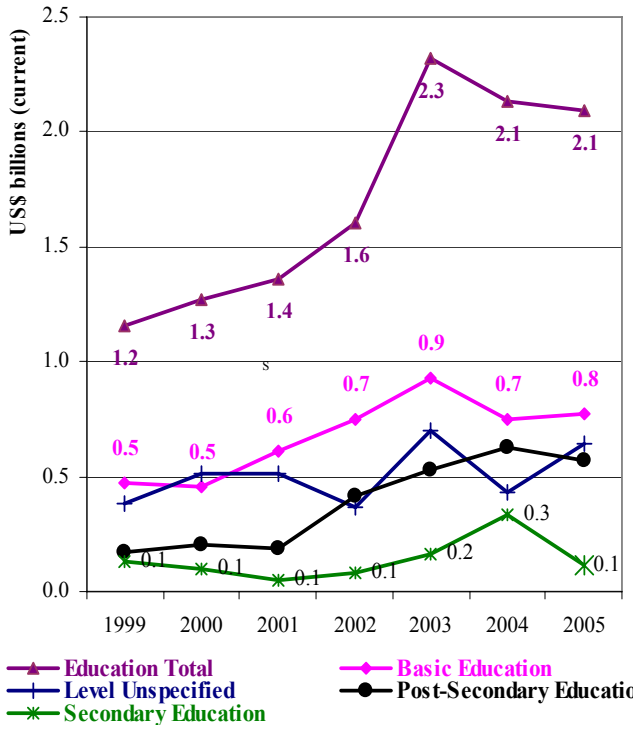
Mobilizing External Support

There can be little doubt that domestic public and private resources will continue to be the main source for the funding of secondary education development in SSA. Yet international development partners can play an important role providing complementary technical and financial support.

Declining aid to secondary education

Aid priorities and practices within the education sector have changed dramatically in the past 25 years. External assistance to secondary education has been declining since the mid eighties. In 1999-2004 it was less than 5% of external aid (Figure 2). Between 1999 and 2004 total aid commitments to education in SSA increased by 75% from $1.2 to $ 2.1 billion. Virtually all of this increase was allocated to primary and tertiary education, while commitments to secondary education stabilized in dollar terms but declined to about 5% as a share of education aid commitments. This raises important questions on the way policy priorities are translated into actual aid allocations. It is hard to understand why external support to higher education has increased almost as fast as support to primary education while allocations to secondary education are stagnating, especially when countries are aiming to expand access to lower secondary education as part of their goal of providing 8-10 years of basic education.

Figure 1: Education ODA commitments in Sub-Saharan Africa, 1999-2004



Source: OECD/DAC data base

Similarly, analytic work has been limited although the World Bank and some other donors have supported secondary education reviews in several countries. Several recent education country status reports (CSRs) prepared with World Bank has support analyze secondary education issues and include recommendations for policy reform. The economic analysis in several recent World Bank appraisal reports in secondary education. But macro linkages of remain weak; few Poverty Reduction Strategy papers (PRSPs) include performance targets related to secondary education.

The changing context

Several recent developments suggest, however, that the past neglect of secondary education is being reversed. Lower secondary education is increasingly considered as part of basic education and part of the EFA agenda. Many countries have developed education programs that include secondary education and vocational training plans or

provide for a detailed sub-sector review of policy and financing issues. Notwithstanding the large unfinished MDG and EFA agenda related to primary education several important donors –DFID, JICA, and the Netherlands for example- are increasingly ready to provide financial support for these programs. Secondary education and training also is an important element of the education support strategy of the World Bank. However, the pipeline for future lending and analytical work needs to be strengthened to ensure sustained progress towards the goals of the recently updated Africa Action Plan.

In many countries support for education is likely to part of a sectorwide approach (SWAp). This allows the design secondary education development strategies as part of an integrated national development program. Financial support for education development is increasingly provided through Development Policy Loans (DPLs)[3]. In FY05 $188.5 million–more than half of all education lending in SSA was provided through these instruments Tanzania and Uganda are examples of this approach. In Tanzania the DPL (FY04) follows a sector adjustment approach with tranche release conditions linked to the implementation of secondary education policy reforms. In Uganda annual poverty support credits (PRSCs) provide general budget support for the implementation of the national Poverty Eradication Action Plan (PEAP) with a detailed matrix of policies and results. Implementation of the government undertakings agreed during these sector reviews is a prior action for the PRSC.

The knowledge base on secondary is improving. The task ahead is to use it in the development of country specific strategies that can be supported financially by the Bank and other Development Partners. Specific action in this regard will need to include:

- Sharing the findings of this report and other analytic work with a broad audience of African decision makers, education professionals in African region and outside, and development partners in order to establish an understanding of the urgency to act and an awareness of the most promising policy options for reform.
- Developing country specific analytic foundations for national planning and consultation with stakeholders as well as for policy dialogue and financial support.
- Incorporating secondary education in PRSPs.
- Supporting secondary education as much as possible in a sector wide policy framework, linked to the national PRSP and METF to improve visibility on the longer term financial basis for action.
- Using flexible lending instruments such as APL, SIPs or PRSCs whenever possible.
- Carefully monitoring the implementation progress of reform programs, learning the lessons of experience and adapting interventions accordingly.
- Explicit support of quality, equity and financial sustainability should be the main focus of external support

Conclusion

SSA can no longer afford to ignore the imperative of reform of secondary education. The transformation of a traditional elite system that prepares a few privileged students into one that provides opportunities to further learning to a rapidly increasing proportion of

[3] DPLs provide rapidly disbursing policy based budget support assistance, with a greater emphasis on defining and measuring results. Most have a programmatic approach, where a program of reform is agreed upon with the government, as well as a timetable for implementation. (Hicks, 2006)

adolescents is one that is urgent throughout the region. But the challenge is not one of expansion only; it is one of quality improvement, relevance and equity at the same time.

The challenge is particular daunting since economic growth remains fragile, population growth rates will be high for the foreseeable future and primary education still requires additional resources if the EFA goals are to be reached. Even with the most cost-effective strategy, secondary education development will almost always require additional public resources. Mobilizing these resources may in some countries involve trade-offs with other sectors and allocation choices within the education sector. But in most cases it will require sustained economic growth, the stepped-up mobilization of public resources and effectively targeted public funding. Making the choices explicit will almost always require a longer term sector development plan with realistic financial projections and a medium term expenditure framework. Many countries have made considerable progress with the development of detailed financial and action plans for primary education. But often this has been done without considering the implications for secondary education or the trade-offs in public expenditure allocations that will be necessary to reach sub-sector education development objectives in a balanced way.

Sub Saharan Africa faces the challenge to develop a strategy for secondary education that fits its current development context. Such a strategy will have to be one that is parsimonious in resource use, recognizes the bottom-up sequential nature of education development, is closely aligned with national development priorities, strengthens school autonomy, ensures effective central direction and supports and builds public-private partnerships reflecting relative competence for action. It will prioritize the expansion of lower secondary education and the development of opportunities for further education and training in response to the demands of economic growth. It also implies an evolving role of the government towards policy formulation, setting of standards and monitoring of progress towards national goals as well as the provision of funding to support a broad based, equitable expansion of secondary education with incentives for private provision and subsidies to disadvantaged students to ensure equality of opportunity.

Implementing change along these lines will require capacity development throughout the system, effective management information system and most importantly a long lasting political commitment to provide not only the essential resources but also to build broad public support for a reform agenda. Only then will it be possible to tackle the challenge of secondary education with confidence.

Table 4 summarizes the policy options that governments may wish to consider. Quite clearly there is no single best way for the development of secondary education and training; initial conditions in each country will determine what the priorities and what is feasible over what time frame. The table should thus be considered as a checklist of choices that have produced results in other contexts which may or may not be replicable.

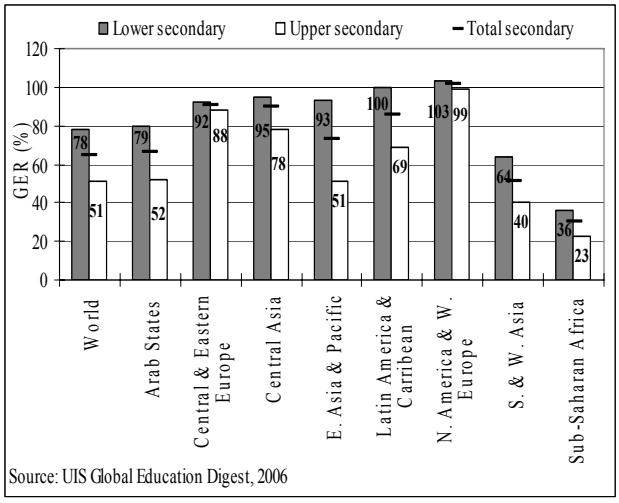
Table 2: Summary of Policy Options for Secondary Education Development		
Issue	Possible Response	Options for specific actions
Cost poorly aligned with domestic resources	Reduce per student cost	• Increase teaching load to 25 hours/week • Adjust teachers salaries • Double shift use of infrastructure • Boarding only for students from remote areas • Improve internal efficiency, reduce repetition
	Integrate part or all of junior secondary with primary education	• Extend duration of basic education to 8 -10 years • Simplify curriculum • Upgrade primary teachers to JSE subject matter specialists
Curriculum not relevant to demands of labor market and modernizing society	Align curricula with formally established graduate profiles	• Provide common core of general subjects in JSE • Strengthen math and science teaching and introduce ICT • Avoid occupation specific vocational training • Emphasize capacity for further learning and life skills
	Provide broad range of opportunities for further education and training beyond junior secondary	• Maintain selective access to SSE • Provide non-formal opportunities for further learning • Establish TVET systems with a range of programs and providers • Provide opportunities for students to study advanced mathematics, science and ICT
Learning achievement is unacceptably low	Protect basic conditions for teaching /learning	• Ensure primary graduates master primary curriculum content • Align enrollment growth with resources and policy reforms
	Ensure instructional effectiveness	• Ensure adequate supply of textbooks and learning materials • Provide opportunities for teacher support and development • Use ICT to provide teachers with additional subject matter knowledge and assist teachers with lesson preparation • Prepare head teachers for managerial responsibilities
Access and opportunities to learn are inequitably distributed	Remove obstacles to girls attendance	• Provide a safe environment and girl friendly school policies • Provide attractive role models • Reduce distance to school
	Provide opportunities for poor children	• Ensure equitable access to primary schools of acceptable quality • Provide means tested financial support • Reduce/waive fees for poor children • Increase density of day school network
Centralized decision making adversely affects resource use and learning outcomes	Increase school level responsibility for service delivery	• Decentralize resources and decision making authority • Strengthen local institutions • Tap readiness of communities to support local school
	Redefine role of national authorities	• Strengthen central level capacity to set standards, ensure equity, monitor quality, provide core financing, and support schools in difficulty
Encourage multiple delivery mechanisms	Vary service delivery in response to local conditions	• Create different organizational arrangements • Allow variations in curriculum choice and delivery methods • Encourage private training providers
	Exploit potential of ICT and distance education	• Establish systems for teacher support and development • Provide opportunities for secondary education equivalence • Life long learning
Promote Public Private Partnerships	Establish clear legal framework	• Ensure transparency in resource allocation, • Create explicit accountability indicators • Encourage demand side financing schemes
	Set up participatory processes.	• Open and participatory procedures for consultation on policy and implementation

Tomorrow belongs to the people who prepare for it today
African proverb

Chapter 1
SEIA Rationale and Objectives

The **challenges** of education development in Sub Saharan Africa (SSA) at the beginning of the 21st century are unprecedented. Faced with persistent gaps in the coverage of primary schooling, almost all countries have launched major efforts to ensure that all children will have the opportunity to complete a primary education of acceptable quality. At the same time governments are committed to expanding access to further learning. This is in part a response to the soaring demand for places in junior and senior secondary education as the number of students that completes primary school increases rapidly. But it also reflects the belief that successful participation in the technology driven global economy requires skilled people – many with science and technology skills. In addition, social imperatives – increased awareness of HIV-AIDS and other health risks, promotion of democratic values, and participation in economic and social development, combined with the growth in numbers of urban youth- call for specific policies to promote a better life style and enhance the productive potential of young people. Many political leaders recognize the importance of better using the human capital embedded in their youth. There is thus little doubt that countries can no longer afford what Hernes has characterized as the "quiet neglect" of secondary education (Caillods and Lewin, 2001; p.v).

Figure 1.1: Gross enrollment ratios in secondary education, by region, 2004 or latest



It is not surprising that with gross secondary enrollment ratios lower than in all other regions of the world (Figure 1.1) African governments are emphasizing the importance of expanding access to secondary education to provide a basic education cycle of 8-10 years to all children (see for example UNESCO, 2000; NEPAD, 2005) and offer opportunities for further education and training beyond that for students who are willing and able to do so. But the obstacles to meaningful progress towards these goals are legion and often result in policy inertia with more of the same policies that don't work anymore.

Yet, in much of SSA the absence of action to transform the way secondary education is provided can only lead to further deterioration of its already low quality and jeopardize

opportunities for accelerated economic and social progress. Reform of, and innovation in, secondary education is urgent almost everywhere. But few countries have a policy frame work that will allow them to expand access, enhance equity and improve quality at the same time.

Changes in the financing, management and curriculum content will be inevitable, but perhaps even more important is the need to change the mental models (Senge, 2000) of schooling and education governance that continue to dominate policy and practice in African secondary education. Often ideology rather than pragmatism dominates policy making; evidence based policy decisions remain rare. Resistance to change is often deeply rooted in the education community. In many countries education policy is detached from a longer term vision for national development, and remains the concern of professionals in the Ministry of Education and captive of the pursuit of short term problem resolution. Firefighting and politics rather than development and capacity building typifies too often the practice of education policy. Designing and implementing the necessary reforms will often be controversial and a national dialogue leading to a broadly supported national strategy an essential part of any reform strategy

Daunting Challenges

The social demand pressure for access to secondary education is rapidly intensifying throughout SSA and cannot be ignored. Moreover, even though in much of the developed world secondary education expansion occurred only at much higher levels of economic and educational development than those currently prevailing in SSA, there is little doubt that today countries need a more advanced human resource foundation for effective participation in a world economy with more complex patterns of production and trade than at any time in the past. Broadening access to secondary education is thus not only a response to social and political pressures; it is also an economic imperative.

From an elite to a mass system

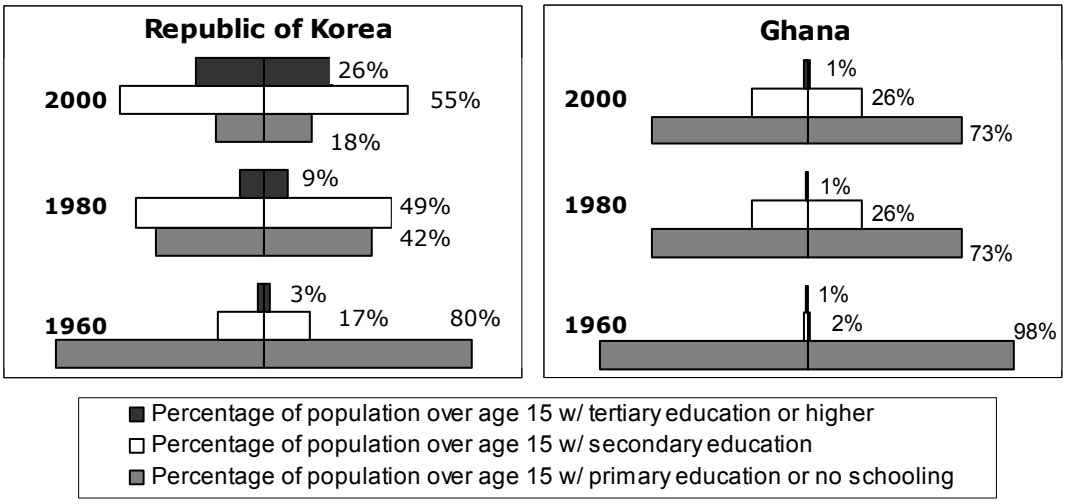
In middle level economies an education transition, moving the highest level of education attainment for the majority of the population from primary to secondary education, is well advanced. It is transforming what was an elite system of secondary education into one that offers all primary school graduates the opportunity to complete a basic education cycle[4] of 8-10 years and provides ample opportunities for education and training thereafter. SSA countries will need to move in the same direction.

This transformation of secondary education from an elite system that offers opportunities for further learning to a few selected students to a mass system that aims to enroll most primary school completers for several years more than the typical 6 years of primary education is only just beginning in Sub Saharan Africa. In Korea this transition occurred between 1960 when 80 % of the population over 15 had primary education or less as their highest level of education, and 2000 when 81% had completed secondary education or

[4] Throughout this report secondary education refers to the schooling of the age-group of roughly 12-18year olds. The term "basic education" is used to indicate an 8 to 10 year schooling length, including the primary and some or all years of the junior secondary cycle. In general ISCED definitions for schooling cycles are used.

higher education. In Ghana – as in much of SSA – it has yet to start (Figure 1.2). Accelerating progress towards this transition and managing it well, will determine the ability of African countries to participate effectively in the technology driven global economy of the 21st century.

Figure 1.2: The Education Transition South Korea and Ghana.



Source: World Bank, 2005b

The transition towards a mass system is not only a quantitative challenge; it has also important implications for the objectives and methods of instruction. The traditional role of secondary education as a mechanism for the selection of a limited number of candidates for university education is costly and precludes progress towards the new objective of a significant increase in junior and senior secondary education graduates. The "graduate profiles" of junior and senior secondary education cycles in the middle- and higher-income countries in other parts of the world indicate that effective secondary education equips students with middle-level skills and knowledge, and opens avenues for them as they enter the job-market and

Table 1.1 Enrollment growth in Primary and Secondary Education 1990-2002

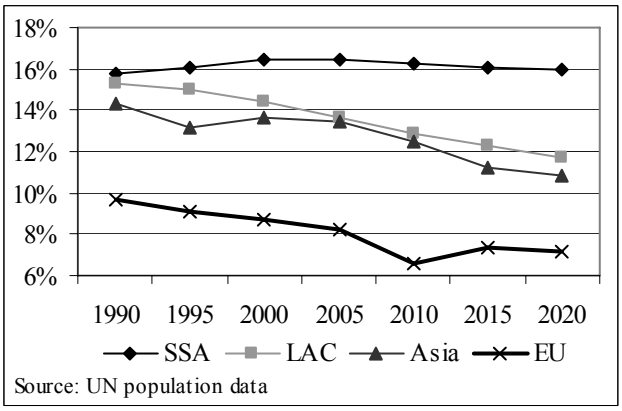
Secondary Education	Absolute number of pupils				Annual change rate		
	1990	1995	1998	2002	90-95	95-98	98-02
World	321	385	432	492	3.71	3.92	3.36
Africa	24	30	35	44	4.47	5.21	5.3
North America	31	35	38	41	2.15	3.08	2.39
South America	21	30	37	43	7.41	7.75	3.81
East Asia	92	110	129	151	3.58	5.31	3.98
West Asia	89	108	118	137	3.94	3.01	3.98
Europe	63	69	71	73	1.87	1.11	0.45
Oceania	m	3	3	3	m	4.17	1.58
Primary Education	**1990**	**1995**	**1998**	**2002**	**90-95**	**95-98**	**98-02**
World	587	637	646	673	1.64	0.47	0.96
Africa	81	94	102	123	3.21	2.64	4.73
North America	47	51	52	53	1.49	0.83	0.31
South America	44	48	45	44	1.95	-1.99	-0.76
East Asia	204	214	214	204	0.95	0.02	-1.24
West Asia	160	179	187	206	2.3	1.39	2.44
Europe	49	47	42	39	-0.71	-3.59	2.02
Oceania	3	3	3	3	2.94	0.51	0.99

Source: UIS 2005b

prepare for life-long-learning (World Bank, 2005b; Bregman & Bryner, 2003).

In transforming secondary education countries will –as further discussed below- have to deal with several major and urgent policy challenges at the same time: responding effectively to the rapidly increasing demand for expanded access, ensuring an acceptable level of quality, and doing so equitably, while coping with severe constraints on public resources in economies with large subsistence sectors and many competing priorities that limit the ability of government to mobilize public resources for secondary education. An accelerating economic growth in much of SSA adds to the urgency of the challenge but, at the same time provides a window of opportunity to effectively address the policy challenges

Figure 1.3: Young people aged 12-18 as a percentage of the total population, by world region from 1990-2020

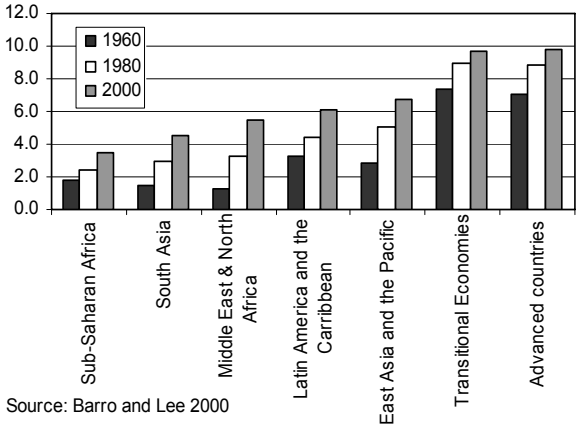


Increasing demand

Following the World Education Forum (Dakar 2000) and the adoption of the Education for All (EFA) and the Millennium Development Goals (MDGs), primary enrollments have been increasing rapidly in many African countries with a growth rate that between 1998 and 2002 exceeded the rate in all other continents (Table 1.1). This rapid growth continued: between 2002 and 2004 secondary enrollment in SSA grew by another 27% (UNESCO, 2006, 2004).

Continued high population growth adds to the challenge. The proportion of secondary school age people (12-18 years) in the population is higher in Africa than in other regions (Figure 1.3). The continued high population growth will, inevitably, result in increasing numbers of students that complete primary school and seek admission in junior secondary education. Enrollments in secondary education would double to reach more than 60 million by 2015 if the recent growth rates were to be maintained. If transition rates between primary and secondary education remain unchanged and all those that start primary school complete it, enrollments would more than triple by 2015 (Lewin, 2008). Few countries have the policies in place that will allow them to absorb so many new students.

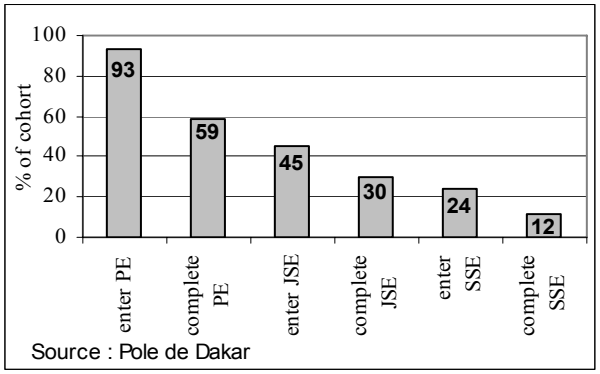
Figure 1.4: Average years of schooling population 5 years and older, by region



Lagging attainment

Educational attainment in SSA is lower than in any other region (Figure 1.4), although it has more than doubled since 1960, when it was higher than in the South Asia and Middle East and North Africa regions. These regions were able to increase the level of education of their population even more rapidly mainly by improving primary completion rates and broadening access to secondary education. Clearly, strengthening the human resource base in SSA to support economic development and social progress will not only require sustained progress towards the education MDGs and EFA objectives, but also an accelerated development of secondary education (World Bank, 2005b), especially where access has been constrained historically. In Sub-Saharan Africa on average only about 30% of each age cohort completes junior secondary education and 12% senior secondary (Figure 1.5). This is a weak foundation for sustained economic and social development, exacerbated by limited opportunities for participation in secondary education for the poor and for girls.

Figure 1.5: Survival (%) of a Cohort of Students in Primary and Secondary Education in SSA, 2003



Constrained public resources

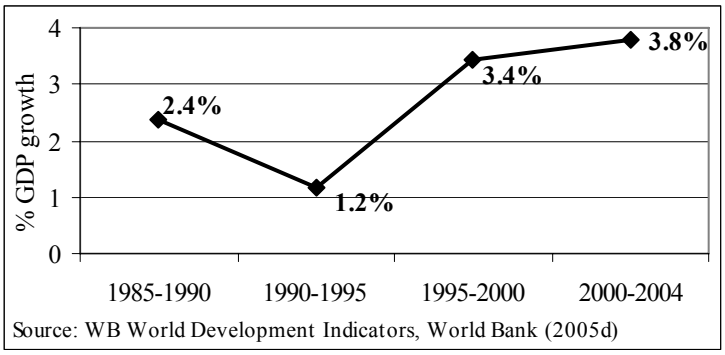
The multiple demands on education systems in combination with the overall constraints on public resources will make it difficult to respond effectively to the emerging demands for access to education opportunities beyond the primary level, without reorganizing the way secondary education is financed and provided. More students enroll every year, but many in conditions that preclude effective instruction. The growth in the number of teachers has consistently lagged behind the growth in the number of students. Between 1990 and 2004 the average pupil teacher ratio in SSA increased from 22:1 to 29:1. With teacher:class ratios often exceeding 2:1, class sizes of 50 or more are increasingly common. Public expenditures on instructional materials are often crowded out by expenditures on teacher salaries. Secondary education systems in most countries are ill prepared for the large anticipated increases in enrollments. Structure and organization of service delivery in secondary education is often costly and poorly managed (Lewin, 2006; Mingat, 2004). The curriculum content is often outdated and ill adapted to the demands of economic development and social progress in the 21st century (Bregman and Bryner, 2003; Benavot, 2004; Lewin, 2008; Ottevanger, 2007; Leyendecker, 2008). Unsurprisingly levels of learning are low, repetition and drop out high and many graduates poorly prepared for further education and training or entry in the world of work.

A window of opportunity

The case and the opportunity for an all-out effort to increase education attainment in the Africa region and building a labor force with a much greater proportion of people with at

least several years of secondary education and training is particularly strong at a time that economic growth is finally accelerating. GDP growth in Sub-Saharan Africa in 2004 reached 4.8 percent, up from 4.0 percent in 2003 with virtually all countries reporting positive growth. This is the sixth consecutive year of growth in excess of 3 percent for the region, representing a sustained period during which per capita GDP has been rising by an average of 1.8 percent (Figure 1.6). Since the mid-1990s sixteen African countries have consistently averaged GDP growth of more than 4.5 percent per year. Many have increased exports by more than 8 percent Growth is projected to pick up further as the benefits of past reforms and a more peaceful environment play out in expanded economic activity. The African Development Bank and the OECD (2006) predict a 5.8% and 5.5 % increase in economic activity in Africa in 2006 and 2007 respectively (African Economic Outlook, 2006). They expect that the outlook for much of Africa will continue to be more favorable than it has been for many years.

Figure 1.6: Average Annual % GDP Growth in SSA, 1985-2004



Source: WB World Development Indicators, World Bank (2005d)

Recognizing System Diversity and Linkages

Three points need to be emphasized by way of introduction to the analysis in this report. First, in spite of the fact that SSA countries face many common challenges, it is critically important to recognize the diversity in country situations. Differences in history, geography, culture and political choices have resulted in a great divergence of economic and education development trajectories and achievements. Second secondary education – including secondary level technical education and training – is closely linked with other parts of the education system, downwards with primary education and upwards with higher education. Analysis and policy formulation will be meaningful only when the linkages with other parts of the system education are clearly recognized and part of a comprehensive education sector strategy. And, third, secondary education has a mutually reinforcing relationship with the economy as it depends on economic growth for the mobilization of resources, and at the same time provides critically important inputs for the acceleration of economic growth and social development.

Table: 1.2 Structure of secondary education in SSA

Duration JSE (year)	Number of countries
4 years	22
3 years	18
2 years	8
Duration SSE (year)	**Number of countries**
4 years	7
3 years	31
2 years	10

Source: UIS, 2006a

Diversity

The way secondary education is organized varies considerably between countries. The duration of secondary education varies from 8 years in Ethiopia to four years in Kenya. Most countries – but not all- distinguish clearly between junior secondary and senior secondary education, each with a duration varying from 2-4 years

(Table 1.2). Any discussion of secondary education policy will need to distinguish clearly between junior secondary and senior secondary education. Junior secondary is increasingly considered as the second stage of basic education which should ultimately be available to all. In some countries it is provided in the same institutions and often taught by the same teachers as primary education. In others provision is clearly distinct from primary education, with in some countries pupils sharing the same schools with senior secondary students who attend specialized classes taught by teachers with higher qualifications. Senior secondary education usually has different aims from the junior secondary level. Students are at that level generally prepare for further study in tertiary level institutions or for entering the labor market at mid-level positions combined with opportunities to enroll in skill development and flexible life-long-learning programs.

There are also large variations on all key indicators between African countries. The gross enrollment rate in junior secondary education ranges from 11% in Niger to 109% in the Seychelles; at the senior secondary level the ratio ranges from 3% in Mozambique and Niger to 92% % in the Seychelles (UNESCO, 2006). The completion rate at the junior secondary education level ranges from 6% in Tanzania to 86% in Botswana; at the senior secondary level the ratio ranges from 2% in Burkina Faso to 45% in South Africa (UNESCO BREDA 2005)[5]. There are also large variations in public resource allocations for education between SSA countries. Public expenditures on secondary education as a share of the education budget vary from 11% in Sierra Leone to 50% in Eritrea[6]; unit cost expressed as a percentage of GDP per capita from 6% in Botswana to 73.5% in Burundi; and pupil teacher ratios from 14 in Comoros, 16 in Botswana and Swaziland to 46 in Malawi and 54 in Ethiopia (UNESCO BREDA 2005).

Education sector linkages

The successful response to secondary education development challenges will depend decisively on progress towards the EFA objectives and education MDGs. Broad, equitable and successful participation in quality secondary education is inconceivable without a primary education system that prepares the large majority of students effectively for further learning. Since the Jomtien Education for All Conference in 1990, but especially following the 2000 World Education Forum in Dakar, an impressive international effort has taken shape aiming to ensure that by 2015 all children have the opportunity to complete a primary education of acceptable quality. Less attention has been paid so far to the implications for secondary education of this effort at the primary level. Where EFA objectives remain distant goals and priority allocations to primary education are formally agreed, the resources for secondary education development often will be severely limited (Lewin, 2008; Mingat, 2004).

At the same time, as several analyses (Lewin, 2008; UIS, 2005b) have pointed out, the demand for primary education appears to be significantly affected by the probability of entering secondary school. Clemens (2004) draws attention to the fact that that so far no country has achieved over 90% primary net enrollment without having at least roughly

[5] The completion rate is calculated by dividing the total number of non-repeaters in the last grade of JSE or SSE by the total number of children of official graduation age.
[6] Adjusted for 7 years of education

35% secondary net enrollment, and surmises that parents wait until secondary schools are sufficiently available for there to be some reasonable chance of their child continuing into secondary education before enrolling their children -or not allowing them to drop out- in primary schools. This affects girls in particular, as boys are usually the first to enroll. Gender inequities in primary education are thus almost inevitably magnified at the secondary level[7]. Gender equity in secondary education has been not been achieved in countries that enroll less than half of the secondary school age group.

Secondary education is also closely linked to primary education as the source of teachers. Poor quality secondary education will result in poorly prepared candidates for teacher training. Thus primary and secondary education development is tied together in a mutually reinforcing relationship. A balanced development of the sector (World Bank, 2005b; UNESCO BREDA, 2005) will only happen when these linkages are recognized as a central strategic reality of education development.

A similar relationship exists between secondary education and tertiary education. Senior secondary education is the source of the students that enter universities and specialized institutions of higher education and training, including teacher training colleges. In several countries progress towards EFA and MD goals is constrained by teacher shortages Lewin and Stuart (2003). Quality tertiary institutions need well prepared secondary graduates. At the same time tertiary institutions are in many cases the place where secondary teachers are trained. Clearly, education development strategies need to provide a coherent framework for the development of all the parts of the education system.

Policy Choices Affect Outcomes

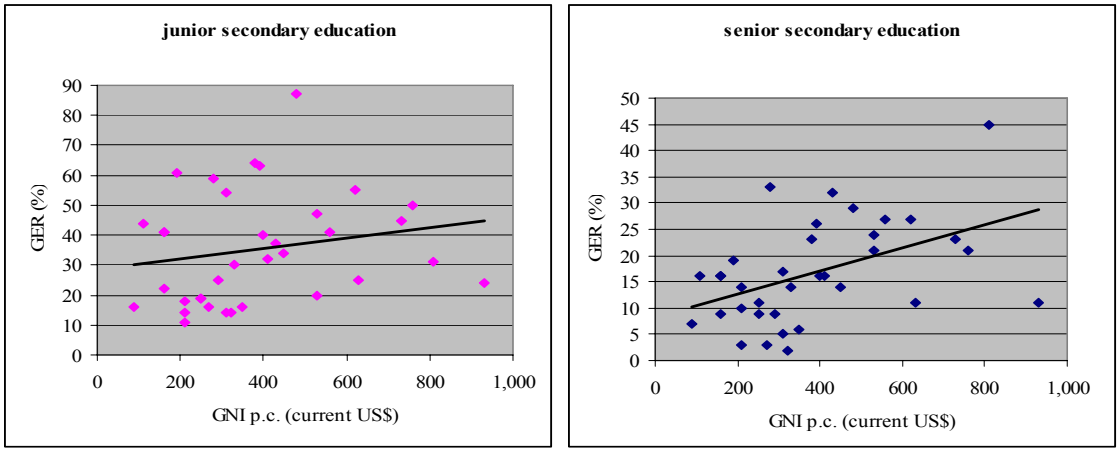
Countries in SSA with GNI per capita of more than $1200 all have a junior secondary enrollment ratio of 50% or more and senior secondary ratios of 30% or more. Six of the 10 SSA middle income countries for which data are available[8] have reached a junior secondary enrollment ratio of 80% or more and have reached or are close to the goal of universal junior secondary enrollment. For countries with a GNI per capita of less than $1200, the relationship between wealth and secondary enrollment is not so clear, especially not at the junior secondary level (Figure 1.7). Eritrea, the Gambia, Ghana, Sao Tome & Principe, Togo and Zimbabwe all enroll 50% or more of the junior secondary age group. Ratios vary between 14% in the Central African Republic and 60% in Ghana and at the senior secondary level between 2% in Tanzania and 32% in Nigeria.

[7] In only six countries - Swaziland, Cape Verde, South Africa, Botswana, Namibia and Lesotho- is Gender Parity Index for secondary education greater than the GPI for primary.

[8] Cape Verde, Seychelles, and South Africa have a junior secondary enrollment ratio of 100% or more; Botswana, Mauritius and Namibia have a ratio between 80% and 100%. At the senior secondary level the highest ratio are in Seychelles (103%) and South Africa (78%).

For the poorest countries with a GNI per capita around $400, the junior secondary enrollment ratio varies between 14% in the Central African Republic and 60% in Ghana and at the senior secondary level between 2% in Tanzania and 32% in Nigeria. This suggests that secondary education is not simply a correlate of increasing national income, but that policy matters. Government decisions on the allocation of public resources, strategies of service delivery and program content can and do have a profound impact on access to and quality of secondary education.

Figure 1.7: GNI per capita and secondary enrollment rates in SSA countries with GNI per capita of < $1200



Sources: UIS (GER); WB World Development Indicators (GNI per capita), 2005

In fact, secondary education and economic development can reinforce each other positively or negatively. In the industrialized and East Asian high economic growth countries, secondary education development accelerated in parallel with economic development. Economic growth increased government revenue, enhanced parent's ability to pay the direct cost and absorb the opportunity cost of education and expanded the demand for educated labor. In much of Sub-Saharan Africa per capita incomes stagnated or declined in many countries during the 1980s and the 1990s. Governments were not able to mobilize the resources necessary to reach their education development goals, many parents could not afford the direct and opportunity cost of education and the labor markets could not absorb the graduates. The East Asian experience underscores the mutually reinforcing relation between secondary education and economic growth. Economic growth enabled the expansion of secondary education, which in turn contributed to the ability to grow. East Asia in the 1970s was ready for foreign direct investment in a way that even today SSA -with low proportion of the of labor force with successfully completed secondary education – is not.

There can be no doubt that education development strategies in Sub-Saharan Africa will need to balance the demands of the different sub-sectors of the system if they are to contribute most effectively to national economic development and social progress. Secondary education will be an increasingly important element of national education

strategies. Yet it has often been neglected in analytical work and planning. The World Bank launched the Secondary Education in Africa (SEIA) initiative in 2000 in an attempt to help redress this neglect, document lessons from research and experience, and provide countries with a forum for reflection and discussion.

The Secondary Education in Africa (SEIA) Initiative

Forty years ago secondary education was the major focus of external development assistance in education. An estimated 80% of education aid in the mid-seventies was allocated to secondary and higher education much of it for technical assistance in the form of expert personnel and fellowships[9]. Similarly, World Bank's education lending operations in education began in 1963 with investments in infrastructure and were specifically limited to *"projects in the fields of (a) vocational and technical education and training at various levels; and (b) general secondary education"*[10].

These early priorities have changed dramatically. Since the 1970s the focus of international aid to education –as well as Bank lending operations- has broadened to all sub-sectors of the education and training system, including most importantly, primary education. As a result secondary education and training received much less attention, especially when the economic stagnation during the 1980s sharply reduced job opportunities in the modern sector. In the 1980s and 1990s less than 20% of Bank lending in SSA was allocated to general or vocational secondary education. Policy reviews addressed secondary education specifically for the first time only in 2005 (World Bank, 2005a). Bank support for secondary education in SSA since 1980 has been limited in scope and ad hoc in its policy focus (Perkins, 2004). Assistance by other aid agencies has followed a similar pattern and secondary education receives only about 5% of international education aid (OECD/DAC data base). But priorities are evolving in response to demands of African countries for broadening the scope of assistance to the sector.

Several leading aid agencies are expanding their assistance priorities for SSA beyond primary education, most often in the context of sectorwide approaches (SWAps). The World Bank's 2001 education sector assistance strategy for the Africa region (World Bank, 2001a) recognizes the importance of education development beyond the primary level and aims to increasingly "*design the Bank's support (…) to promote the balanced development of the entire sector and consider the linkages between all parts of the education system"* (p.5). The Bank is increasingly adopting a sector focus in its work in education, in which the EFA strategy that promotes access to good-quality education for all primary school-age children by 2015 is complemented by investments in other parts of the education system. Junior and senior secondary education are an important part of this

[9] In 1975 bilateral aid to education was estimated to represent 65% of total aid; of this 80% was allocated to technical assistance to the upper levels of education. Half the teachers, experts and advisers from OECD countries assisted general secondary education and third to technical and post secondary education. Nearly 80% of the fellowships went to students in technical schools and universities (World Bank, 1980).

[10] Memorandum from the President on "Proposed Bank/IDA Policies in the Field of education" October 1963 quoted in the World Bank 1971, p.13

strategy. Most importantly, the World Bank's Action Plan for Africa (World Bank, 2005c) identifies secondary education and skills development as priority areas, and part of a broader perspective on the economic and social development needs of Sub-Saharan Africa. But successful implementation will require countries and development partners to reflect on the challenges and trade-offs involved and engage in a policy dialogue based on a solid understanding of the constraints and the opportunities countries in the region face as they move to expand access to secondary education of acceptable quality.

The experience of the Africa region with secondary education development is varied and rich. Some Sub-Saharan Africa countries are managing secondary education development effectively. Many others are considering options for reform. This provides an opportunity for countries to study the policy choices and implementation experience of other countries in the region and formulate policies taking account of the lessons that have been learnt on the ground. Well documented lessons of experience are crucial to provide an evidence based platform for reflection and discussion of policy options and strategy development. To support countries in this process the Africa Region of the World Bank launched in 2002 the Secondary Education in Africa (SEIA) initiative with a UNESCO/BREDA – World Bank workshop in Mauritius: *Secondary Education in Africa: Strategies for Renewal* (World Bank 2002a) to:

- help collect and summarize best practices for sustainable expansion and improvement of secondary general, vocational and technical education;
- identify policy options for sustainable reforms and provide a forum for discussion and partnerships among stakeholders in SSA;
- contribute to better donor coordination in support of secondary education reforms.

The principle of SEIA work[11] is a participatory approach with strong involvement by African educators and institutions. The analytic foundation is in eight thematic studies (Box 1.1), a large number of conference papers, a few commissioned papers[12] and case studies documenting country experiences with secondary education reform[13]. The design and findings of several of these studies were discussed with African stakeholders in several local workshops. Forty countries participated in two regional conferences – Uganda 2003 and Senegal 2004 – where key issues were explored and preliminary findings of the studies were discussed. In 2002 the SEIA "Strategies for Renewal" document was published, including international contributions from Mauritius, the Netherlands and South Africa. A workshop was organized in Amsterdam in 2004 for external development partners to initiate a reflection on the place of secondary education in education aid programs in the Africa region.

[11] The SEIA study initiative is financed by the World Bank (AFTHD) and bilateral Trust Funds: Norwegian Education TF, Irish Education TF, Dutch TF, and the French and Japanese governments.
[12] Tony Read,Vincent Bontoux, Amanda Buchan, David Foster, Tania Bapuji (2007) *Secondary Textbook and School Library Provision in Sub-Saharan Africa*. SEIA Background Paper; Mingat, Alain. (2004) *Questions de soutenabilité financière concernant le développement de l'enseignement secondaire dans les pays d'Afrique subsaharienne*. World Bank, Washington D.C.
[13] All SEIA reports and articles resulting from the workshops and regional conferences are available at: www.worldbank.org/afr/seia .

The message from the thematic studies and other SEIA work is that balanced education development strategies in Sub-Saharan Africa must include secondary education and training as key elements. Countries cannot hope to achieve sustained economic growth and social progress in a knowledge based global economy without investments in secondary education. Yet, in most of SSA secondary education does not contribute as effectively to social and economic development as it could. Education data as well as labor market and business surveys indicate that (a) secondary graduates are poorly prepared for working life and further education, (b) access is inequitable, and (c) the cost is high. Reforms in financing and management; curriculum purpose and content including assessment methods; and service provision strategies are essential to transform the current "elite" system for junior and senior secondary education and training into one that contributes more effectively to economic growth and social development.

This report takes account of these messages and attempts to present a synthesis of the findings of the SEIA sponsored studies, the regional conferences and other relevant published literature. A preliminary version was discussed at a third regional conference in Ghana (April 1-4, 2007) attended by 17 African Ministers of Education and more than 250 delegates from countries, aid agencies and non-governmental organizations. The conference was in broad agreement with the main messages of the report while emphasizing:

- the imperative of formulating national secondary education development strategies as part of a national education development strategy that includes the totality of the education system from kindergarten to university;
- the urgency of formally establishing a national goal for a basic education cycle that goes beyond the typical primary education course of five or of six years while recognizing that this goal will vary according to national conditions, although it typically will be between eight and ten years;
- the need for countries to ensure that adequate public and private resources will be available to reach the national goals for secondary education at an acceptable level of quality and that these resources are used efficiently;
- the importance of strengthening the linkages between education and national economic and social

Box 1.1: The Thematic Studies

1. Strategies for Sustainable Financing of Secondary Education in Sub-Saharan Africa (Lewin, 2008).
2. Transitions in Secondary Education in Sub-Saharan Africa: Equity and Efficiency Issues (The TRANSE Group, 2008).
3. Governance, management, and accountability in Secondary Education in Sub-Saharan Africa (Glassman and Sullivan, 2008).
4. Recruiting, Retaining and Retraining Secondary School Teachers and Principals in Sub-Saharan Africa (Mulkeen, Chapman, DeJaeghere and Leu, 2007).
5. Curricula, Examinations and Assessment in Secondary Education in Sub-Saharan Africa (Leyendecker, Ottevanger and Van den Akker, 2008).
6. The link between health and social issues and secondary education: life skills, health and civic education (Smith, Nesbakken, Wirak and Sonn, 2007).
7. Developing Science, Mathematics, and ICT education in Sub-Saharan Africa (Ottevanger, Van den Akker and De Feiter, 2007)
8. Gender equity in junior and senior Secondary Education in Sub-Saharan Africa (Sutherland, 2008).

development goals, including a vision for secondary education that gives priority to the preparation of students for further learning, the world of work and good citizenship.

This report complements the recently published World Bank study "*Expanding Opportunities and Building Competencies for Young People: A New Agenda for Secondary Education"* (World Bank, 2005b), which explores key issues facing secondary education and presents a policy framework for the development of secondary education based on evidence from around the world. The global perspective of this study meant

Box 1.2: Food for Thought at the Crossroads: Summary Findings and Policy Choices

- Sustained economic growth and participation in a global, technology driven economy is unlikely to happen unless a human capital threshold has been reached. Many SSA countries face the danger of being trapped in a low level economic equilibrium where the human capital foundation is inadequate to support higher growth. Competitiveness in tomorrow's economic environment will require an equitably accessible basic education of 8 or 9 years of acceptable quality and selective, but equitable, access to opportunities for further education and training.
- Secondary education does not contribute as effectively to human capital development as it could and should: student learning achievement is low, in rapidly growing economies the number of graduates is insufficient to respond to labor market demand and the per student cost is high. The system as currently financed and managed will be unable to respond to the social demand for secondary places or the labor market demand of growing economies for skilled peopled.
- Secondary education strategies must be an integral part of national education sector development plans; they cannot be developed in isolation.
- Competing claims on national budgets and international assistance make it unlikely that the share of secondary education in the national education budget can be increased significantly; additional resources will become available only where accelerated economic growth increases public and private resources. But even where this happens, the expansion of access will in many cases not be possible unless resources are used more efficiently and the cost per student come down.
- It will be imperative for SSA countries to develop an African model for secondary education – one that is sustainable in the constrained resource environment of most countries, but that also ensures equitable access and delivers a service of acceptable quality. The main elements would e:
    - Resource requirements consistent with the available national means;
    - Content relevant to and evolving with national development opportunities;
    - Emphasis on learning: no trade-off of quality for quantity,
    - Equitable access for the disadvantaged;
    - Multiple delivery mechanisms;
    - Increased school based management responsibility and accountability;
    - Broadly conceived public-private-partnerships.
- Governments will need to create an environment where public and private resources combine to effectively support secondary education development.
- Curriculum reform is an essential element of the transformation of secondary education from an elite to a mass system.
- Flexibility and decentralization are the principal elements of management reforms.
- Meaningful expansion of secondary education must be based on the effective implementation of quality improvement at the primary level.
- Multi-lateral and bilateral development agencies should include expanded support for the development of secondary education and training in their priorities for support to the education sector, preferably in the context of sector wide approaches and based on comprehensive sector development plans

that only limited attention could be paid to the specific challenges faced by the countries of Sub-Saharan Africa. This SEIA summary report is designed to fill that gap. The main findings and policy options recommended for consideration by planners and policy makers are summarized in Box 1.2. The report is intended to help African policy makers and their external development partners – including the World Bank – in the development of their secondary education strategies by documenting African and relevant broader international experience and summarizing evidence on strategic directions and policy options that decision makers may want to consider as they develop their national secondary education strategy. Specifically, the objective is therefore (i) to identify policy options for sustainable development of secondary education, (ii) provide an evidence based foundation for discussion and partnership; and (iii) provide an explicit rationale and policy framework for increased support to secondary education by the Bank and other external development partners.

The Report focuses on secondary education: the level after primary and before the tertiary level, addressing the education of youth from about 12-18, usually covering grade 7-12, including junior and senior secondary education with differentiated strategies for each. The emphasis is on general secondary education complementing earlier work on (technical) Skills Development in Sub Saharan Africa and the role of technical education and vocational training in (Johanson and Adams, 2004). Where appropriate the report discusses the linkages between general secondary education, the world of work and strategies for skills development.

Methodology and organization of the paper

This report draws extensively on the thematic studies commissions as part of the SEIA initiative and other documents that have been prepared for the two regional conferences. It also attempts to incorporate issues raised and views expressed by participants at these conferences and other SEIA meetings. In addition, special studies to review the economic case for the expansion of secondary education, textbook provision strategies and gender issues, were undertaken specifically for this report.

Chapter 1 has summarized the rationale for and the objectives of the SEIA initiative as well as the process that produced much of the findings cited in this report. Chapter 2 reviews the current status of junior and senior secondary in Sub Saharan Africa, summarizing historical trends, achievements and formidable challenges ahead. Chapter 3 reviews the way secondary education developed in other parts of the world. Chapter 4 reviews the contribution of secondary education to economic and social development in Sub-Saharan Africa.

The report then reviews the principal areas where policy reforms will need to be considered: financing (Chapter 5); curricula and assessment (Chapter 6); effective instruction and opportunities to learn for all students (Chapter 7); and governance and management (Chapter 8).

The next chapter (Chapter 9) provides an overview in the form of an agenda for reform based on the analysis presented in the preceding chapters and the preconditions and

strategies that need to be in place for successful implementation. The report concludes in Chapter 10 with a discussion of the implications for the support of external agencies – including the World Bank- for secondary education development in the Africa region.

In the middle of every difficulty lies opportunity.
Albert Einstein

Chapter 2
Mapping the Challenge

Progress towards widespread completion of junior secondary education as the terminal level of education for most students combined with the gradual expansion of senior secondary education is well underway in much of the developing world (De Ferranti et al., 2003; World Bank 2005b), but has begun only recently in SSA. This chapter reviews how this process is beginning to take shape in that region, summarizing the achievements and challenges based on UIS data for 2003/2004, World Bank supported education Country Status Reports (CSRs)[14] and analyses[15] extracted from these and other data sources, including those carried out in the framework of the SEIA project. The different contexts and organizational arrangements for secondary education imply that few – if any – observations apply to all countries. They must therefore be treated with caution when used in the analysis of specific country situations. Yet, the problems of low and inequitable participation, inadequate quality, poor relevance and low learning achievement are ubiquitous in the region, while high cost and inefficient resource allocation in conjunction with severe constraints on public resources obstruct the desired development of secondary education and are sparking a new interest in the potential of public- private partnerships.

Participation and Equity

Secondary education participation rates in Sub-Saharan Africa are lower than in any other region (Chapter 1, Figure 1.1); with access highly biased against the poor. This constrains the ability of governments to pursue development strategies that promote equitable sharing of the benefits associated with economic growth and social cohesion.

Low enrollment rates

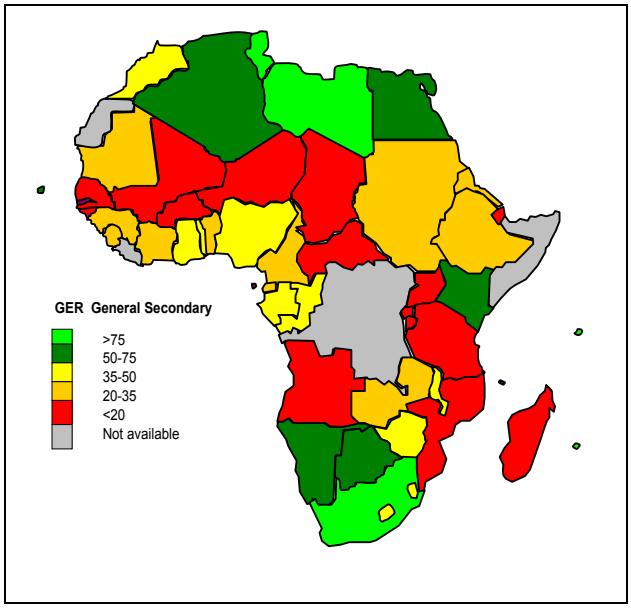
Twenty-two African countries have compulsory junior secondary education (the lowest proportion of countries of any region), but ten of these fall well short of this target (UIS 2005b). For example, in the Central African Republic, Madagascar, and Mauritania, junior secondary enrollment ratios are still less than 30%. Yet, secondary education participation is increasing rapidly almost everywhere. In 1990/91 the secondary GER in Sub-Saharan Africa was only 19.1% on average and less than 7% in Tanzania, Burundi, Niger, Mali, Burkina Faso and Mozambique. Since 1990 enrollment in **s**econdary education in Sub-Saharan Africa has grown faster than in primary education; and between 1998 and 2003**,** faster than in any other region of the world (Table 1.2). By 2004

[14] The CSRs consulted are listed in annex

[15] Data analyses from work by Brossard and Amelewonou (2005), Lewin (2007), Mingat (2004), and UNESCO BREDA (2005) underpin much of the discussion in this chapter. The review of TVE(T) issues is largely based on Johanson and Adams, 2004.

the secondary GER had reached 30%. Since the region started from a very low base, it still lags far behind other regions in secondary education participation. Of the respective age groups less than one in two was enrolled in junior secondary schools and less than one in four in senior secondary schools. Almost half of those not enrolled are in Nigeria, Ethiopia, DRC and Tanzania (Lewin 2006). Moreover the differences between countries remain significant (Map 2.1). Botswana, Cape Verde, Mauritius, Namibia, Seychelles and South Africa enroll more than 80% of the population of the relevant age in junior secondary schools, while Burundi, Burkina Faso, Central African Republic, Niger, and Rwanda enroll less than 20%.

Map 2.1: General Secondary GERs for African countries 2003/04 or close



Source: UNESCO BREDA, based on UIS, 2006

There are also significant differences in the development of junior and senior secondary education. For example, the junior secondary gross enrolment ratio in Burkina Faso is similar to Rwanda, but the upper secondary ratio in Burkina Faso is only 60% of that in Rwanda. Upper secondary enrolment ratios in Burundi are two times higher than in Mozambique despite similar ratios at lower secondary level. Some of the highest greatest relative differences between enrolment ratios are found in Burkina Faso, Equatorial Guinea, Mozambique and Niger, where upper secondary ratios are less than 40% of those at lower secondary level. Upper secondary enrollment rates are more than 60% of the junior secondary rates in Mauritania, Nigeria and Rwanda -at relative low secondary enrollment levels- and in South Africa, and the Seychelles -at some of the highest enrollment levels in the region (UNESCO, 2006).

The rapid increase in enrollments at the junior secondary level is driven, first and foremost, by the large increases in the number of students reaching the last grade of primary school. The primary gross intake rate[16] increased from 88% in 1999 to 105% in 2004, while the survival rate to grade 5 remained stable during that period at about 73%.[17] In addition, access to junior secondary education is becoming less selective. Between 1990/91 and 2002/03 the transition rate from primary to junior secondary rose by 20 percentage points to 80%. At the same time, however, the transition rate from junior to senior secondary education declined from 72% to 60% (UNESCO BREDA,

[16] Total number of new entrants in first grade of primary education, regardless of age, expressed as a percentage of the population at the official primary school-entrance age.
[17] Survival rate to the last grade of primary is interpreted as the percentage of children who start primary education who reach the last grade. The rate is calculated on the basis of the reconstructed cohort method, which uses data on enrollment and repeaters for two consecutive years. (UIS, 2006a).

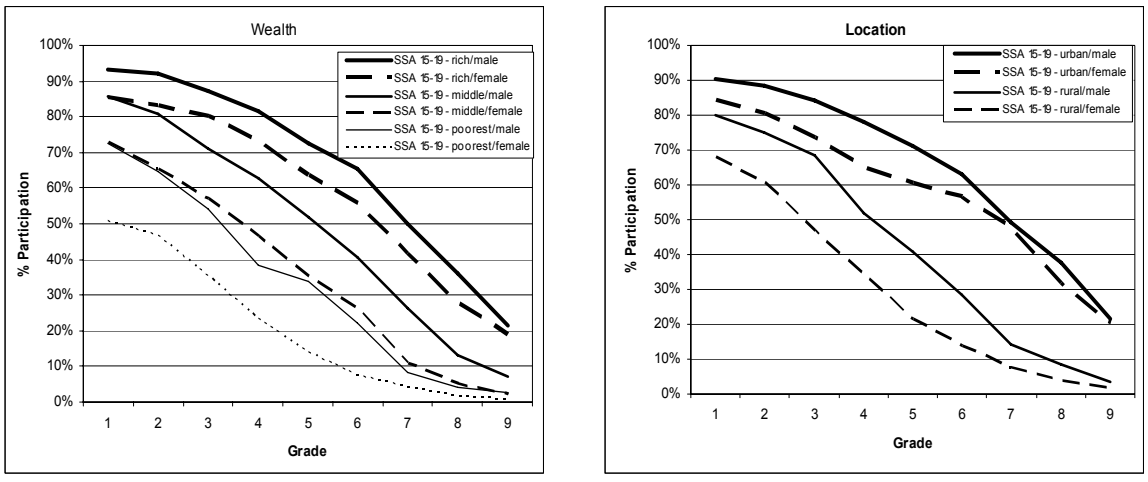
2005) reflecting an increased selectivity in the face of the rapid growth in the number of junior secondary graduates.

Technical/vocational education (TVE) generally occupies a small, often marginal, position in the school systems of SSA. Available data (2003/04 or close) suggest that less than 10% of total secondary enrollment is in technical and vocational schools. Countries with GNI of less than $700 generally have lower participation rates (less than 200 per 100,000 inhabitants) although there is not a very strong correlation between GNI and enrollments in technical education (UNESCO BREDA 2005). But variations are significant, ranging from less than 50 participants per 100,000 inhabitants in Niger and Senegal, to more than 1,000 in Botswana, Cameroon and Congo and 2,155 in Mauritius. In most countries the share of TVE in secondary enrollments has fallen sharply over the past 15 years. In Botswana the proportion declined from 8 percent to 3 percent, in Cape Verde from 16 percent to 5 percent and in Gabon from14 percent to 7 percent. In Uganda demand for places in junior secondary farm and technical schools has fallen to less than 1% of available places. In Zambia the national technical high school could fill only two out of eight grade 10 classes because of the low standards of applicants (Lewin, 2008). Questions about relevance, quality and high cost in a period of tight public finances all contributed to this (Atchoarena and Delluc, 2001; Johanson and Adams, 2004).

Inequities in participation

Gender differences at the secondary level are significant (Figure 2.1). The millennium development goal to reach gender equity in secondary education by 2005 was not reached. The regional average gender parity index (GPI)[18] at the junior secondary level is .84; at the senior secondary level .89. Gender disparities at the junior secondary level are particularly high in Benin, Cote d'Ivoire, Ethiopia, Guinea, Mali and Togo where fewer than 40% of the new entrants are girls (UIS, 2005b). But the causes vary. In

Figure 2.1: Education Participation by Wealth and Gender and location in Sub Saharan Africa



Source: Lewin, 2007 based on DHS data

[18] The GPI for a particular group is calculated as the number of girls divided by the number of boys.

Benin and Ethiopia, the two countries with the greatest disparity, this is entirely the result of disparities in access and retention in primary education. In the other countries (Congo for example) gender inequity in access to secondary education reflects mainly disparities in the transition rate. In Uganda and Zambia girls have a greater chance than boys to move into secondary education, but retention of boys at primary level is so much higher, that more boys than girls move into secondary education.

All these examples illustrate the different ways in which gender disadvantages can manifest themselves and underscore the need for careful country specific diagnostic analyses. Projections by the UIS (UIS 2005b) suggest that improvements in gender equity at the primary level can be expected to result in improvements in the gender parity at the secondary level and may even reverse existing disparities in Benin, Burkina Faso, Mozambique and Uganda with girls outnumbering boys by 2015. Yet in other countries (Congo, Eritrea and Niger) the improvements will be slight unless deliberate policy action reverses past trends. In general progress towards gender equity in secondary education is closely associated with progress towards the EFA objectives for primary education and with expansion of access to secondary education. Almost all countries with gender parity have a secondary GER of more than 50% (Lewin, 2008).

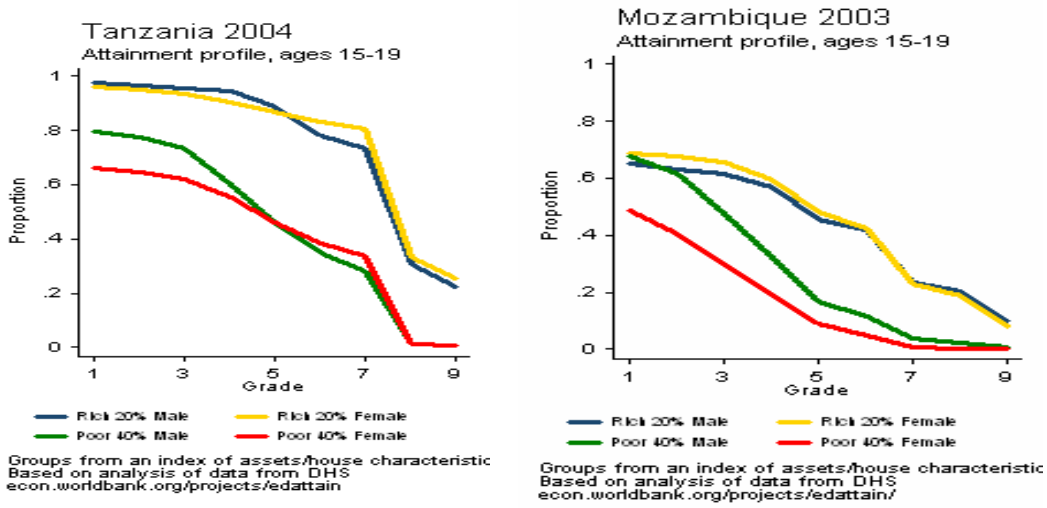
Table 2.2: Factors Affecting Gender Disparities in Secondary Education

Demand Side	Supply Side
▪ ***Social and cultural factors***: o Behavior and the choices of parents and pupils affected by traditional values o Girls' education seen as incompatible with religious and/or traditional values o Boys' education favored over girls' education ▪ ***Economic factors***: o Poverty o Direct and indirect costs (school fees, uniforms, textbooks, transport, etc.) o Higher opportunity costs and lower rate of return (girls are needed for household or labor tasks) ▪ ***Family factors:*** o Parents' low level of literacy and education hence low perception of the importance of girls' education o Early marriages and pregnancies o Orphans o Girl headed households ▪ ***Other factors:*** o HIV and Aids *Source*: Sutherland-Addy, 2008	▪ ***Political Factors:*** o Policy priorities which focus disproportionally on primary education and put emphasis on access and enrolment v/s retention and completion o Budget constraints and fiscal austerity programs with negative impact on the education sector o Lack of incentives for girls' access to primary and secondary education o Political instability o Inconsistent educational policies ▪ ***Bureaucratic factors*** : o Formal commitments to gender objectives become weaker as they travel down the bureaucratic chain ▪ ***Institutional factors:*** o School may not be gender sensitive with lack of gender awareness among teachers o Lack of female teachers o Safety issues (gender-based violence including sexual violence and corporal punishment) ▪ ***Infrastructure factors:*** o Long distances to schools o Remote areas with no schools o Lack of sex-segregated sanitary facilities ▪ ***Contextual factors:*** o Poor quality of education programs o Education systems that are poorly contextualized to local learning needs

Both supply and demand factors affect the enrollment of girls in school (see table 2.2). Nearly all of these affect poor girls most, in particular those living in rural areas. The cumulative effect of disadvantage in at the primary level and the obstacles to performance and retention at the secondary level, results in a secondary GPI that is significantly lower than at the primary level, higher drop-out levels for girls –in Malawi for example the drop out rate for girls in secondary schools is 16% compared to 10% for boys (Sutherland-Addy, 2008) - and low participation in math and sciences.

Poverty and rural residence are even more strongly associated with low enrollment in secondary education (Figure 2.1). Like gender, this usually has its root cause in the education disadvantage of rural and poor students at the primary level. Relatively few poor children reach the last grade of primary and few of those that do, manage the transition successfully. The process through which the poor are left without access to secondary education varies significantly, however. In some countries drop- out rates are high in the last year of primary education and relatively low during the transition to secondary; in others the reverse is the case). For example, DHS data (Figure 2.2) show that in Tanzania of the poorest 40% of the students in the final grade of primary only about 2% manage to enter secondary school after a highly selective exam. In Mozambique on the other hand, the poor drop out of the education system in a much more gradual way

Figure 2.2 Access to secondary education by gender and wealth



Source: Edstats

Whatever the pattern of drop-out, in many countries the result is that only about 10-30% of the poorest 40% of the children enter secondary education Rural girls are at a particular disadvantage. In Benin, Burkina Faso, Guinea, Niger, Mozambique, and Madagascar for example less than 15% of them complete the primary cycle (Bruns et al, 2003). Of these only a small number will enter secondary school.

For those poor children that manage to complete primary education and then are successful in the secondary school selection process, the obstacles to enrollment remain formidable. Tuition and other formal and informal cost are often unaffordable. Where scholarships are available they are often poorly targeted. Secondary schools frequently are located in larger towns and cities or are boarding schools, implying cost that poor rural parents can ill afford. Boarding schools constitute the majority of public secondary schools in many low enrollment countries (e.g. Rwanda, Uganda, and Tanzania) and a substantial minority of places in many others (e.g. Ghana and Kenya). Even when located in rural areas they cater disproportionately for urban children. Opportunity cost for students of secondary school age are often significant. Moreover, societal pressures and tradition often militate against poor children who want to continue their education at the secondary level (TRANSE, 2008). Access is often difficult as most schools are located in urban areas.

Equity also plays a role in access to secondary technical and vocational education programs. Females are seriously under represented making up less than 15% in of TVE enrollments in Niger, Ethiopia, Uganda, Eritrea, Malawi and Namibia. Young women tend to be concentrated in programs that prepare for service sector jobs typically occupied by women, such as hair dressing, health care, and hotel work. Young men mainly enroll in industrial sector specialties such as mechanics, electrical and civil engineering. Poverty and rural residence also create disadvantage in access to TVE programs. Most institutions concentrated around the capital and large cities. The imbalances in supply favor the modern industrial and service sectors to the detriment of rural occupations and the informal sector (Johanson and Adams, 2004).

The financial and cultural obstacles to further learning loom large in parental decisions, especially when students are ill prepared for advanced learning and the teaching-learning environment is not structured to effectively support students that find it difficult to adapt to the instructional strategies and behavioral expectations at the secondary level. In several countries programs have been launched to help disadvantaged students cope with these challenges. Most remain small, however, and cover only a limited number of students (TRANSE, 2008).

Inadequate Relevance and Quality

Concerns about the performance of secondary education go beyond concerns about the level and the equity of participation. They include, most importantly, relevance of program content related to the effectiveness of the preparation of young people for participation in an economy and society that is certain to see dramatic change over the next two or three decades as well as apprehensions about the quality of instruction, the learning environment in schools and the level of learning achievement.

Outdated and inappropriate curriculum content

In many countries in the region secondary curricula) continue to reflect the elite traditions of academic schooling inappropriate for a society and a labor market that has dramatically changed and unsuited to the demands of mass systems (Lewin, 2008). Most curriculum change has been limited to ad-hoc changes in specific subjects or the addition

of new subjects to an existing curriculum; only rarely have reforms attempted a comprehensive redesign of the curriculum to respond to the change in the economic and social environment and the evolving composition of the expanding student body (Bregman and Bryner, 2003). In addition, implementation of curriculum reforms the classroom has usually been difficult and the impact on student learning far less than expected. The reasons are well known. Reforms have often been designed without adequate assessment of classroom and school level realities, implications of the demand on teacher skills or cost of implementation. Adding but not subtracting content has led to curriculum overload resulting in shallow or partial coverage. Insufficient teacher preparation and shortages of essential instructional materials make that teaching new content and using different instructional methods often can not happen.

Predictably, many teachers continue to use outdated pedagogies, and are driven by the requirements of high stakes selection examinations. Science and technology are often taught under conditions where effective instruction is almost impossible (Ottevanger et al, 2007). Attempts to introduce vocational (or "practical") subjects in schools in sub-Saharan Africa have largely failed (Lauglo, 2005). Students are often poorly prepared for working life and citizenship in societies with rapidly evolving social and economic structures (Lewin, 2008; Leyendecker et al., 2008).

Curriculum issues are equally important beyond the junior secondary level. At that point a wide range of options –within general secondary programs and through specialized full time and part time training programs- is needed to prepare a good number of students for further education in tertiary level institutions and many others for direct entry in the world of work and continued learning. The specialized and advanced nature of the programs at this level and the associated high cost, pose important challenges for staffing and resource mobilization.

Formal public technical and vocational programs at the secondary level have mainly focused on pre-employment training but, typically, have been slow to respond to the changing needs of the labor market. Many have neglected the informal sector, become supply driven and insulated from employer's expectations and demand. The economic stagnation of the 1980s devastated programs that mainly served the public sector; programs and institutional arrangements often have changed little since they were established in the 1970s. Cuts in development budgets have curtailed investments and facilities and equipment have become outdated and underutilized. Reductions in recurrent budgets have affected the qualifications, pay and motivation of teaching staff. Investments –including those funded by donors- have too often focused on expensive specialized training starting at too early a stage in the education cycle. TVE institutions in SSA continue to fall short in assessments of their relevance to economic and social needs, their effectiveness in delivering skills and their cost and efficiency (Johanson and Adams, 2004). These problems are widely recognized and several countries have launched programs to reform TVE systems emphasizing innovations in the delivery of new shortened competency based programs, increased institutional autonomy and accountability and involvement of employers and other external stakeholders in institutional governance (Johanson and Adams, 2004).

Low Learning achievement

Standardized data on learning achievement in secondary education in SSA remain limited. International assessment programs such as PASEC and SACMEQ have focused on primary education level achievement. At the secondary level the Trends in International Mathematics and Science Study (TIMSS)[19] is the only international study with participation from SSA that provides comparative data and trends for student performance although only three SSA countries have participated in these international assessments.

Table 2.2 TIMSS (2003)
Average Scale Score (Grade 8 students)
(Selected Countries)

Countries	Math	Science
Singapore	605	578
Malaysia	506	510
International Average	467	474
Indonesia	422	420
Philipines	388	377
Chile	386	413
Tunisia	410	404
Morocco	387	396
Botswana	366	365
Ghana	276	255
South Africa	264	244

Source: TIMSS 2004a, 2004b

Table 2.2 provides data of the 2003 survey for the African countries that participated as well as for some comparators. Students from Sub Saharan Africa performed poorly when compared to other participating countries. The average score of the best performer –Botswana- 365/366 points out of 800 points is well below the international average of 467/474 points. In fact, the results of the Sub-Saharan participants are not only below the average scores of, developing countries such as Malaysia, the Philippines, Indonesia and Chile but also below the participating North-African countries -Morocco and Tunisia. Notwithstanding the wide dispersion of results within each country, only the most proficient students in the SSA countries approached the level of achievement of Singaporean students of average proficiency. These results particularly worrying, since the secondary education systems in these three Sub-Saharan countries are among the more developed in the region and the performance of students in many other countries may even be lower. It is noteworthy however that in all three SSA countries girls performed as well or better than boys on the math test; in science only in Ghana did the boys outperform the girls by a substantial margin (15% percent).

Many of the performance problems at the secondary level have their roots at the primary level. Mastery of the language of instruction in secondary education – most often French, English or Portuguese- is critically important for the mastery of other subjects. Few

[19] TIMSS, the Trends in International Mathematics and Science Study, is designed to help countries all over the world improve student learning in mathematics and science. It collects educational achievement data at the fourth and eighth grades to provide information about trends in performance over time together with extensive background information to address concerns about the quantity, quality, and content of instruction. Approximately 50 countries from all over the world participate in TIMSS. A project of the IEA headquartered in Amsterdam, it is directed by the TIMSS International Study Center at Boston College in collaboration with a worldwide network of organizations and representatives from the participating countries.. Conducted on a four-year cycle, the first round of TIMSS was in 1995 and the second in 1999. The third survey was completed in 2003. Preparations are underway for the next round of TIMSS, which will take place in 2007.

countries have effective strategies for teaching students who enter primary school speaking an African language and need to prepare for a secondary entrance examination that expects fluency in an international language (Alidou et al., 2006; Verspoor, 2006). In Guinea for example those that graduated from grade 6 were able to achieve only 34% in French language and 25% in writing on a standardized criterion referenced assessment. Similarly in Uganda the average grade 6 graduate scored only 24% for English reading and writing against an intended average standard of 75%; and only 15% of the graduates were able to achieve that standard (Verspoor, 2006).

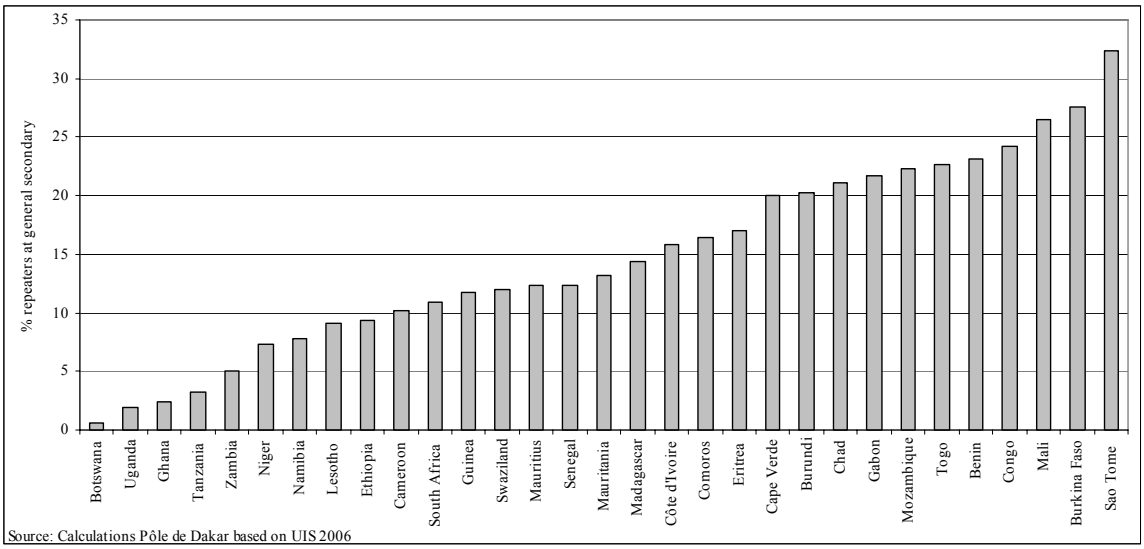
At the senior secondary level quality issues similarly are of concern. Curricula are typically overloaded and closely linked to university entrance requirements. (Bregman and Bryner, 2003). Few students are well prepared for higher education, with particular weaknesses in math and science and often an insufficient proficiency in the language of instruction. In Tanzania, the older generation of University of Dar-es-Salaam (UDSM) staff and administrators share the belief that the academic standards of school leavers and university students has fallen steadily over the years. Students, they feel, are particularly lacking in command of written and spoken English. Secondary teachers report that although English is the official language of instruction, they often feel obliged to resort to Kiswahili in order to establish meaningful interactions with their students (Cooksey et al., 2001; Teferra and Altbach, 2003).

Many universities find it difficult to recruit students who can demonstrate that they have acquired the knowledge and the skills necessary for successful higher education. In Nigeria, the effective pass rates of senior secondary examinations between 1998 and 2001 have averaged below 40 percent in all major subjects apart from Nigerian languages: for mathematics 37.3 percent of the students passed, for chemistry 17 percent and for agricultural science 21.1 percent. (Nigeria, CSR). In Uganda in 2000, the pass rate for math was 47.5 percent for the UCE (Uganda Certificate of Education- O level) and 66 percent for UACE (Uganda Advanced Certificate of Education A-level) candidates. At the UACE level the number of candidates in 2001 sitting for math and science subjects is less than 20% of the candidates taking humanities and social science course work, with pass rates in math (66%) the lowest of all subjects (Liang, 2002). In Benin, at the senior secondary level only 9% of students chose the math and physics stream, 15% chose the literature, and 74% of students chose biology and life sciences (Ottevanger et al., 2007). In Madagascar achievement and interest in science are low. Between 1975 and 2004, the percentage of students enrolled in scientific subjects in senior secondary education decreased from 61 percent to 30 percent. Those who did follow the science track, performed poorly on the science baccalauréat (41 percent passed in 2005). A recent survey of eighth graders showed weak performance in mathematics, physics, chemistry and natural sciences. More than half of the students scored less than 38 percent in mathematics, 54 percent in life sciences and 46 percent in physics and chemistry (Ramanantoanina, 2008).

High stakes examinations regulate with few exceptions, entry and progression in secondary education. Some selection examinations include more than twelve subject areas and others only four of five core subjects. Although there are exceptions, most

Figure 2.3: Rates of Repetition in Secondary Schools in SSA

primary school leaving examinations remain largely content rather than skill based, and reward recall more than higher cognitive capabilities (Lewin, 2008).



Notwithstanding the selectivity at entrance, repetition rates average more than 15%, lower than in primary education but higher than in any other region. This average conceals, however, considerable variation (Figure 2.3). Repetition rates in Botswana, Uganda, Tanzania and Nigeria are less than 5%, while they exceed 25% in Burkina Faso, Congo and Burundi. This supports Eisemon's (1997) argument that repetition may reflect systemic and distinct sub-regional "cultures of repetition" –with high rates in Francophone and Lusophone countries and low rates in Anglophone countries- and does not necessarily signify academic failure. To the extent that it does, it may reflect failure in relation to performance expectations that may have been appropriate for selecting a limited number of students for tertiary education but that no longer fit a system designed to provide meaningful education opportunities to a large and increasing proportion of the age group, many of whom will enter the world of work after they graduate. In any event repetition rarely results in longer term improvement in student's performance and is in fact often a precursor to drop out. In the high repetition countries it is a source of inefficiency that countries can ill afford.

Often secondary education – including public TVET – is poorly aligned with labor market needs and exceeds by a large margin the current requirements of the modern sector (Brossard and Amelewonou, 2005; UNESCO BREDA 2005). In Cameroon unemployment levels were 12.6% among those with primary education and 34.4% among those with a secondary education or higher (Eloundou-Enyegue, 2004)[20]. In Mauritania the unemployment rate in 2004 for the people between 25-35 years old who

[20] The unemployment trend reflects the differences in occupation and the nature of Cameroon's economy. The bulk of the workers with lower levels of education, work in agriculture or in the country's large informal sector. In 2004, the national unemployment rate stood at 8%, but exceeded 30% in major cities.

completed senior secondary education was 19%, for those who did not complete but attended secondary school –whether or not they completed junior secondary education - the rate was 27% (CSR, 2006). On the other hand, where the economy is growing and where there is a dynamic informal sector –as in Mauritania, Uganda and Tanzania for example- returns to secondary education are often higher than for primary education and unemployment statistics often reflect a temporary search period (see chapter 4 for a more extensive discussion).

Many secondary technical schools are in fact "poor cousins" to the academic secondary schools, which students use – often with little success – to enter tertiary institutions. Much of public TVE continues to be certificate-led instead of employment-led. Several tracer studies show major problems in the rate of absorption of graduates. In 1996 in Tanzania only 14% of those attending vocational training centers found work upon completing their training. In that same year in Mali 44% of the secondary technical schools graduates were employed after three years and in 1997 Madagascar 45% had found a stable job after one year (Johanson and Adams, 2004).

Table 2.3: Secondary Education Public Expenditure as % of GDP p.c. 2001 or close (Selected countries)

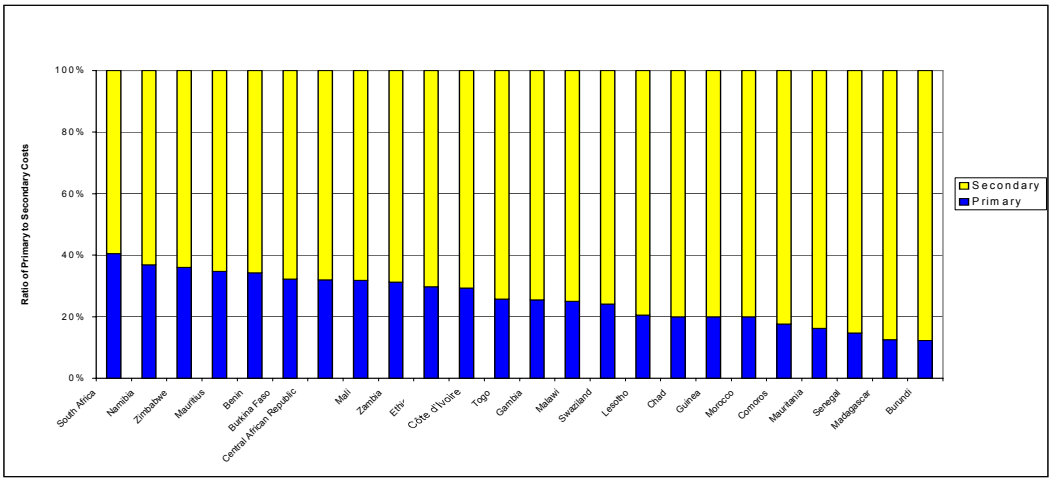
country	year	%	country	year	%
Benin[1*]	1998	0.98	Niger	2001	0.59
Chad	2003	0.5	Niger	2002	0.58
Cameroon	2001	0.91	Rwanda*	2001	0.59
Cote d'Ivoire	1999	0.98	Senegal	2001	0.63
Kenya*	2003	1.61	Tanzania	2002	0.23
Ethiopia*	2001	0.35	Zambia*	2000	0.51
Mali	2004	1.05	WEI av.	1999	0.21
Mozambique	1999	0.2	OECD av.	1999	0.25

Sources: CSRs, Africa Region, World Bank, 2001-2006; Kenya, World Bank 2004; Tanzania, World Bank, PER FY 2003; UIS 2002; WB World Development Indicators (GDP p.c.)

High Cost, Limited Resources

Secondary education as currently provided is expensive. The per student cost exceed in almost all countries the per student cost in WEI and OECD countries as a percentage of GDP (table 2.3). It is also proportionally much more expensive than primary education

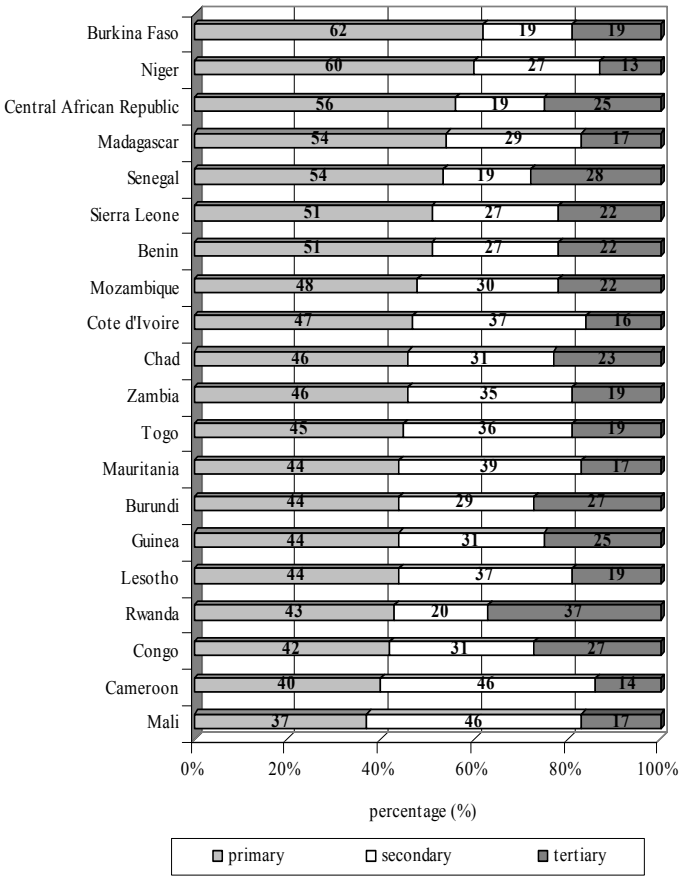
Figure 2.4: Ratio of cost per student between secondary and primary education



Source: Lewin, 2007

which in OECD countries has a per student cost of about 1.35 the cost of primary education; in SSA this is typically 3 times or more (Figure 2.4). No country with this kind this kind of cost multiple has been able to provide mass access to secondary education.

Figure 2.5: Share of Current Expenditure by Level of Education in Sub-Saharan Africa (%), circa 2003



Source: CSRs

Public expenditures as a share of expenditures on education on secondary education vary considerably between countries (Figure 2.5), but, typically, relatively modest amounts of public expenditure on education are allocated to the secondary level. In several SSA countries with substantial commitments to universalizing primary education, 50% or more of recurrent expenditure is allocated to primary schooling.[21] In Tanzania secondary absorbs less than 10%, whilst primary accounts for 65% or more. In Malawi, Burkina Faso, and the Central African Republic secondary absorbs less than 20%, whilst primary accounts for 55% or more.) Benin allocates 27% to secondary education and 51% to primary. Burundi Mali, Cameroon and Swaziland on the other hand allocate more than 40% of their education budget to secondary education.

Expenditures on higher education exceed expenditures on all of public secondary education in several SSA countries. In Rwanda in 2004 34% of public education resources were allocated to tertiary institutions and about 20% to all secondary schooling. Throughout the 1990s Malawi allocated nearly twice as much to higher education as to all secondary schools (Lewin, 2008). TVE does not absorb a major share of education spending – from 0.5 percent in Ethiopia to 12.7% in Gabon (Johanson and Adams, 2004). In many countries–especially those where many students still do not complete a primary education of acceptable quality- the expansion of access to secondary education may

[21] Cross national data on expenditure patterns are very incomplete and are degraded by different classification systems between countries.

have to involve a rebalancing of budget allocations between higher and secondary education

Impact of funding shortfalls

To respond to the increased demand for secondary places, while constrained by the resources available countries have spread the same resources over larger number of students (see table 2.4), attempted to mobilize private funding or most often did both. As a result essential inputs often are in short supply resulting in increasing class sizes, shortages of textbooks, instructional materials and supplies, poorly stocked libraries and double or triple shift use of facilities. And as government funding stagnates, parental contributions are an increasingly important complement to public funding.

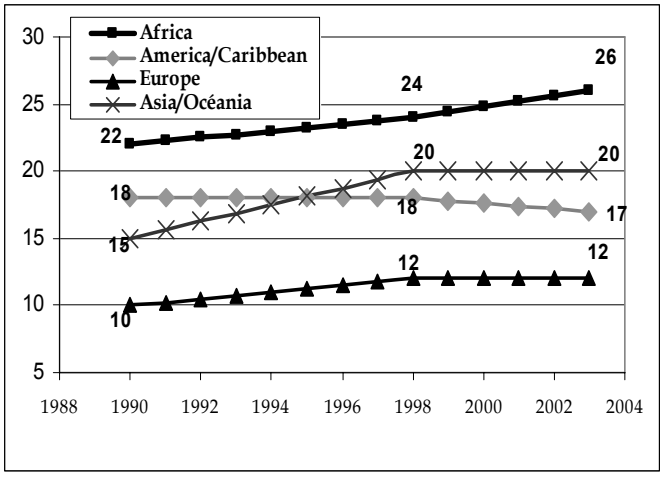
Table 2.4: Average annual growth (%) in secondary students and teachers in SSA

	1991-1996	1996-2000	2000-2004
students	4.8	6.6	7.5
teachers	2.9	5.3	4.3

Source: UIS 2006b

Figure 2.6 further illustrates the effect of the constraints on public funding on the staffing of schools is also in, which shows the average pupil-teacher ratio and its evolution since 1990 for different regions of world. The SSA regional average is higher than in any other region[22] and has continued to increase during period. On average, between 1990 and 2003 the ratio increased from 22 to 26 pupils per teacher compared to only 20 pupils per teacher in Asia/Oceania, 17 in America/the Caribbean and 12 in Europe. These averages hide, however, considerable variation: in Singapore, Japan and Hong Kong for example class sizes are more than 30 - large in comparison of many other high income countries- but much lower than in the recent past. In Korea classes in lower secondary education averaged more than 55 students in 1995 (Woessmann and West, 2002). In Japan they are they were 32 in 2005 but close to 40 till 1985. (Japan, Ministry of Education Culture, Sports, Science and Technology, 2005).

Figure 2.6: Average pupil-teacher ratio in Secondary Education 1990-2003, by major region



Source: Brossard an Amelewonou, 2005

In the absence of reforms in teacher deployment policies the consequence of the rising PTR in SSA has in many countries been an increase class sizes, with potential adverse consequences on the effectiveness of instruction. In Mali, for example, the GER in secondary education increased from 9% to 23% between 1990 and 2004, and at the same time the

[22] The much larger proportion of students in junior secondary education in SSA where PTRs typically are higher than in senior secondary education – explains in part the higher PTR in SSA

pupil-teacher ratio (PTR) increased from 13 to 38. Similarly in Guinea: the GER rose (from 9% in 1990 to 28% in 2004) but at the cost of a deterioration in the pupil-teacher ratio (13 in 1990 and 43 in 2004). In both cases, the GER has increased more than two-fold (and even three-fold in Guinea) while the pupil-teacher ratio multiplied by a factor three or even more in Guinea. Pupil teacher ratios of this magnitude almost inevitably result in class sizes of 50 or more since the number of hours that pupils receive instruction is lower than the number of teacher working hours resulting in some countries in class:teacher ratios that exceed 2.0. Under these conditions teacher productivity measured in terms of student learning almost inevitably is low: African teachers may teach large classes but they typically do so with limited instructional materials while their teaching load –students contact hours per week- is often low (see Chapter 7 for a more detailed discussion).

The quality of the teaching force is a further concern. The duration of teacher training varies from one year diploma courses to four or five year undergraduate training. Long training courses often do not produce enough teachers to meet the requirements of an expanding system or produce teachers at salary scales that the Ministry of Education cannot afford to pay in sufficient numbers. Several countries – e.g. Rwanda, Tanzania and Mozambique– have been forced to shorten the duration of pre-service training and increase the annual output. In some countries teacher salaries are unsustainable multiples of GNI per capita; in others they do not provide a living wage and are too low to retain teachers (See Chapter 5 for a more detailed discussion and some country specific data). To address teacher shortages Ministries in several countries are hiring temporary and contract teachers –many with inadequate pedagogical training. Untrained teachers often make up 20% of the cadre and can account for as much as 50%. In Benin 70% percent of the teachers fell in this category by 2002.

Instructional quality and effectiveness is further jeopardized by severe shortages of textbooks (Box 2.1). A recent review covering 19 countries in SSA (Read et al., 2007) found that in urban areas only 20%-40% of students had access to textbooks in core subjects. Estimates of availability of books in non-core subjects ranged from 1:8 Uganda and Kenya) to 1:40 (Zambia) up to 1:100 (Mozambique). In rural areas few students (less than 5% was a typical estimate) in any country had access even to core subject textbooks. For most schools, particularly for low cost/low quality private schools, the best that could be expected was a textbook in the hands of a teacher who could copy the text onto the blackboard. The most significant other sources of information for students were dictation and low cost pamphlets. Few secondary schools except for a few

Box 2.1: Textbooks in Zambian Schools

The current provision of books at high school level is deplorable. Observations made during field visits suggest that at its most generous a book/pupil ratio in classes is around 1:4, but 1:40 is not uncommon. In many cases the only textbook is in the hands of the teacher who uses it as the basis for lessons. The emphasis on basic education over recent years has resulted in the neglect of book provision for the high school sector. History, geography and English literature books all lacked sufficient local relevance while many science textbooks (e.g. in biology) are written for the UK market and are quite unsuitable for the Central African environment. There is an urgent need for an emergency "book flood" to help remedy the situation.

Source: CIDT, 2005

elite and prestigious secondary schools from both the state aided and private sectors had effective school libraries. Only Botswana (out of 18 countries studied) managed to achieve a basic level of secondary school library provision for all secondary schools.

The shortage of classrooms and specialized facilities often adds to the problems. Many countries have introduced multiple shift schooling in urban areas, with two different schools using the same facilities. In Mozambique, for example, since 2004, the number of students enrolled in schools with double shift – often offering evening sessions in a triple shift – has increased dramatically (Box 2.2). While double shift use of buildings (with reasonable class size) may be acceptable and cost-effective, triple shift use is most likely to curtail instructional time and result in incomplete coverage of the curriculum.

Box 2.2: "Cursos Nocturnos" in Mozambique

Evening classes –"cursos nocturnos"- run from 5:45pm to 9:55pm. They were originally designed to provide adults with a chance to obtain a secondary school diploma. Because of a lack of places in day schools, they now cater largely to adolescents of school age. In 2005 the number of junior and senior secondary schools providing evening courses each increased by 11%. In 2005, 32% of the lower secondary and 42% of the senior secondary students attended night classes.

Many schools have three shifts offering morning, afternoon and evening classes. Each school has one head teacher, assisted by one or two deputies for each of the shifts. Some teachers are hired on contract for the evening classes, but most are the same as in day classes. Teachers who do not teach a full load in day classes, have to do so in night courses, working up to half of the normal teaching load as extra hours. For night hours they are paid 1.5 times the regular hourly salary. Night students only have 5 classes of 45 minutes 5 days a week, compared to 6 classes for students in the day classes. Lack of supervision and low levels of discipline among the staff creates additional problems. Quality is low: almost 30% of the students of each grade repeat or drop out per year and completion rates are very low.

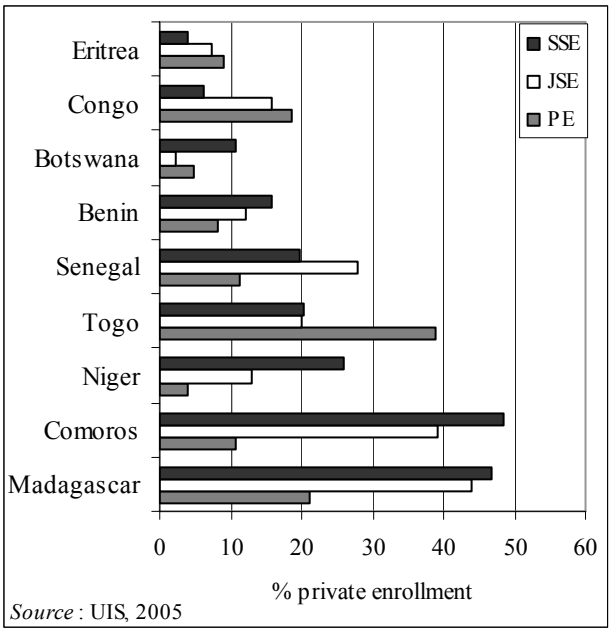
Fees for evening classes are higher than those of day courses which may range from 30,000 to 320,000 Mt per year in JSS and from 40,000 to 457,000 Mt in SSE (26000 Mt = 1 USD). The amounts charged by the public schools are negotiated with the communities, and the provincial education authorities.
Source: Lobo, 2006

High levels of private funding

It is not surprising that driven by excess demand, and concerns about the quality of instruction, social values and safety in government schools, many parents enroll their children in private schools. Private schools vary greatly: some are high cost elite schools; others are traditionally church sponsored schools that usually offer programs of acceptable quality at medium or low cost; at the same time the number of for profit institutions of varying quality and cost is increasing rapidly. The price range varies enormously: in Kenyan non-government for profit schools fees range from a high of KSH 500,000 ($6,850) per year to less than KSH 5,000 ($68.5) in some of the non-government non-profit schools. UIS estimates that 14% of the secondary students in SSA are enrolled in private institutions (UNESCO, 2006). In reality this proportion is likely to be significantly higher, since many private schools are not registered and government records are almost inevitably incomplete Figure 2.7 shows the extent of officially registered private enrollments in several selected countries.

The private school alternative is becoming an alternative that more parents consider as the private costs comprising official government tuition and boarding fees, contributions

Figure 2.7: Average % Private Enrollment in Selected SSA Countries, 1999-2004



Source : UIS, 2005

to school management committees or Boards of Governors as well as cost such as textbooks, learning materials, school supplies, transport and clothing. In public secondary schools in Kenya, Uganda, Tanzania and Zambia more than half the total costs per student are financed through fees and other contributions (Lewin, 2008).

For example, in 2001, senior secondary school fees to be paid by parents in Ghana for the first year of boarding school totaled 1,469,000 cedis (US$162) and 284,000 cedis (US$31) for the first year of day school. In Kenya tuition fees in government schools range from KSH 26,000 ($356) per annum for the National, to KSH 10,000 ($137) for the District schools. In Benin, enrollment fees in public junior secondary schools vary between 5,000 CFA francs (US$9) in rural areas to 20,000 CFA francs (US$37) in large cities.) In several countries, for example Kenya and Chad many teachers are directly paid from parental contributions. In other countries for example the night classes in Mozambique (Box 2.1) and the Academic Production Units in Zambia (Box 2.3) and parents of students who have not been admitted in the "official secondary school" pay extra fees for classes that operate in

Box 2.3 Zambia: Academic Production Units (APUs)

APUs were established in 1996 as a response to excess demand for places at high school level (grade 10-12). They operate in the afternoon –typically from 1:30pm -5:00pm- what is effectively a private school in government premises, with teachers who have already taught a full school day –from 7:30am-1:00pm. In 2004 APUs provided over 20% of high school places. APU pupils study for the same national examinations as other pupils, but fees are higher –sometimes double- than fees in the mainstream schools.

APUs have had a positive impact on access in enabling many pupils who were not selected for high school to continue with their education. The quality varies, but is perceived to be weak. This is not surprising since these pupils have not done as well academically as regular pupils, come from the less well-educated households, and the duration of their 'school day' is considerably shorter.

It is doubtful that one shift of teachers can effectively teach across what is essentially a double-shift school structure. The low average contact ratio (around 50%) for teachers in the morning high schools helps teachers manage their double teaching load. The ability to earn a salary supplement through the APU classes often means that undue emphasis is given to these. A teacher who, for example, needs to visit the bank or a clinic is careful to do so during the morning rather than lose income by going during APU classes.

Source: CIDT, 2005; Bennell, 2007.

government school buildings taught by government teachers aiming to supplement their salary[23].

The review of textbook provision in 18 countries in SSA by Read et al. (2007) found that secondary textbooks were entirely financed by parents in 11 countries; entirely financed by government in 5 countries (although not always adequately); and financed by government in 2 countries with funding levels that assumed significant parental contributions. Textbooks potentially are, in fact, a very significant part of the parental cost burden. They are often the second largest required parental cost in JSS (after fees). They often are the only major parental cost contribution that can be reduced while still allowing the student to attend school (although there are some elite secondary schools where possession of a full set of basic textbooks or full, upfront payment of an annual textbook and library fee is a condition of acceptance and enrolment). As a result there is a growing tendency to economize on the costs of textbook provision by parents. This leads to unacceptable low levels of textbook availability in many schools and thus a serious reduction in the quality of secondary education.

Households are thus shouldering a large share of the cost of running secondary institutions. In Zambia, private sources of income accounted for 48 percent of total expenditure at government urban high schools, 33 percent of total expenditure at government rural high schools and 52 percent and 57 percent in grant aided urban and rural high schools, respectively. Latham (2005) estimates that in Kenya households

Box 2.4: Private Tutoring

Parents are increasingly using private tutoring to enhance the chances of their children to pass the secondary entrance examination and improve their performance once admitted. Teachers welcome the opportunity to increase their income. Private tutoring is quite popular, yet it is hard to accurately estimate household expenses for private, and it is usually not included in the estimates of private education expenditures. The limited data that exist suggest however that private tutoring is widespread.

A survey of grade 6 pupils in three urban and four rural schools in mainland Tanzania found 26% receiving tutoring. In a Dar es Salaam school this was 70%. In Zimbabwe, a nationwide survey of grade 6 pupils in reported that 61% received extra lessons (World Bank, 2005b). In Kenya, a 1997 national sample of 3,233 Standard 6 pupils found that 68.6% received tutoring. (Bray, 2003).

In Nigeria half of secondary school students' households spent on average 2,417 Nairas on extra lessons in 2003/4. Students in urban areas were likely to spend more than those in rural areas (National Population Commission [Nigeria] and ORC Macro, 2004). In Mauritius, where private tuition has a long history in the country, a survey showed that 56% of students in secondary form 2 were receiving tutoring. The proportions rose to 98% in forms 3 and 4 and to 100% in forms 5 and 6. Another survey, of 2,919 grade 6 students, reported that 78% received extra lessons. In Tanzania, one survey reports that about half of the students benefit from outside tuition which poorer students cannot afford. (World Bank, 2004b).

Private tuition can benefit both the teachers and students, but has also negative effects. Teachers may make less effort to teach regular classes fully and well. They may also be overstretched, working extra hours in addition to their formal teaching duties. Private tuition also favors students who can pay for the extra courses, creating inequalities by excluding the poor and less privileged.

[23] The case studies of Benin Zambia and Ghana in Lewin (2007) provide more detailed information.

presently contribute over 65 percent of the cost of secondary education. Private tuition (Box 2.4) often adds significantly to the cost of formal schooling. In a region where GNI per capita in a majority of countries is less than $500, participation in secondary education with a cost often of US$ 200-300 equivalent, represents a heavy financial burden, even for middle income families. In many countries fees and private cost often make it impossible for the few poor children that complete primary education to enroll in secondary school (Lewin, 2008) further skewing participation towards wealthy households.

Unsurprisingly, in several countries the share of private enrollments in secondary education is stalling or declining. In Kenya -as the economy stagnated - it went down from 15% in 2001 to 9% in 2004. Even in Rwanda, where the genocide fund provides significant scholarship support to students, the proportion of students enrolled in private schools declined from 50.1% in 1997/98 to 40.4% in 2001/2002 (CSR, Rwanda).

There are thus obvious constraints to the expansion of private education. In response several governments have attempted to establish partnerships with the private sector by providing financial support that allows students to enroll in private schools (demand side financing). Other countries provide supply side incentives. For example Burkina Faso has offered private providers loans for the construction of additional classrooms, in Lesotho the government pays the salaries of teachers, in many countries government provide grants-in-aid to private providers (often churches) or – as for example in Malawi- matching grants for school development to communities. In some countries – e.g. Somalia and the Democratic Republic of Congo – public provision and financing has virtually disappeared and private providers are responsible for the delivery of education services. It is very clear that, with few exceptions, governments will not be able to be the sole source for financing and provision of secondary education. The key policy questions to be addressed in this regard are: what is the most critical role of the government and how can public resources be deployed and leveraged most effectively for secondary education development.

Non-government sources of secondary level technical education and training have a significant and growing position in Africa and often eclipse public sources. In Mali they make up two-thirds of all expenditures on TVET, in Tanzania 90% and in Zambia 82%. Data from Zimbabwe, Ghana, Cameroon and Cote d'Ivoire confirm the importance of private non-profit and for profit providers of technical education and training. Financial issues are the main constraint on the further development of programs. Tuition payments are frequently overdue, while operating cost and taxes can be considerable and access to and acquisition of land difficult. Public-private partnerships for technical education and training are increasingly common with public resources channeled through intermediaries such as national training authorities, competition for funding by public and private TVET institutions, norms and output based allocations and student vouchers as financing instruments (Johanson and Adams, 2004).

A Quality-Quantity Trade-Off?

The per student cost in secondary education is much higher than in primary education although there are significant variations between countries in this regard as shown in Figure 2.7 and in Table 2.5 for a sample of 17 countries. On average, unit cost at junior secondary level are about three times and at senior secondary six times greater than at the primary level. The reasons lie in a combination of lower pupil-teacher ratios, higher salary costs, boarding subsidies, and larger numbers of non teaching support staff. Non-teaching costs at secondary level can account for more as much as 40% of total cost per pupil. Managing the public expenditure burden of secondary education is thus a key policy challenge as countries aim to broaden access.

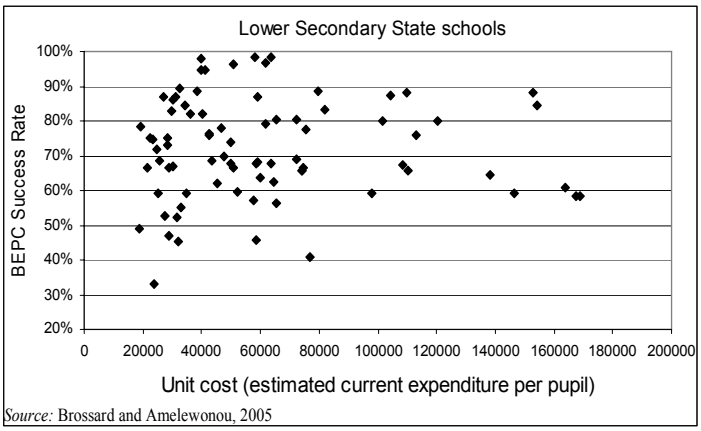
Table 2.5: Unit cost and composition of education spending in selected countries

		Teacher salaries (per capita GDP)	% Rec. spending for other than teachers	Unit costs (% per capita GDP)
Primary	Average	**4.6**	**27.4**	**11.4**
	Variation	[2.4 – 6.8]	[15-43]	[4-20]
Junior secondary cycle	Average	**6.6**	**37.4**	**31.2**
	Variation	[3.6 – 13.1]	[24-56]	[13-64]
Senior secondary	Average	**9.3**	**39.5**	**63.4**
	Variation	[3.8 – 19.8]	[18-53]	[22-157]

Source: Mingat, 2004

TVET is even more expensive on a per student basis than general secondary education. The ratio of TVE spending per student to that of general education ranges from 0.8 in Togo to 13.8 in Mozambique. In Madagascar vocational training centers cost 60 percent more per student than technical secondary schools, 4 times more than general secondary schools and 18 times more than primary schools. Vocational subjects taught in general secondary schools typically cost twice as much- and often more- than academic subjects (Lauglo, 2005).

Figure 2.8 Cost per student and results in Junior Secondary government schools in Chad (2003)



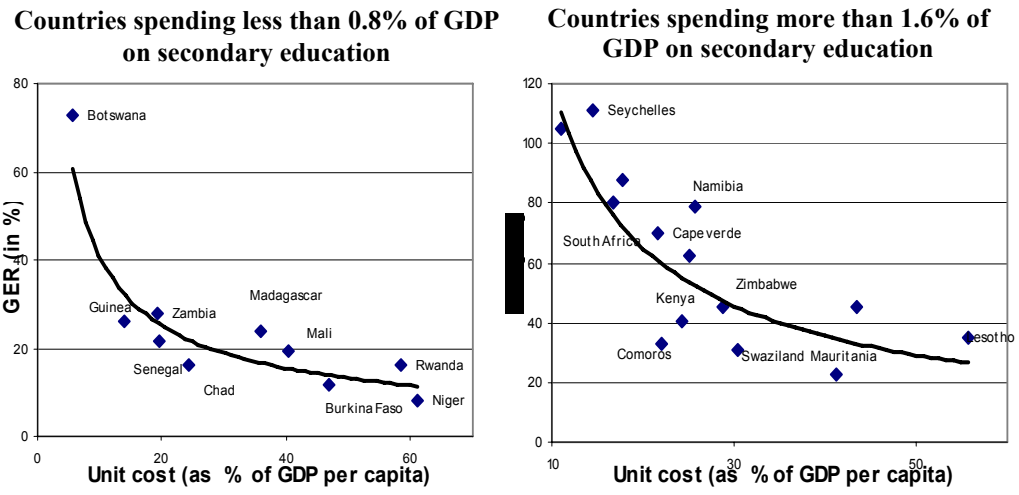
Source: Brossard and Amelewonou, 2005

While financial constraints are real and secondary education and training costs more than primary, it does not follow, however, that there is an inevitable choice between quality and quantity. What the available resources are spent on and how efficiently they are used, clearly is as important as the level of resources available. Figure 2.8 illustrates the weak relationship between cost per student and junior secondary (BEPC) examination results in Chad. Similar findings are available for almost every country for which data are available. The implication is that almost everywhere there is considerable scope to

finance increased enrollment in secondary education through efficiency gains. This will be discussed in further in Chapter 5.

Nevertheless, the basic mathematical relationship is clear: for a given budget, the more pupils enrolled, the less it is possible to spend per pupil; and, conversely, the spending per student, the fewer the number of students that can be enrolled. Figure 2.9 shows the relationship between the gross secondary enrollment ratio and the cost per student (unit cost) expressed as a percentage of GDP per capita in selected low and middle income countries in the region. In countries where the secondary GER is above 70% the secondary/primary unit cost ratio is almost always less than 2:1. The higher the ratio the lower the GER is likely to be. Clearly, a high ratio makes it more difficult to expand access to secondary education without jeopardizing the learning environment.

Figure 2.9: Trade offs between unit cost and participation



Source: Brossard and Amelewonou, 2005

Conclusion

The evidence presented in this chapter suggests that in much of SSA secondary education faces severe constraints which make progress towards the objectives that countries have set themselves a daunting challenge. The economic, social and cultural context, together with differences in political priorities and colonial legacy has led countries towards distinctive policy choices that profoundly affect the current condition of secondary education and the challenges ahead. As a result, while most countries in Sub Saharan Africa share common longer term goals, the starting points and strategic context are very different. A number of challenges that are common to most countries in the region can be identified, however. These are summarized below:

- **Low enrollment and completion levels** contribute to shortages of middle and higher level personnel especially in those countries where economic growth is accelerating and levels of secondary enrollment are historically low. Opportunities for further technical education and training are limited. Public TVE institutions are often supply driven. Private TVET institutions are ubiquitous in many countries but of varying quality and often in precarious financial condition.
- **Access remains inequitable**: poor students, students from rural areas and girls are at a particular disadvantage. In most countries secondary education benefits the better off urban groups of society, but remains largely inaccessible for rural populations with girls at a particular disadvantage due to both demand and supply factors.
- **Curricula are inappropriate**: the content of programs has rarely been adapted to the changes in the composition of the student body, essential emerging life skills and the changing demands of a labor market for competencies relevant to participation in a technology driven global economy.
- **Levels of learning achievement are unacceptably low**: student performance on international tests is lower than in any other region, many students do not acquire the knowledge and the skills specified in the national curricula and are ill prepared for further education or working life.
- **Resource allocations are often inefficient**: in country variations in per student cost are large and with an unclear relation to learning outcomes; teacher deployment is often wasteful and ineffective; in several countries teacher salaries are out line with national resource availability, in others they are insufficient to motivate teachers; while shortages of instructional materials and supplies adversely affect instructional effectiveness.
- **Public financing is unable to meet the demands for additional places**: given the numerous competing demands on constrained public resources, many governments find it impossible to mobilize sufficient funds to accelerate the development of secondary education, while fees and other private cost impede enrollment of financially disadvantaged students.
- **Private providers account in most countries for more than 10% of enrollments; they** offer programs that vary widely in quality. Unsubsidized private schools are only affordable by to the wealthy. Low cost private schools are often of poor quality.
- **Many forms of public-private partnerships are developing:** various schemes to help students overcome the financial obstacles to enrolling in secondary education and provide financial support to private providers have been established. The latter are especially common for the provision of TVET.

These findings illustrate the magnitude of the secondary education development task in much of sub Saharan Africa. Simply expanding the existing system is not an option if quality and relevance are to be improved. In most countries per student cost are at levels that precludes a rapid expansion of publicly provided secondary education. Any reform will need to take account of the constraints on public resources available for secondary education. This will imply reflection on the priorities for public financing of secondary education and consideration of options to broaden the financial resource base, improve

the efficiency of resource deployment and enhance arrangement for management and governance. Most importantly, policy decisions will need to reflect the importance of secondary education development and the justification and priorities for public financing.

> Here takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!
>
> Lewis Caroll

Chapter 3
Secondary Education and Development in SSA

The role of education and human capital in promoting the growth of economies and improvements in human well-being is well recognized in the economic literature and routinely reflected in the political discourse in developed and developing countries. Economic analysis has followed two lines of inquiry. Micro-economic analyses have looked at the impact of education on individual earnings and social outcomes; macroeconomic analyses have attempted to estimate the contribution of education to country's economic growth performance. Findings of the two approaches have traditionally been inconsistent. Microeconomic evidence suggests that the private returns to education are substantial (Psacharopolous and Patrinos, 2002), and the impact on social outcomes significant. But growth researchers have had great difficulty finding statistically significant and economically plausible impacts of educational variables in global growth regressions (Glewwe et al, 2007; Ndulu and O'Connell, 2006; Pritchett, 2001).

New patterns have recently emerged in the findings of both types of analysis which are beginning to reconcile microeconomic and growth evidence via better measurement of educational attainment and greater care in the statistical procedures. Most importantly, attempts to move beyond the traditional measurement of human capital through the number of years of schooling completed or enrolment ratios and assess the impact of the quality of education and the distribution of education opportunities on countries' economic growth performance have begun to bear fruit. They are of considerable interest for this report as they affect the role of secondary education and may trigger a re-examination of current resource allocation priorities. There also remains little doubt that the benefits of secondary education extend beyond the purely economic factors, as they affect health, fertility, democratic participation and social cohesion. These in turn will contribute to accelerated economic growth through their impact on productivity and political stability and help create a virtuous circle of economic development and progress in human well being.

This chapter will review the contribution of secondary education to economic and social development in Sub-Saharan Africa. It will summarize recent findings on the private returns to secondary education, review the findings on the contribution to economic growth and discuss the impact on health and social behavior. After presenting evidence on the importance of the quality and distribution of learning opportunities it will examine the implications for secondary education policy in Sub Saharan Africa and summarize the findings in a concluding section.

Private Returns to Education

Returns to investment in education, have been estimated since the late 1950s, using the educational level of individuals as an explanatory variable of their income. Most studies estimate the private returns net of public cost, while others estimate the "social returns" by including the public cost of education provision. Several reviews by Psacharopolous (1973, 1985, 1994), and most recently together with Patrinos (2002) found a pattern of falling returns to education by level of economic development and level of education[24]. For Sub Saharan Africa they report an average return of about 12% for an additional year of schooling - in line with what is observed elsewhere in the world. These studies have had a considerable impact on policy directions and investment decisions in the developing world, notwithstanding criticism that their conclusions rely heavily on dated studies and unreliable data, and that more careful Mincer type estimation of returns[25] to education reveals modest effects and different patterns.

Box 3.1: Recent estimates of returns to secondary education

Tanzania: A wage earner with a complete primary education earned 75 percent more than an uneducated wage earner; an employee with complete lower secondary made 163 percent more; and one with a complete upper secondary education earned 181 percent more (World Bank, 2006a)

Burkina Faso: Return to education in Burkina Faso was estimated to be 16 percent at secondary level, compared to 9 percent for primary education. (World Bank 2006c)

Mali: The rate of return is about 10 percent for the first years of schooling and substantially increases with the number of years of education 15 percent for a complete primary education and about 25 percent at the secondary level (World Bank, 2006d).

Mauritania. An analysis that covers different segments of the economy –including the non-formal sector- found low overall rates of return to an additional year of education (3.4%). Earnings were found to rise with education with especially high increases associated with completed secondary education. Earnings of workers in the non formal sector and the formal sector were rather similar and exceeded by as much as 30% earnings in government jobs. (CSR, 2006)

Mozambique: For male workers outside agriculture **r**eturns to primary education range from 14% to 24%; lower secondary education range from 23% to 40%; for upper secondary from 60% to 74%. For female workers and workers in agriculture returns are substantially lower but follow a similar pattern). The return to education for workers in agriculture with 5 years of education or less is 7% (World Bank, 2006e).

Rwanda: The returns to secondary general education are estimated at 21.5% compared with primary education 13.2% and secondary vocational 18.4% (CSR, Rwanda).

Senegal: The return in the modern sector to lower secondary education (18%) exceed that of primary education (11%) and of upper secondary (14%) and tertiary education (0.1%) **;** returns are higher in the informal sector (29%, 27%, 29%) than in the modern sector (UNESCO BREDA, 2005)

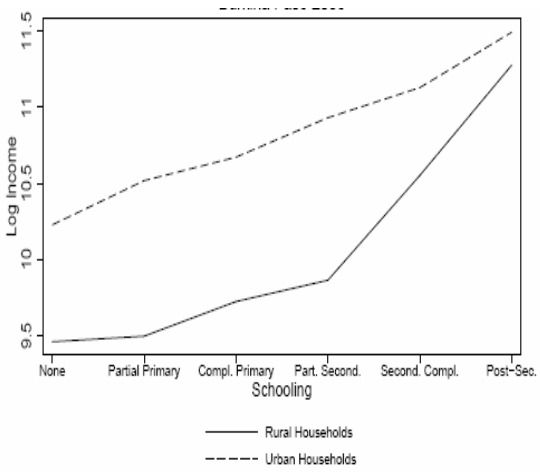
[24] A weakness of many of these studies is that much of the evidence based on wage earners only. In SSA they rarely represent more than 20% of the labor force. This excludes from the analysis a large group of the self employed in agriculture and the non-formal sector. Moreover, wage data are often heavily influenced by government salary scales and may have little to do with years of education.

[25] These returns measure the percentage-increase in wages associated with an additional year of schooling and is assumed to be independent of the level of schooling. Mincer shows that under certain conditions, which include that there are no direct costs of education; this can be interpreted as the proper private return to schooling. Social rates of return incorporate the cost of education and sometimes externalities which cannot be estimates through individual wage equations

Increasing returns by level of education

Appleton (2000) in a review of 28 studies in Sub Saharan Africa from 1980 onwards finds a mean Mincerian return to education of 5% for primary schooling, 14% for secondary schooling and 37% for tertiary education. Keswell, Malcolm and Poswell, Laura (2002) find low returns (< 10%) to primary education and increasing returns to education in a review of empirical evidence from several countries in SSA including South Africa. Recent World Bank Project Appraisal Documents and CSRs also find returns that increase with the level of education and the acceleration of economic growth with private returns to secondary education exceeding those of primary education, often by a substantial margin (Box 3.1).

Figure 3.1: Household earnings and schooling in Burkina Faso



Source: *World Bank. 2006a*

Similarly, a recent World Bank report *"Youth in Africa's Labor Markets*" (2006a,b) analyzes the impact of education on household earnings[26] in Burkina Faso (Figure 3.1) and finds that (i) urban households at all levels of education report higher earnings than rural households, with the gap narrowing at higher levels of education (ii) Although the relationship between schooling and earnings is very well approximated by a linear term in urban areas, in rural areas the return to schooling increases markedly once someone gets some partial secondary education. Likewise, a recent (2006) CSR for Mauritania found significant increases in salary associated with secondary education for workers in the modern private and informal sectors of the economy. Appleton, (2000) reports returns for junior secondary schooling with a mean effect of 14% and median 12%. There are only seven estimates of the effects of upper secondary schooling - with a mean of 16% and a median of 14%. In this review the pattern of higher returns also holds for self-employment income associated with an extra year of education estimated at 7% at the primary level and 12% at the secondary level. In many countries returns for female are lower than for man– in the modern sector of Mozambique returns to education for females often are 30% less than for males.

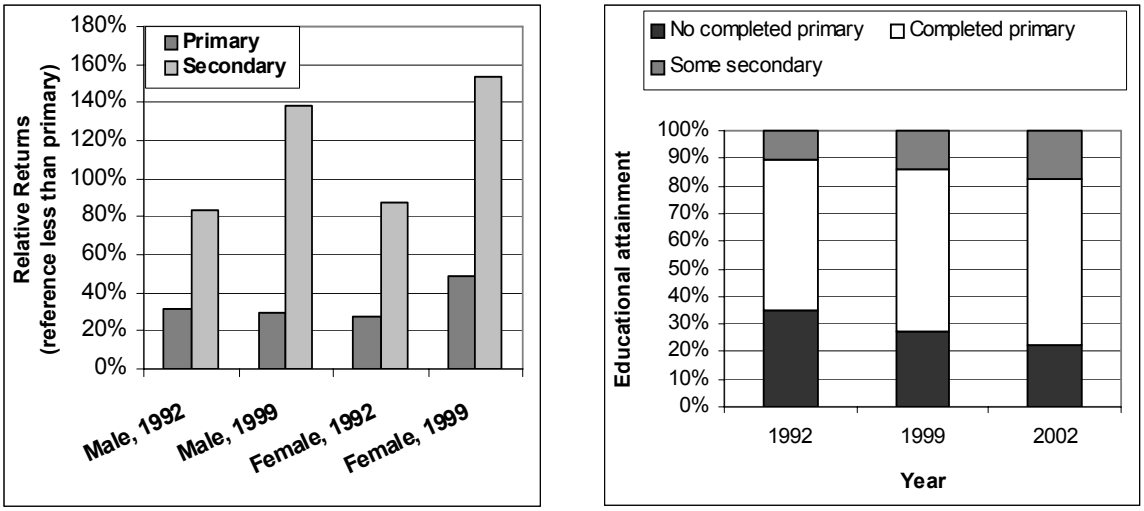
But there are also studies that show low returns to education in Africa. For example, in Nigeria the return to an additional year of education is estimated to be as low as 5 percent (Uwaifo 2005). Similar low returns were found in Ghana by Glewwe (1991). The

[26] The econometric analysis of the return to schooling in Burkina Faso focus on average household income and schooling levels, by aggregate the data at the household level by looking at the relationship between the household per capita income and the average household educational attainment. While most analyses of returns to education in the literature use individual wage/salaries and education level, the focus on household income instead of is due to the relatively few Burkinabes reporting earnings from formal paid employment.

economic stagnation in Nigeria during the last two decades in Ghana during the 1970 and the 1980s may explain these very low returns. Appleton (2000) explains the high rates of return to secondary education in Kenya as compared to Tanzania in the 1980s by the fact that the Kenyan formal labor marker at that time was much more developed than in Tanzania. A further explanation for these quite different conclusions is that the analyses of Psacharapolous include many studies based on data collected before 1980 and – perhaps more importantly- that returns to education in Africa have come down since the 1960s and 1970s when education was scarcer in Africa and economic conditions more buoyant

Evidence on the returns to training is ambiguous. Analyses in Mozambique (World Bank 2006c) finds wages of TVET graduates about 40% higher than those of graduates of general secondary education at the same level. In Senegal a return of 20% is reported for technical education (UNESCO BREDA, 2005). In Ethiopia training does increase the employment probability by 20% in rural areas and by 25% in urban areas (World Bank 2006a). Yet the numbers involved are small and studies typically does not control for the selection process into training, the estimates should therefore be interpreted as the average treatment effect on those who went through the training. Broad reviews find that in the formal sector in SSA, skill development schemes continue to be supply driven and disconnected from the demands of the labor market (Adams, 2006). In the informal sector, traditional apprenticeship is still the overwhelming mechanism for skill development for new entrants. The strength of the traditional apprenticeship is its practical orientation, self- regulation, and self-financing. It reaches those who lack the educational requirement needed for formal training and is generally cost-effective (Johanson and Adams, 2004).

Figure 3.2: Returns to secondary education are high and rising faster than educational attainment in Uganda



Source: World Bank. 2006a

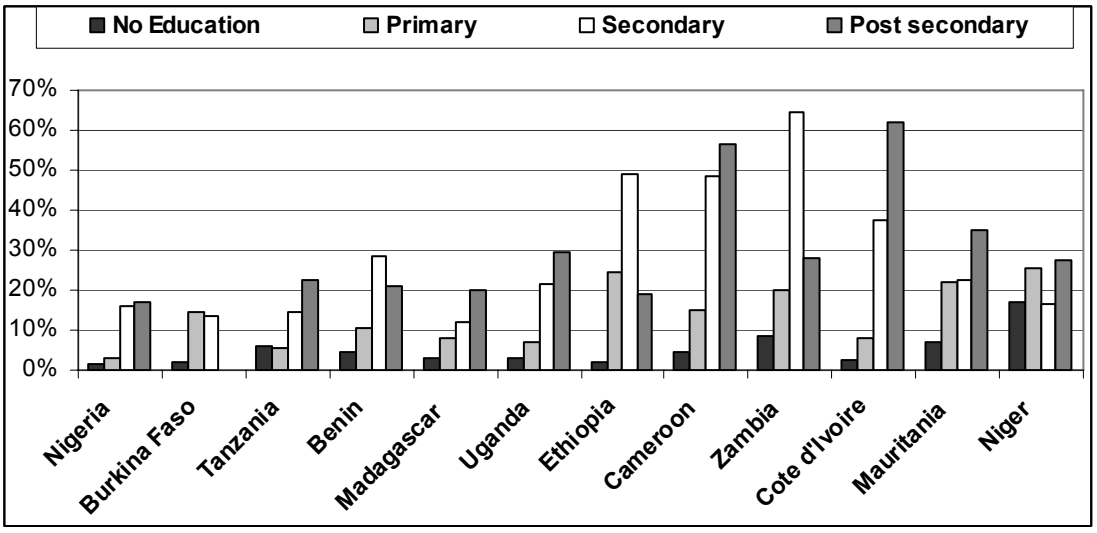
Rising returns in growing economies

While standard economic theory would suggest declining returns to education as the supply of educated people increases, there is some evidence that over time the returns to education have been on the rise, particularly for post primary education in growing economies. In Uganda cohort analysis indicates that between 1992 and 1999, the returns to secondary education compared to returns for less than primary education rose for most age cohorts, while returns to primary education increased little, or marginally declined (Figure 3.2) suggesting that the increased demand for personnel with secondary education outstripped the increases in the number of secondary education graduates. In Mozambique returns to secondary and higher education increased between 1996 and 2002 for workers in almost all sectors of the economy. The wages for salaried people in industry increased by 123 percent for males graduated with more than 10 years of education and 115 percent for female workers with same level of education. In agriculture, the increase during the period was only about 10 percent (World Bank 2006e). Both Mozambique and Uganda have experienced sustained economic growth since 2000, averaging 6% and 8% respectively. In Ghana Canagarajah and Mazumdar (1997) found a rise in the returns to education, particularly post-primary, between 1987 and 1991 possibly reflecting the successful implementation of an economic recovery program in the late 1980s.

Unemployment[27]

Despite the high potential private returns to education many youngsters in Sub Saharan Africa are not able to capture them as job opportunities remain limited in many countries.

Figure 3.3: Unemployment for youth by educational attainment in selected countries in Sub Saharan Africa



Source: World Bank, 2006a

[27] This section of the chapter draws heavily on data and discussion in World Bank 2006a

The ILO (2004) estimates that unemployment of youth (15-24 years) between 1993 and 2003 increased 32.5 percent. In 2003, more that 18 million youth in SSA were unemployed, representing an unemployment rate of 21 percent. The regional average hides, of course, important country variation in youth unemployment rate. In countries like Mozambique and Kenya with high urban unemployment rate, the unemployment rate can exceed 30 percent. At the same time, countries like Burkina Faso and Uganda with large rural sector have a relatively low youth unemployment rate[28].
While in general higher levels of education are associated with an easier transition to work, for youth in Africa this is not always the case. In some countries, the unemployment rate among educated youth is very high. Youth with secondary and tertiary education in Burundi, Cameroon, Côte d'Ivoire, Kenya, Madagascar, and Nigeria for example have higher rates of unemployment than youth with lower educational attainments. In 8 of the 14 countries in Figure 3.3, the rate of unemployment was higher among youth with at least some schooling than among those with no schooling. This may be exacerbated by the fact that –as suggested in research in Ethiopia (World Bank 2006b) the more educated youth are, the higher their reservation wage and expected returns to job search.

Most youth lack the relevant skills and experience when they start to work. As a result, when they get a job, they often engage in low-productivity work while they develop the skills needed to move on to better jobs. Research in Burkina Faso (World Bank 2006b) suggests that most youth, females as well as males, make their entry into the labor force in the similar occupations, irrespective of their educational attainment, except for the very few with at least a completed secondary education. Having more education relative to having none, however, makes for faster transitions to better paying occupations. Controlling for experience, estimates of the impact of the level of education on employability, show that in Tanzania urban men with the highest level of education are 26 percentage points more likely to be employed than men with no education. Clearly, education has a positive effect on careers, even if the port of entry is similar for the vast majority of workers.

Yet, where rates of economic growth –especially in the modern sector- are low and the rate of increase in the number school leavers with post primary education exceeds it, youth typically face severe difficulties finding a job. As a consequence a large proportion of the population, particularly females, remains outside the labor market, sometimes because of cultural obstacles, but often because they have given up looking for work. Among females who are not in school, more than 50 percent in Mozambique and 60 percent in Ethiopia are outside the labor force.

These problems of limited job availability are in many countries exacerbated by skill mismatches. In Ethiopia 21 percent of wage job vacancies posted with employment

[28] Traditional labor market concepts such as jobs, employment, unemployment, participation, wages, and earnings are difficult to apply to Africa. These concepts needs to be adapted to the realities of a labor force that is mostly working in family business (either as owner or unpaid family worker), and 50 percent working in agriculture mostly at subsistence levels, and two-thirds living in rural areas.

services remained unfilled between 1997/98 and 2001/02 (World Bank 2006a). According to the Ministry of Labor and Social Affairs, this can be attributed to a lack of qualified workers, employers' desire for workers with substantial experience, and the negative attitude of job seekers toward certain jobs (in particular, unwillingness to relocate from urban to rural areas). Moreover, several education systems have a relatively unbalanced structure in which is not enough emphasis is given to the lower levels and while the output at the higher levels exceeds labor market demand while the skill composition does not match the available job openings (see for example CSR Mauritania). In addition, shortages in jobs requiring strong math, science or technical skills often coexist with an oversupply of graduates with qualifications humanities.

All of this suggests that youth –including youth who have continued their education beyond the primary level - are highly vulnerable to the effects of economic stagnation. For many youth the transition from school to work is difficult. At the same time there is also evidence that when economic growth and job creation is sustained, youth with secondary education will be able to enter the job market successfully. In relatively fast growing countries with historically low secondary enrollments such as Tanzania and Uganda, Bennell and Al-Samarrai (2004) found that secondary graduates were effectively absorbed in the economy, although sometimes after a lengthy search. Those that did not complete secondary education did not fare as well: only around half were in wage employment ten years after graduation. The shortage of jobs in the formal sector means that in many countries the incidence of self-employment among secondary school-leavers is high and growing. Large wage disparities between wage and self-employment mean that self-employment is seen as 'employment of the last resort'.

Education and Growth

Pritchett (2001) points out that "the belief that expanding education promotes economic growth has been a fundamental tenet of development strategy for at least 40 years" (p. 368) even going all the way back to Gunnar Myrdal's Asian Drama (1968). The search for empirical evidence to back up this belief was triggered more than 15 years ago by Barro (1991) in a research paper presenting growth regressions using primary and secondary enrolment rates in the 1960s as explanatory variables of the subsequent growth performance of a cross-section of nations which confirmed the positive impact of human capital on growth. This paper was followed by a large number of studies that investigated the link between education and economic growth. Many of these found a significant impact of secondary education, including a threshold effect suggesting that secondary education was associated with an acceleration of economic growth. Key findings are summarized below:

- OECD (2000) shows that over the period 1971–1998, economic performance and human capital have been positively correlated in OECD countries. Improvement in human capital - approximated by the average number of years of schooling in the working-age population - has been one of the key factors tied to the recent growth of OECD countries. Overall, the OECD study concludes that the estimated long-term effect on GDP of one additional year of education in the population aged 15–64 is around 6 per cent on average.

- Bloom, Canning and Chan (2005) find that an additional year of general schooling in the adult population can increase the rate of growth by 0.6%.
- Mankiw et al. (1992) found a large impact of education. Their secondary school variable (percent of the working age population enrolled in secondary school) ranged from 0.4% to 12.1%. The results suggest that a change of about 6 percentage points, say from 3% to 9% will lead to an increase in the rate of economic growth of about 3.1 percentage points (Glewwe et al. 2007).
- Barro and Lee (1994) conclude that the average years of (male) secondary schooling is significantly and positively related to economic growth.
- Barro (1999) finds that once thresholds are passed, school attainment at the secondary and higher levels for males aged 25 and over, has a positive effect on the subsequent rate of economic growth. The estimated impact for this category is such that an additional year of schooling raises the growth rate on impact by 0.7% per year, a very large effect indeed for slow growers. This impact is mediated predominantly via improved capabilities to absorb technological advance
- Regressions by Barro and Sala-I-Martin (2004), based on a newer data set with more observations and presumably better data, also find a positive and statistically significant for male secondary education.
- UIS-OECD (2003) finds in its analysis of WEI[29] countries a pattern which suggest that human capital plays a stronger role in the growth process once the level of human capital reaches a critical threshold; the strong correlation between schooling and growth performance in Argentina, Chile, Malaysia and Uruguay suggests that high levels of upper secondary and tertiary attainment are important for human capital to translate into steady growth.
- Loayza, Fajnzylber, and Calderón (2002) estimate for the Latin America and Caribbean region that if the increasing trends in secondary enrollments continue throughout the decade, that this could be expected to contribute about 0.4 percentage points to the growth rate of GDP per capita. This compares to about 0.25 percentage points as a result of continued trend increased in trade openness, and about half that amount due to continued financial deepening (cited in World Bank, 2005a)
- An in depth analysis in the Country Economic Memorandum (2005) for Guatemala highlights secondary education as a key contributor to economic growth (Box 3.2).

These kinds of results are, however, far from universal. Pritchett (1991) for example finds in his analysis of cross national data results that vary widely but on average fall far short of the outcomes predicted by standard economic models – results replicated in several other analyses of this nature. Similarly in O'Connell and Ndulu (2001) measures of educational attainment and enrollment performed very poorly in OLS regressions

[29] The World Indicators (WEI) program is supported by OECD UNESCO and the World Bank to strengthen the collection and reporting of comparative statistics and indicators in the field of education. Countries participating in the World Education Indicators program: Argentina, Brazil, China, Chile, Egypt, India, Indonesia, Jamaica, Jordan, Malaysia, Paraguay, Peru, the Philippines, Russia, Thailand, Tunisia, Uruguay and Zimbabwe.

Table 3.4: Impact of Education on Economic Growth in Sub-Saharan African Countries				
Variable	**Mankiw sample**	**All SSA**	**English speaking**	**French speaking**
Constant	0.622 (1.069)	1.655 (3.005)	9.199* (4.659	3.736 (2.739
Log (pop. growth)	-1.745*** (0.416)	-1.441 (1.123)	1.411 (1.743)	-0.740 (1.046)
Log (capital invest)	0.697*** (0.133)	0.595*** (0.164)	0.479*** (0.351)	0.517** (0.264)
Log (educ. investment)	0.654*** (0.073)	0.311*** (0.112)	0.328 (0.205	0.414*** (0.125
Sample Size	98	35	11	17
R^2	0.779	0.524	0.603	0.68
1. Statistical significance at the 10,5 and 1 percent leve is indicated by one, two and three asterisks respectively 2.Figures in parenthesis are standard errors Source: Glewwe et al. 2007				

incorporating demographic measures and life expectancy rates, and their limited availability dramatically reduced the size of the African sub-sample. Several other recent papers raise questions about the estimation methods and interpretation of the findings of significance of the human capital variable[30].

The findings on the positive impact of secondary education summarized above are reinforced by Borensztein, De Gregorio, and Lee (1998), who find that the productivity advantages latent in foreign direct investment (FDI) are subject to human-capital threshold effects. They find that the growth contribution of FDI exceeds that of domestic investment only when the host country's average secondary-school attainment exceeds

Box 3.2: Education and Economic Growth in Guatemala

Guatemala has some of the lowest education indicators among the Latin American countries. The net enrollment rate in primary education is below 90 percent, and in basic secondary school below 30 percent. Completion rates are extremely low, less than 40 percent in primary school, and repetition rates are high. The average years of schooling is the lowest in Central America at 3.5 years.

A recent Country Economic Memorandum (CEM) uses the findings of a large cross-country growth model --which relates economic growth to twelve key explanatory variables for 78 countries-- to analyze the determinants of past growth trends in Guatemala and to prioritize future areas of attention. It shows that increases in education were the main driving force behind total factor productivity growth during the last thirty years. Quality adjusted labor input explains 78 percent of GDP growth for the period. The impact of education on productivity comes through several main pathways: (a) through direct improvements in worker productivity; (b) through increased ability of workers and enterprise managers to make appropriate decisions about the most efficient mix of inputs and technologies in production; (c) through an increased ability to adapt to changing technologies, policies, and the external economic environment; and (d) at high enough levels of education, through an ability to generate new, productivity enhancing innovations. Differentiating the sources of growth analysis by level of education suggests that the secondary education made the largest contribution (21%) to growth over the period (1950-2002), followed closely by primary education. Projecting an active policy intervention scenario the CEM finds that most of the growth increases would emerge from the expansions of education and public infrastructure. The improvement in education policies explains a boost in annual per capita growth of 1.67 percent per year, while those in public infrastructure yield a 1.09 percent improvement (out of a growth rate of 5.05 percent).

Source: World Bank, 2005a, Bregman (2004)

[30] See for a further discussion Glewwe et al. (2007)

0.45[31] years (for the male population of working age). This level is above that of the majority of African countries. Within Africa, Lumbila (2005) finds a similar threshold effect using secondary enrollment rather than attainment rates: returns to FDI are significantly higher in countries with secondary enrollment rates exceeding 25 percent. He concludes that countries with a relatively advanced human capital have the required absorptive capacity which will allow FDI to have a greater impact on growth as FDI transfers advanced technology that requires educated workers. FDI has a smaller impact on growth in countries where human capital is less developed.

Nevertheless, the evidence presented in this section clearly suggests on balance that secondary education can make a significant contribution to economic growth. It has done so in East Asia and Latin America. It should be able to do so also in Sub Sahara Africa, but often does not do so. Based on the Mankiw et al. (1992) data, Glewwe et al. (2007) analyze the contribution of education to economic growth in Sub Saharan Africa (Table 3.4) suggesting that skills learned per year of schooling are lower in Sub-Saharan Africa than in other parts of the world. The problems seem to be particularly acute in the English speaking countries. Importantly, this evidence suggests that the quality of secondary education, especially in math and science, has a stronger impact on economic growth than the number of years of schooling. This is further discussed in a later section of this chapter.

Impact of Secondary Education on Social Outcomes[32]

It is important to note that there are powerful development interactions between the various aspects of the human resource. Ill-health can severely inhibit learning and in severe cases even affect cognitive ability. Parental education has simple positive associations with improved child health and child schooling, together with negative associations with fertility. Secondary education can promorte social cohesion and build social capital. help build social capita. It can help lay the foundation for responsible citizenship and social cohesion. Junior and senior secondary schools need to prepare graduates for participation in society and the economy. This requires secondary schools to be relevant in the local economic and social environment. Finally people with secondary education are less likely to be poor than people with only primary education

Maternal and Child Health

The research findings reported so far offer considerable support for investments in secondary education as a way to enhance economic performance. But secondary education also has a positive effect on a number of non-economic social outcomes that improve the well-being of a society. The impact of primary education on better health and lower fertility is well established (World Bank, 1993b). In most countries these outcomes improve further with secondary education and several such as HIV/AIDS and STD awareness and prevention have a particular importance for adolescents.

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[31] In a country where 10% of the male population of working age has completed the part of secondary school and out of this group only 30% completed 6 years of secondary school with the remaining only going through the first cycle of three years the secondary school attainment is (0.1*[3*0.7+ 3*0.3] +9*0= 0.3

[32] This section is draws very heavily on the evidence presented in Chapter 1.2 of UNESCO BREDA 2005.

Table 3.1: Maternal Health behavior by level of education in four SSA countries

Years of schooling	% Taking vitamin A during pregnancy	% Tetanus vaccine before giving birth		% Medical check-ups during pregnancy		% Births assisted by medical personnel			Index [0-12] of knowledge on Aids	
	Chad	Cote d'Ivoire	Guinea	Guinea	Chad	Guinea	Niger	Chad	Niger	Chad
0	10.6	83	69.7	77.1	35.6	34.9	11.5	10.5	3.1	5.1
2	16.1	88	77.1	86.9	55.2	45.9	13.2	17.5	3.6	6.6
4	20.9	91	82.9	92.7	69.5	56.9	17.8	25.3	4	7.8
6	23.7	93	87.2	96.9	77.6	66.9	27.3	32.2	4.4	8.6
8	23.9	18.9	90.5	97.7	81.4	75.2	44.2	36.8	4.8	9
10	21.3	95	92.9	98.7	82	81.7	55.4	38.7	5.3	9.1
12	16.6	-	94.6	99.2	79.6	85.6	86.4	37.4	5.7	8.8

Source: UNESCO BREDA 2005

Women's education encourages behavioral changes that are beneficial to their health. For example studies in Côte d'Ivoire, Guinea, Chad and Niger show a positive correlation between the number of years of schooling and (i) taking vitamin A during pregnancy, (ii) taking ante-natal classes and ante-natal preventive health care (iii) choosing assisted birth with qualified personnel, a doctor, midwife or nurse and (iv) the degree of women's knowledge regarding HIV/AIDS and how to protect themselves against it (Table 3.1).

Table 3.2: Mother's level of education and child health

Years of schooling of mother	% Full inoculation schedule	% Taking vitamin A during pregnancy	Anthropometric status of children under 5 years				% Death children born alive	
			Insufficient weight	Eight (kg)	Slow development	Aist (cm)		
	Chad	Chad	Guinea	Chad	Guinea	Chad	Niger	Chad
0	12.6	38.1	31	10.6	50	82.1	26.2	59.5
2	21.5	51.4	26	10.9	45	82.7	24.3	56.8
4	26	57.5	22	11	41	82.9	22.3	54.1
6	31.1	61.5	18	11.1	36	83.1	20.3	51.3
8	36.6	64.3	14	11.2	32	83.2	18.4	48.5
10	42.5	66.5	12	11.2	28	83.3	16.4	45.7
12	48.7	68.3	9	11.3	25	83.4	14.5	43

Source: UNESCO BREDA 2005

Also, educated women are more concerned about their children's health and diet. In Chad, the percentage of children who follow the full inoculation schedule increases from 12.6% in the case of an uneducated mother to 31% in the case of a mother who completed primary school and to over 50% if their mother continued her schooling until the upper secondary level.

The mother's level of education influences the size and the weight of her children as well as their survival during the first five years of life. In Guinea, 50% of children of uneducated mothers suffer from growth retardation; this figure declines to 36% if the mother completed primary school and to 25% if she has completed secondary; a similar relationship emerges between the mother's level of education and her children's risk of inadequate weight (Table 3.2). The education of girls and women translates into lower child mortality rates and better family health because good health practices, such as vaccination campaigns, are easier to publicize and implement in an educated population (UIS-OECD, 2003).

Fertility

Education, especially the education of girls and women, has a strong downward impact on fertility rates, helping to relieve demographic pressures. Indeed, in middle income countries progress on human capital accumulation in the past four decades has been accompanied by a corresponding shift in demographic patterns. Compared to 1990, populations aged 5–14 have started declining, for example in several countries such as Brazil, Jamaica, Thailand and Tunisia, and have stabilized in Argentina, Indonesia and Uruguay (UIS-OECD, 2003). There is robust evidence that this effect is particularly pronounced for girls who have completed several years of secondary education (see for example UNESCO, 2003a).

Sub-Saharan Africa is the region in the world where only recently the demographic transition got underway in some countries. The total fertility rate is two times higher in Sub- Saharan Africa than in other developing countries on average (5.1 children per woman against 2.8) and the rate of demographic dependence[33] is 87% against 58% in the developed world.

Data from Cameroon, Guinea, Niger and Chad (Table 3.3) show that educated girls (i) get married and have children later than the other girls if they extended their education until secondary school-there is little difference between uneducated women and those who completed primary school; (ii) tend to have their children further apart; (iii) more

Table 3.3: Mother's level of education and fertility

Number of years of education	Mother's age at the 1st birth		Interval between children (years)	Use of contraception (%)			Total number of children	
	Guinea	Chad	Chad	Cameroon	Guinea	Chad	Guinea	Chad
0	17.9	18.8	2.12	22	4	7	4.4	4.8
2		18.4	2.15			6.2		4.8
4	17.9	18.3	2.17		10	5.8	4.4	4.8
6	18.3	18.5	2.2	43	12	5.8	4.1	4.6
8		18.9	2.22	52 (gen.)		6.3		4.4
10	18.8	19.7	2.25	47 (tech.)	17	7.2	3.8	4
12	18.7	20.8	2.27	65 (gen.) 57 (tech.)	15	8.8	3.9	3.5

Source: UNESCO BREDA 2005

commonly use contraception. The result is that the number of births tends to decline with the mother's level of education: in Chad, while a 29 year old woman who never attended school has had 4.8 children on average; this figure decreases to 4 children when she pursued secondary education until the 9th grade and to 3.5 children when the last year of secondary schooling (grade 12) was reached. The economic and social benefits of the fertility decline are considerable. It lowers the dependency burden, increases the labor force and through its employment effects helps boost incomes. The effect on economic growth can be sizeable – some estimates suggest that up to 2 percentage points of annual per capita growth was due to declining fertility (Bloom and Williamson, 1998 cited in UNESCO, 2003a). High levels of female education may thus have contributed to the rapid economic growth.

HIV/AIDS

All over the world, youth are at especially risk for sexually transmitted diseases. People between 15 and 24 have the highest reported rates of HIV and sexually transmitted infections. According to UNICEF (2005), people 15-24 now make up almost one third of the 38 million people living with HIV/AIDS. Worse still, globally more than half of the 5 million people infected with HIV in 2003 were 15-24; in Africa an estimated 1.7 million people 10-24 are infected with HIV every year (World Bank 2006a). Sub Saharan Africa is the hardest hit region. Among young people 15–24 years of age, 6.9% of women (range: 6.3–8.3%) and 2.1% of men (range: 1.9–2.5%) were living with HIV by the end of 2003. Of the young people infected 75% are women and girls. There is a pronounced difference in infection levels between women and men among young people aged 15–24. A review of HIV-infection levels among 15–24 year-olds compared the ratio of young women living with HIV to young men living with HIV and found it to range from 20 women for every 10 men in South Africa, to 45 women for every 10 men in Kenya and Mali (UNAIDS 2004).

Several facts are particularly relevant to secondary education. Infection 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[34]; and teachers (who have higher levels of education than the general population) are in many cases at lower risk than others of the same ages (Lewin, 2008). Those in school are less at risk than those out of school, especially girls (Gregson et al., 2001). HIV prevalence rates are lower among teenagers who are in school in Burundi, Eritrea, Mozambique, Tanzania and Zimbabwe. Several mechanisms may generate these outcomes such as 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

[33] The demographic dependency rate is the ratio of non-working population (under 15 and over 65 years) over the working population

[34] Thus in Uganda it appears that rates for those with primary education were nearly double those for people with secondary (AIDS Information Centre, Kampala,2000) and that time series data now shows that rates of infection have fallen fastest for those with secondary schooling, and not at all for those with no primary education (UNESCO 2004).

future. While there is violence against girls in schools, the school environment is usually safer environment than the one out-of-school girls are confronted with.

Box 3.2: Education can protect women from HIV/AIDS

An analysis of demographic and household surveys from 32 countries since the early 1990s found that nearly half of all illiterate women lacked the basic knowledge to protect themselves against HIV/AIDS. Studies have shown that:

- Women with a post primary education were three times more likely than uneducated women to know that HIV can be transmitted from mother to child.
- In Zimbabwe secondary education had a protective effect against HIV infection for women that extended at least into early adulthood
- In Zambia young women with a secondary education were less likely to be HIV-positive than those who had not received a secondary education (1995–97). During the 1990s the HIV infection rate fell by almost half among educated women, with little decline for women without any formal schooling
- In 17 countries in Africa and 4 in Latin America better-educated girls tended to delay having sex, and were more likely to require their partners to use condoms
- In Uganda, while infection rates among young women of all educational backgrounds fell, the decline was greatest for women with a secondary education

Source: World Bank, 2002b

In much of sub-Saharan Africa, public knowledge about HIV transmission routes is still low. Generally, women are less well-informed about HIV than are men; this is also true of rural areas compared with those living in cities and towns. This is the case even in the ten countries where more than one out of ten adults is infected. In 24 sub-Saharan countries (including Cameroon, Côte d'Ivoire, Kenya, Nigeria, Senegal and Uganda), two thirds or more of young women (aged 15–24 years) lacked comprehensive knowledge of HIV transmission. Data from 35 of the 48 countries in sub-Saharan Africa show that, on average, young men were 20% more likely to have correct knowledge of HIV than young women Education levels make a huge difference, For example, young women in Rwanda with secondary or higher education were five times as likely to know the main HIV transmission routes than were young women who with no formal education (UNAIDS, 2005).

Education is among the most powerful tools for reducing the social and economic vulnerability that exposes women to a higher risk of HIV/AIDS than men (Box 3.2). Girls' education can go far in slowing and reversing the spread of HIV by contributing to poverty reduction, gender equality, female empowerment, and awareness of human rights. It also has crucial implications for female economic independence, delayed marriage, family planning, and work outside the home. Countries' education sectors have a strong potential to make a difference in the fight against HIV/AIDS. They offer an organized and efficient way to reach large numbers of school-age youth—the groups either most at risk influencing informed choice related to sexual behavior, increasing tolerance and support for those infected, and through the reduced risk associated with higher levels of education.

Realizing this potential is, however, not easy. The literature on the contribution of education to the battle against HIV/AIDS is not overly optimistic on the effectiveness so far of school school-based HIV/AIDS education and, more generally, sexual reproductive health and life skills education (Smith et al, 2007). Only well designed programs that focus on specific behaviors involve show encouraging results although the impact occurs

slowly and is significant but not large. The result can be reinforced with an approach that integrates parents and peers in programs that combine in-school and out-of school interventions (Smith et al., 2007)

Social Capital

Social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together[35]. Historically, public investment in education societies has its origins in the desire to establish a common national identity and peaceful cooperation among different ethnic and religious groups (Heyneman, 1998). Education is expected to promote societal cohesion and strengthen citizenship when children of all socio-economic backgrounds are enrolled in the public education system. This objective is highly relevant for the many African countries that are torn apart by civil strife and ethnic conflicts.

Heyneman (1998) has pointed out that social capital is produced through education in three fundamental ways:

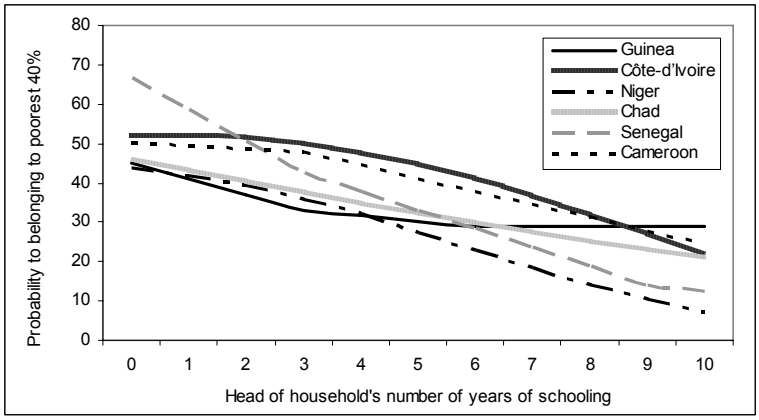
- students practice social capital skills, such as participation and reciprocity;
- schools provide forums for community activity;
- students learn through civic education how to participate responsibly in their society.

Secondary education is a key instrument for this public purpose of education. It deals with adolescents at a very critical moment of their lives and aims not only to provide them with the necessary knowledge and skills to live in an advanced technological society by preparing them for the world of work and further learning; but also to foster social cohesion and transmit the cultural and ethical values necessary for active participation in a democratic society. There is little doubt that the latter challenge is one that secondary schools in SSA can not ignore if they want to contribute effectively to development. An important aspect of the social capital building function of secondary education is its role to create opportunities for social mobility and ensure that the benefits of economic development are equitably spread among the population.

An illustration of the importance of social cohesion is provided by Easterly and Levine (1997). They investigate the reasons why economic growth in Sub-Saharan Africa has been the lowest among all regions of the developing world. They begin by regressing rates of economic growth (GDP per capita) on initial GDP per capita, log of years of schooling (using the Barro and Lee, 1993 data), and several variables that describe economic policies or conditions. They find significant explanatory power for most of these variables, including a positive significant impact of years of schooling. The main focus of their paper is "ethnic fragmentation" that is the diversity of ethnic groups in

[35] See http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTTSOCIALCAPITAL/0,,contentMDK:20185164~menuPK:418217~pagePK:148956~piPK:216618~theSitePK:401015,00.html

Figure 3.4: Head of Household's level of education probability of belonging to the poorest 40%



Source: UNESCO BREDA 2005, Pole de Dakar

most African countries. The argument is that tensions between ethnic groups lead to bad policies, corruption and social unrest, all of which can reduce economic growth. When they add a variable for ethnic fragmentation, it is highly statistically significant. They also present evidence that ethnic fragmentation leads to lower years of schooling and affects some economic variables as well.

Poverty

Education –including secondary education decreases the likelihood that people will be poor. These effects continue beyond primary education (Figure 3.4). In Niger for example completing nine years of secondary education reduces the probability of being poor from 20% for some with primary education to less than 10%. In Senegal it reduces the probability by about half. In the other countries shown in Figure 3.4 the effect of secondary education on the probability of being poor is somewhat less, but still important. Yet analyses based on data from Latin America and East Asia, suggest that the poor find it much more difficult to capture the private returns to secondary education than the non-poor (Di Gropello, 2006). This probably is also the case in SSA. The cause is probably that the poor are less likely to attend high quality schools; their modern sector social networks are less developed; and their attitudes and behavior less attuned to the demands of wage employment. A second important effect of education is the impact of parental education on the likelihood that children will be enrolled in school, thus breaking the vicious circle of intergenerational poverty transmission. This effect is particularly strong for primary education and is important for girls' enrollment. Secondary education of the parents has little additional impact.

Capturing Economic and Social Outcomes

There are wide variations in the economic and social benefits that secondary education delivers to individuals and to societies. A robust body of evidence suggests that this variation will be strongly affected by the quality and the distribution of opportunities to learn. Where learning achievement is low the contribution of education to economic growth will be limited; where they are inequitably distributed economic growth and social cohesion will suffer.

Quality

The amount of learning that occurs in a school year varies considerably between countries and with countries (see for example the discussion in chapter 2 on the learning

achievement). A school year in a country with low quality education overestimates the amount of human capital produced compared to a school year in a country with high quality schooling. Pritchett (2001) suggests that his inability to find a positive correlation between the growth in human capital (measured by the years of schooling) and the growth of GDP could be explained by differences in the quality of education.

Barro (1991) introduced the pupil teacher ration a crude measure of school quality in his regressions. He found a significant negative relationship at the primary level and an insignificant relationship with a positive sign for secondary education. This is consistent with a large body of research that has found the pupil teacher ratio is a poor indicator of education quality. Lee and Barro (1997) investigated the determinants of school quality and found that greater school inputs, longer school terms, family background, and strong communities are positively related to student performance. However, they cannot fully explain the better education outcomes of East Asian countries compared to other developing countries. This suggests other factors at play, including those associated with a more open and export-oriented economic environment.

Hanushek and Kimko (2000) analyze the impact of the quality of schooling directly by using the information about international differences in mathematics and science from TIMMS data. They find a highly significant impact of differences in school quality on economic growth: a one standard deviation increase in labor force quality (as measured by performance on academic tests) increases the rate of economic growth by 1.4 percentage points[36] and conclude that "Labor force quality has a consistent, stable and strong relationship with economic growth" (p. 1203).

In a recent review of the evidence on the impact of education quality on economic growth Hanushek and Woessmann (2007) conclude that "educational quality—measured by what people know—has powerful effects on individual earnings, on the distribution of income, and on economic growth", (p.2). In fact they find that differences in learning achievements matter more in explaining cross-country differences in productivity growth than differences in the average number of years of schooling or in enrollment rates. Accelerating economic growth will require more than increasing the number of students enrolled: unless the students acquire the cognitive skills that will allow to them participate in the economy in a meaningful way much of the investments in their education will be wasted.

Equity

Inequities in education opportunities are profound in Sub Saharan Africa (Table 3.5). Many poor children remain out of school; of the poor children that make it to primary school few make it into lower secondary education or beyond. The inequities get larger the higher the level of education. In Cameroon, Kenya and Niger no children from the poorest income quintile are enrolled in tertiary institutions. The root of the problem is, of course, the unequal distribution of opportunities to learn at the primary level. Even when

[36] They do point out however that this impact is improbably large (larger than would be obtained in nine years of average schooling), and that the magnitude and the reasons for the overestimation remain unclear after some obvious explanations have been rejected.

access to the first grade of primary is almost universal, inequities in the provision of instructional materials, teaching time, quality of instruction and social background result in large disparities in learning achievement and access to secondary education. The high level of public funding for secondary and tertiary education where the poor are largely absent results in a highly inequitable distribution of the public education expenditures.

These inequalities in the distribution of human capital aversely affect not only social cohesion but also economic growth performance (World Bank, 2005f). They are indicative of the inefficient use of the pool of human talent available for national development. The East Asian experience (Chapter 4) which emphasized from the outset an equitable pattern of education development is highly illuminating in this regard. It is confirmed by an increasingly robust body of research evidence. Thomas et al (2001) found that increases in per capita GDP (adjusted for purchasing power parity) to be negatively associated with inequality in education and positively related to the labor force's average years of schooling after controlling for initial income levels. Similarly,

Table 3.5: Inequalities in the duration of education according to the income quintile (population 5-24 years)

	Educational attainment	Q 1 (20% poorest)	Q2	Q3	Q4	Q5 (20% wealthiest)	Total	Q1-Q5
Cameroon 2000	Out of school	24.0	24.4	21.0	14.4	16.2	100	-8
	Primary	20.0	21.2	22.4	18.1	18.3	100	-2
	Lower secondary	5.7	9.9	15.2	21.8	47.5	100	42
	Upper secondary	1.9	4.1	4.0	21.8	72.6	104	71
	Tertiary	0.0	0.0	2.5	17.0	80.5	100	81
Gambia 2000	Out of school	29.5	23.0	20.3	17.0	10.2	100	-19
	Primary	14.4	22.8	18.8	21.1	22.9	100	9
	Lower secondary	5.3	15.2	17.3	25.7	36.6	100	31
	Upper secondary	1.0	9.5	13.1	28.9	47.5	100	47
	Tech. and tertiary	0.0	3.9	13.0	27.3	55.8	100	56
Guinea 2002	Out of school	21.7	22.3	21.5	20.0	15.0	101	-7
	Primary	19.3	18.4	19.4	20.4	22.5	100	3
	Lower secondary	14.7	13.9	17.3	19.1	35.0	100	20
	Upper secondary	10.2	11.5	13.6	18.1	46.7	100	37
	Tertiary	5.1	11.9	20.5	19.0	43.4	100	38
Kenya, 2000	Out of school	41.1	21.3	19.8	8.9	8.9	100	-32
	Primary	21.3	23.6	22.1	19.8	13.3	100	-8
	Secondary	8.5	14.7	14.3	26.3	36.3	100	28
	Tertiary	0.0	0.0	4.5	22.7	72.7	100	73
Lesotho 2000	Out of school	33.9	26.9	18.2	12.7	8.2	100	-26
	Primary	17.1	22.4	22.3	20.6	17.6	100	1
	Secondary	5.7	10.0	19.8	27.5	37.0	100	31
	Tech. and tertiary	2.4	4.0	13.5	12.7	67.5	100	65
Niger 2000	Out of school	22.7	17.5	22.9	21.3	14.6	99	-8
	Primary	12.0	12.4	15.8	15.0	44.8	100	33
	Lower secondary	4.9	3.9	2.7	4.3	84.1	100	79
	Upper sec/tertiary	0.2	2.0	2.2	6.5	89.1	100	89

Source: UNESCO BREDA 2005

Birdsall (2006) summarizes evidence showing that the level of initial human capital and the distributions of these assets have a significant impact on GDP per capita. And importantly, for the poor, initial inequalities in the distribution of land and of human capital have a clear negative effect that is almost twice as great for this group as for the population as a whole.

Dollar and Gatti (1999) find in a 100 country World Bank study, that gender inequities have a significant impact on economic growth performance. For less developed economies –those with less than 10.35% of the females having secondary education- coefficients on both male and female secondary attainment are insignificant. For the more developed economies in the sample here is a significant positive coefficient for female secondary attainment: an increase of 1 percentage point in the share of adult women with secondary school education implies an increase in per capita income growth of 0.3 percentage points. They conclude that from the point of view of growth, it may be that gender inequality in education is a minor distortion at low levels of development (largely agricultural societies) and a more significant distortion at higher levels (as societies become more industrial. Increasing girls' education—controlling for other influences—creates a better environment for economic growth, particularly as developing countries aim to move to middle-income levels

Policy Implications

The evidence summarized above suggests that secondary education will often produce considerable private returns and contribute to economic growth. In Sub Saharan Africa however, returns are mixed and the contribution to growth has not been comparable to other regions. This reflects in part the region disappointing growth performance. But, in addition, it is likely that another important part of the explanation is the impact of the poor quality of education and the persistent inequities in the distribution of education opportunities and human capital assets. This has undoubtedly has had an adverse effect on the growth performance of many African countries. In fact, there is a danger for countries to get caught in a low equilibrium trap where the education system in the face of increasing enrollments and constrained financial resources is incapable of producing the educated personnel necessary to increase the productivity of labor or adopt and adapt technological innovations, which in turn precludes the mobilization of the resources necessary for a meaningful increase in the human capital base of the economy[37].

Berthélemy (2006, 2004) has argued that the relationship between the human capital of an economy and its growth rate is strongly non-linear and is characterized by thresholds and "convergence clubs"[38]. Similarly, Ndulu and O'Connell (2006) cite several research papers that find significant economic threshold effects education in the growth process. The findings of Barro (1999), Borensztein et al (1998), OECD (2000) and Lumbila (2005) on human capital thresholds for FDI have already mentioned above. The non-linearity of relation between human capital and economic growth may be an additional explanation for the difficulty of finding robust empirical evidence.

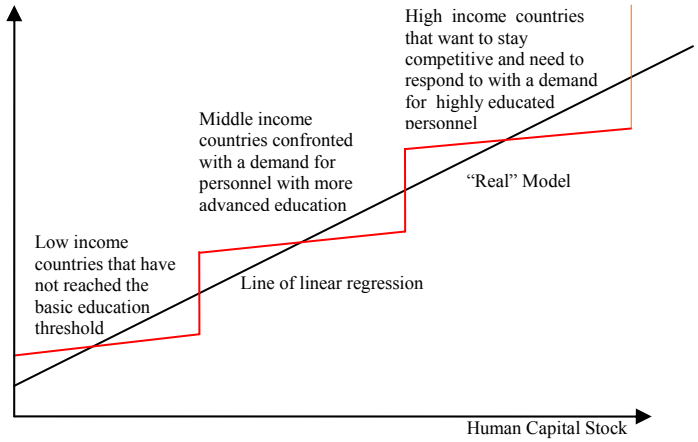
[37] For a discussion of the nature and causes of the African poverty trap see Sachs (2004)
[38] Groups of countries where economic performance tend to converge.

Berthélemy's "real" model is one in which countries remain trapped in a low level equilibrium until they pass a threshold that will allow them to move up to a level where their human capital becomes more productive and the contribution to growth increases (Figure 3.5). This may involve a process that is repeated several times as countries move forward on their development path. Equitable provision of good quality basic education is an obvious first step in this process –one that many countries in SSA have not yet adequately addressed and that maybe holding them in a low level equilibrium trap. Other countries -in SSA and other regions- may face thresholds at different levels of education. Birdsall (1997) and DeFerranti et al (2003), for example, argue that in the Latin American region there is pressing need to provide full coverage of secondary education to include the poor - which in turn requires improving the quality of primary education to raise primary completion rates. Similarly OECD (2000) argues that the strong correlation between schooling and growth performance in Argentina, Chile, Malaysia and Uruguay suggests that overcoming thresholds at high levels of upper secondary and tertiary education are important for human capital to translate into steady growth.

A further challenge is that human capital thresholds are not stable, they move over time as the economy becomes more complex and demands more advanced skills while other countries catch up. The competitive advantage of the US in the middle of the 20th century was based on a rapid expansion of the number of high school graduates (Goldin, 2001); in today's world this is no longer a source of competitive advantage, especially not in the light of the growth in the human capital stock in Europe and East Asia (see chapter 4).

Porter (2002) has argued that successful economic development is a process of successive upgrading, in which a business environment evolves to support and encourage increasingly sophisticated and productive ways of competing. Nations at different levels of development face different challenges in this regard. Some countries in SSA remain to largely subsistence economy dominated by family consumption and a small local market. Many others are starting the transition from factor driven economies[39] to investment driven economies[40]. Human capital and in particular secondary education is a key

Figure 3.5: Illustrative relation between human capital and economic growth



Source:Adapted from UNESCO BREDA 2005 and Berthélemy (2004)

[39] Economies that derive their competitive advantage from low cost labor or access to national resources
[40] Economies where efficiency in the production of standards products and services is the source of competitive advantage

factor in this process (World Bank, 2005b). Participation in a global economy that is increasingly driven by technological progress will require sustained increases in educational attainment to supporting the expansion of new and more education-intensive activities in the manufacturing and service sectors. In this environment the first level threshold is no longer a six or seven year primary education; extending the basic education cycle to nine or ten years that is broadly accessible would seem to be essential for building the human capital necessary to adopt and adapt new technologies and attract foreign direct investment.

Conclusion

Secondary education can make significant contributions to economic growth. Its impact on social outcomes can further strengthen a country's human capital and improve economic performance. In turn, sustained economic growth is essential if the resources necessary for accelerated secondary education development are to be mobilized. In countries with economic growth there may be increasing returns to education and secondary rates often are higher that primary rates. Where rates of economic growth – especially in the modern sector- are low and the growth in the number school leavers with post primary education exceeds it, it is not surprising that many face severe difficulties finding a job.

Building a strong human capital foundation for countries to take-off on a path of sustained economic growth will require:

- *A minimum threshold level of "education stock" in the work force*. There is little doubt that with an education attainment of less than four years and with less than 30% of the youth having completed junior secondary education the foundation for development remains weak in much of SSA. Economic growth in the old and the newly industrialized countries accelerated only at a much higher level of human capital development.
- *Simple increases in enrollments are not sufficient* to capture the economic growth benefits; they will need to be accompanied by investments and policies that result in improvements in quality and ensure that students acquire the cognitive skills that are need for productive work in an increasingly complex economy.
- *Continuous investment in the improvement of human capital* since the minimum threshold is not stable over time. As countries start on their economic growth path, the minimum threshold needed to sustain growth increases, as their economy makes the transition from subsistence rural economies towards different levels of industrialization and service based economies. This process is accelerating as globalization increases and countries get more integrated in a skills intensive global economy. Therefore the minimum threshold required is higher for today's low income countries than it was for today's industrialized countries and even what was required for the HPAEs in the 1970s and 1980s.
- *Systematically addressing inequities* in education service delivery to ensure that students from poor and rural backgrounds and especially girls will have access to opportunities to learn of acceptable quality.

The competition for growth driven by FDI is fierce. It is global but also pan- African. Those countries with higher secondary participation will -ceteris paribus- attract more FDI. The low enrolment countries risk being left behind in SSA as well as globally. The implications for the education development strategy are threefold:

- *Providing learning opportunities and universal completion of six years of primary education* is a necessary but no longer a sufficient condition for economic take-off.
- *Accelerated expansion of access to a basic education cycle of 8 to 10 years* of acceptable quality is a priority for establishing national competitive advantage.
- *Selective access to a wide range of education and training opportunities* for graduates of the basic education cycle is needed to complement investments in basic education.

These priorities are conceptually sequential in the sense that they build on each other. In practice they will need to be implemented simultaneously to support a dynamic process of economic growth that can draw on increasingly educated and trained personnel and at the same time strengthen the resource base for education and training.

Crossing the human capital thresholds and moving to a higher level of economic performance will almost always require "ambitious investments in education" (Berthélemy, 2006) in conjunction with improvements in the allocative efficiency of these investments, thus ensuring the quality and equitable distribution of schooling. In some countries it may be possible to reorder priorities for public expenditures and increased allocations to education to ensure broad access to quality basic education and a development of further education and training opportunities consistent with the demands of growing modern manufacturing and service sectors of the economy. But in many countries the additional resources will only be available as economic growth accelerates and public and private resources for education development become more plentiful. In these environments improvements in the efficiency of use of available resources will have to be a key factor driving secondary education development.

While the potential benefits of a non-incremental increase in a nation's human capital driven by investments in secondary education are substantial, they are by no means automatic. They are critically dependent on effective macro economic and institutional policies. A good investment climate lets the private sector expand, helps trade flourish and will support economic expansion. Mitigating market and policy failures responsible for rigidity in the labor market and its segmentation will enhance employment opportunities. Strong institutions – such as stable political systems, secure property rights, efficient financial systems, honest and accountable public officials- are key productive assets. Only in these environments are ambitious education investments feasible and justified.

At the same time the nature of education policy matters. Policies that accommodate demand pressures without attention to quality and relevance can lead to a vicious circle of declining quality, stagnation in the growth of human capital, inability to increase

productivity of capital and labor, stagnating public and private resources and further declines in education quality. Similarly policies that ignore the imperative of an equitable distribution of education opportunities carry within them the seeds of social conflict and reduced growth performance. On the other hand in a positive environment investments in secondary education can help accelerate economic growth where the macro-economic and political conditions create a favorable environment.

> Learning from experience is a faculty almost never practiced
> Barbara Tuchman

Chapter 4
Lessons from International Experience

Previous chapters have underscored the importance of secondary education for social and economic development in Sub-Saharan Africa and the severe shortcomings in quality, quantity and efficiency of current provision in many countries. Clearly, few countries will be able to access the development benefits associated with secondary education without - often radical - systemic reform. The case for reform rests on the need to transform a system originally designed to train a small elite of officials for the colonial administration into one that can respond to the aspirations of the many students who have completed their primary schooling and want to pursue their education and that at the same time serves effectively national development. This implies not only changes in the way systems are financed and resources are being used, but also changes in what is taught, how instruction is delivered and how the system is managed.

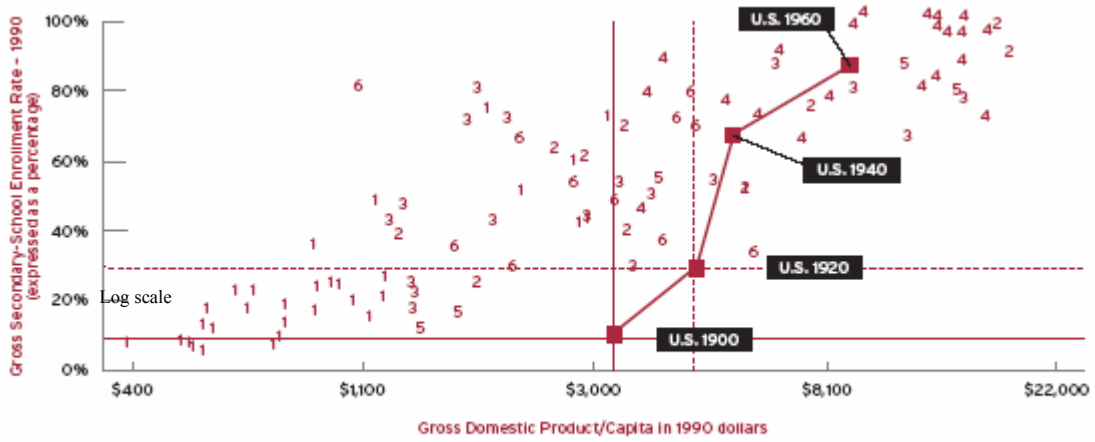
The African Challenge in Comparative Perspective

The agenda for reform is formidable. With few exceptions, linear expansion of the system as it currently operates is not an option (see Chapter 5). To achieve significant increases in participation rates, reductions in the publicly funded cost per student of service delivery will be inevitable; but to make a meaningful contribution to national development objectives increases in enrollments must happen in such a way that improvements in quality and relevance are not jeopardized.

What makes the secondary education development challenge particularly daunting in

Figure 4.1: Investing in Human capital

SSA is that it is occurring comparatively early in its development process. Figure 4.1



shows that at a level of GDP lower than the US in 1900, most African countries have higher secondary enrollment rates than the US at that time. This is an almost inevitable response to the development demands in a society that is infinitely more complex and skill intensive today then it was a century ago. But, at the same time, it brings to the fore the fiscal burden that is implied in the rapid development of secondary education. Strategies that were successful in the industrialized countries or even in other developing regions can provide African policy makers with ideas and lessons, but they cannot be transplanted. This makes the search for national strategies an imperative that few African countries will be able to ignore. In the African context strategies will need to recognize the need to (i) pursue policy reform options that explicitly recognize constraints on public and private resources and are explicitly designed for efficiency in resource use and allocation; and (ii) implement curriculum reforms simultaneously with financial and management reforms. After reviewing the international experience with secondary education development, this chapter will draw some lessons that policy makers in SSA may want to consider.

Secondary Education Development in Other Regions

Most of today's industrialized countries had made considerable strides in providing basic education up to age 14 by the start of the 20th century. The US was close to universal enrollment in a 9 year elementary program. Basic education programs in Europe were shorter in most countries. In France half of the children born in 1900 had left school by age 13. In England in the early 1940s, 90% of the students had left school by age 14 (Gillard, 2007). Sweden in 1930 only 15% of the adult population had education beyond the 6th grade. In Finland as late as 1960 only 12% of the 15-64 population had completed secondary or higher education.

The strategies for the further expansion of education opportunities were distinctly different in the US and Europe. The transformation from an elite to a mass system of secondary education occurred in the first half of the 20th century in the US; in the 1970s and 1980s in Europe; (Goldin, 2001, 2003; Briseid and Caillods, 2004); and in the latter part of the century in East Asia (Kim, 2002). It is currently underway in Latin America and has also been initiated in several African countries: Botswana, Kenya, Mauritius, Togo, and Zimbabwe for example.

United States.

Around 1900 the U.S. had reached universal primary enrollment for the 7-13 age group. But secondary – high school – enrollments remained reserved largely for the elite. Around 1900 only 6% of the adult population had completed high school; high schools (grade 9-12) enrolled 650,000 students representing about 10% of the 14-17 year olds, with about 10% of the 17 year olds obtaining a high school diploma. By 1940 this situation had changed dramatically (Figure 4.1). Enrollments had increased more than 10 fold to 7 million or 75% of the 14-17 year olds, 50% of the 17 year olds obtained a high school diploma and 25% of the adult population had completed 12 years of education. (Snyder, 1993; US Census Bureau, 1993). Claudia Goldin (2003) argues that the new industrial economy that became established early in the 20th century increased the demand for skilled and educated labor:

> "A remarkable notion had emerged in the United States around 1900; that schooling could make the office clerk, shop floor worker and even the farmer more productive" (p.75).

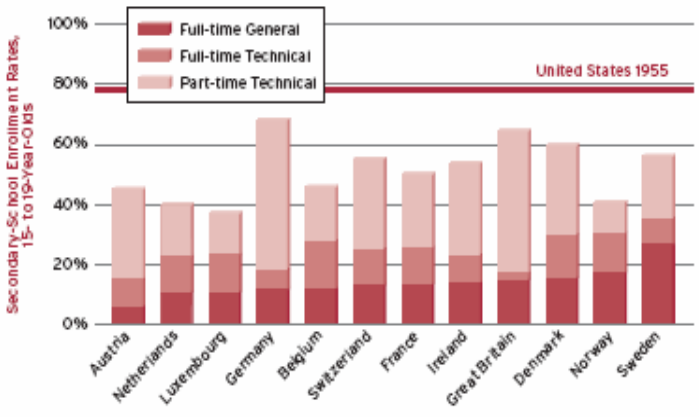
This move towards mass secondary had several defining features: it was publicly funded, managed by numerous small fiscally independent districts, open and forgiving, academic yet practical in its curriculum, secular in control and gender neutral in admissions. In 1910 revenue for education was 80% local with only 20% provided by the state government; by 1940 local districts still raised 70% of the funding for education. Teacher salaries, varying between 1 and 1.5 times GDP per capita (1910-1920) and the cost per student enrolled (10 percent of GNP per capita in 1919-20) were comparatively low. Other indicators (for primary and secondary education combined) in the early part of the 20th century in the US resembled those of many of today's low income countries: student teacher ratio 34-37:1 (1880-1910) and student attendance 100 days per year (1910).

Goldin notes that the spread of what was known as the "high school movement" followed the spread of economic development through the US starting from the towns in New England to the rich agricultural areas of the mid-west and the western states, but much more slowly in the South where economic development was lagging. Key in this process was the decentralized decision making in some 130,000 separate school districts that existed in the US around 1920, which included tens of thousands of fiscally independent communities large enough to have their own high school. Even in states where there was no overall majority of the voters that supported public funding for new high schools, the existence of small independent school districts allowed high schools to spread in those districts where a majority of the residents supported it and were ready to pay for it. These districts implicitly competed with one another to attract residents by offering secondary schooling opportunities.

The increase in high school enrollments was accompanied by improvements in the learning environment: by 1940 students were attending for an average of 150 days a year, pupil teacher ratios had declined to about 27:1, cost per student enrolled increased to 15% of GNP per capita and teachers salaries had increased to about 2.5 times GNP per capita. Total expenditure on primary and secondary education increased from 1.3% to 2.2% of GDP per capita.

Today many of the elements that made the US strategy successful have come under criticism. Public funding and provision are considered the source of problems of unacceptably low performance, so vouchers and public funding for private schools are being introduced. The egalitarian non-elitist system is seen as lacking standards and accountability; so many states are imposing strict standards for promotion and graduation, school funding and teacher retention. The decentralized system of fiscally independent districts has produced serious funding inequities and most states have now equalization plans. At the same time large schools and consolidated districts are thought to cause bureaucratic inefficiency and disengagement of students, parents and communities from the education process. Charter schools, schools-within- a- school and

Figure 4.2 Secondary school enrollment rates in Europe, 1955



Source: Goldin 2001

specific targets for "adequate yearly progress" towards state defined performance standards are responses to these concerns.

Europe

While most countries in Europe had achieved universal enrollment in primary education for pupils up to the age 13 somewhat later than in the US, the growth of secondary enrollments took place at a much later stage. In 1955 the secondary enrollment rate in the US had increased to 80%, while in much of Europe they were still below 20% (Figure 4.2). Even if full time and part time technical education is included only Germany and the UK had enrollment rates above 60%.

Although different systems have different characteristics Western European countries –including England- have a number of common features in the way their education systems developed beyond the primary level. In many countries a triple system was created (see Box 4.1). A first sub-system – upper primary schools – focused on the "three Rs" and catered for the majority of the population in rural areas and unskilled workers in industry. Another sub-system which in some countries eventually merged with the first provided modern secondary education that led to entry in the world of work or vocational education after three or four years. This system trained mainly the skilled workers and employees required by the industrializing economies that heavily relied on manual labor. The third more academic

Box 4.1: Secondary education in England

As in most of continental Europe England established a meritocratic, but class based education system For a long time the system was locally managed with little central government involvement. Just as in the 1980s most of continental Europe started to decentralize the management of education the trend in the UK was to centralize control over the education system. Until 1944 the participation of the national government in education was minimal. There was no Ministry of Education and Local Education Authorities (LEAs) were responsible for the provision of education.

Education opportunities for working class children remained limited for a long time. In 1926 schools were divided in a junior and a senior stage and an examination (known as 11+) was introduced to select small proportion of the pupils into secondary education. Broad access to secondary education was institutionalized after the proclamation of the 1944 education act. The act was based on the idea that all children should have equal opportunity to enroll in secondary education and introduced a three pronged system secondary modern schools which replaced the senior elementary cycle, secondary technical that catered to students who failed the 11+ exam and grammar schools for selected pupils who intended their studies beyond the O level. Working class children were very much underrepresented in grammar schools. In the 1960s concern for equity the 11+ examination was abolished and grammar schools and modern schools were gradually amalgamated in comprehensive schools which accept students without regard to ability. Independent (private schools) throughout the 20th century catered to the children of the elite.

Source: Briseid and Caillods, 2004; Gillard, 2007.

subsystem was geared towards the needs of the small elite that would continue on to higher education (Briseid and Caillods, 2004). The European academic systems were highly selective and small (Box 4.2), with highly trained teachers and strict standards enforced through examinations and severe tracking at an early age. Most –but not England- had centralized bureaucracies and financing. It was only in the 1960s when Europe had recovered from the Second World War and economic growth began to accelerate that secondary systems were redesigned to respond to equity concerns and new labor market demands. In England concerns about equity international competitiveness pushed in the second half of the twentieth century towards increased involved of the national government in education management.

Box 4.2: Secondary Education in France in the first half of the 20th century

Before World War II, the *lycées* in France were not crowded, and classes were small, as they educated only a tiny minority of the nation's children. The majority of secondary teachers held the *agrégation* (a state-controlled competition for entry into secondary and university teaching). They were supported by *professeurs certifiés*, graduate teachers who had failed or had not attempted the *agrégation*. The *agrégés* received salaries high enough to give them prestige in the community and were respected for their scholarship and culture – and taught no more than 16 hours per week). The *professeurs certifié* taught longer hours (18 per week), and received a lower salary Primary and secondary education were held to be different not only in level but in essence. The primary teacher taught, instructed, informed, and was trained in techniques and methodology. The secondary teacher was a subject specialist, who educated and formed the critical judgment of his pupils by steeping them in *culture générale.*

Source: Wykes, 1968

Many European counties introduced comprehensive schooling models and policies that allowed a rapid expansion of enrollments. Junior secondary education became a compulsory part of basic education and selection exams at the end of primary education were dropped. The next wave of expansion took place in the 1980s and the 1990s at the senior secondary level. Access retention and transition policies focused increasingly on keeping the students in the system rather than selecting them out.

The private sector has played a varying, but in many countries, important role in the provision of secondary education. In the Netherlands 75% of the schools are private (but publicly funded) but in Finland only about 5%. Most private schools are religious or schools with an alternative pedagogical philosophy. Most private schools receive public subsidies or contribution from business especially for technical vocational programs

The differences with the US experience are striking. Until the 1960s there was no common school but a separate system for the working classes and the bourgeoisie in most European countries. The elite system and limited enrollment made it possible to pay higher salaries to teachers and offer employment as civil servants[41]. On the other hand

[41] In Europe during the beginning of the 20th century primary and secondary teachers were relatively better paid than they were in the United States, partly because many primary-school teachers in Europe were men, with families to support (Encyclopaedia Britannica Online 2006). In 1910 Paris, for example, secondary teacher salaries ranged from 4,500 to 9,000 francs and in rural areas 3,200 to 3,700 francs; a metal worker made 2,400 francs and a weaver, 990 francs. (Desbrousses and Peloille, 1980). In 1939 the base salary was 16,000 to 40,000 francs, and the teachers (*agrégé*) received 26,000 to 50,000 francs.

provision is more open. Parents usually can choose between schools. In many countries private schools enroll a larger share of the student population – usually with public funding. At the senior secondary level technical/vocational programs are much more common.

Most countries today offer a common core curriculum through junior secondary education and postpone guiding students towards vocational courses until completion of the end of basic education. At the senior secondary level students can choose from a large number of curriculum options. The capacity to think and act reflectively is central to the recently developed OECD framework of key competencies (Box 4.3). Streaming, tracking and school diversification are common with considerable differences between

Box 4.3: Trends in Secondary Education Reforms in OECD Countries

OECD countries recognize that the global knowledge economy has transformed the demands of the labor market, and changed the education and skills individuals need. Secondary education is seen increasingly as preparation for entry in more flexible and mobile workforce with a lifelong-learning perspective. JSE is designed to provide foundation skills and competencies on which to build further learning. SSE increasingly emphasizes subject-specific and vocational skills, preparing some students for further academic studies and others for the transition to work and job specific training.

During the early 1990s, most OECD countries aimed to improve the quality and relevance of education. They first addressed improvements in primary education and then by the mid-1990s, moved on to implementing major structural reforms at junior and senior secondary levels to adjust to changing socio-economic needs and job market demands, raising achievement levels and reducing the gap between different groups. Currently, reforms at the secondary level continue to focus on the renewal of curricula along with various structural and managerial reforms.

*Curricul*a: the emphasis is on the application of knowledge and the learning of cross-curricular skills rather than on the reproduction of knowledge; this requires the promotion of key competencies – knowledge, skills, attitudes and values- in particular:

- Using of language, symbols and text interactively with knowledge, information and technology;
- Working in groups, work in teams and manage and resolve conflict
- Acting autonomously, conscious of the big picture, in pursuit of personal life plans and projects and aware of rights, interests, limits and needs.

Information and Communication Technology (ICT) is now a major focus as both a subject and a tool of learning at the secondary level.

Structural/Organizational Reforms Repetition practices have been restricted and countries are now offering automatic access to junior and senior secondary to the whole age cohort without any admission requirements – facilitating access and transition to secondary education. Although in OECD countries education is not compulsory beyond 16 years more than 80% of the students continue learning either in formal SSE schools or in vocational training institutions which most often combine applied learning with apprenticeships.

Cost Effectiveness: Management and governance of the education systems have been decentralized, allowing for secondary schools to become autonomous and make context-specific decisions regarding programs, curricula and even financing. Standards for performance have been developed and formula-funding mechanisms implemented, allowing for the inclusion and public funding of private providers. The role of the private sector as provider, manager and financier has been enhanced and pro-actively encouraged by governments. This also includes the use of distance-learning, ICT, and courses adapted for second-chance students and adults.

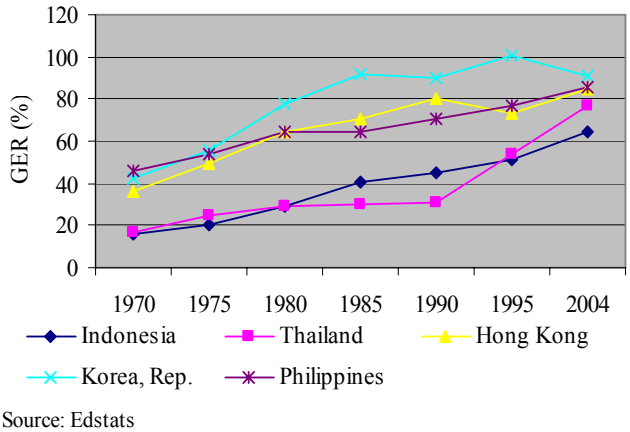
Source: OECD, (2005b); Bregman and Simonnet, 2004; Briseid and Caillods, 2004.

countries in organization and structure. In several countries [42] half or more of the students are enrolled in technical/vocational courses. This reflects in part a historical legacy but also is the consequence of the commitment to provide education opportunities to all youngsters up to the age of 18, many of whom are not prepared for advanced academic classes and prefer practical subjects. Exposure to work based or hands-on experience is often part of these programs.

Asia

In the high performing Asian economies (HPAEs)[43] the growth and transformation of the education and training system during 1960s and 1970s has been dramatic. The quantity of education children received increased at the same time that the quality of schooling improved markedly. Today the cognitive skill levels of secondary school graduates in several East Asian countries are comparable to or higher than those of graduates in high income economies. Large increases in expenditures on education (355% in real expenditures between 1970 and 1989 in Korea, for example) funded enrollment levels higher than in other countries with similar levels of GDP per capita (World Bank, 1993a). In 1965 Hong Kong, Korea and Singapore had already achieved universal primary education and even Indonesia had a primary enrollment rate above 70%.

Figure 4.3: Secondary GER (%) in East Asian Countries, 1970-2004



Source: Edstats

After achieving universal primary schooling and thereby eliminating the gap between boys and girls, countries moved rapidly to expand access for both sexes at the secondary level. By the late 1980s significant progress at the secondary level was evident in several countries. Korea, for example, increased its secondary enrollment rate to from 35% in 1970 to 90% in 1990. The rapid increases in secondary enrollments could be observed throughout much of the East Asia region during the last three decades of the 20th century (Figure 4.3). By 2003 Indonesia enrolled 46% of its young people of secondary school age, up from 16 percent in 1970. By 1990, the Philippines had 71 percent gross enrollment in secondary (46 percent in 1970) Thailand had a primary enrollment rate of 83% in 1971, and a secondary enrollment rate of only 14% - with only 2,000 secondary schools that were limited to a select few in the

[42] Finland, France, Germany, The Netherlands, Norway, the UK

[43] This discussion is largely based on the analysis in chapters 1 and 5 of a 1993 World Bank publication "The East Asia Miracle" which analyzes the economic performance of seven high performing East Asian economies: the four tigers -Hong Kong, South Korea, Singapore and Taiwan- which had been rapidly for decades; and three newly industrializing economies Indonesia Malaysia and Thailand. More recently China has a similar seen with rapid economic growth and massive investments in education.

population. By 2005, however, the enrollment ratio of junior secondary education was 86% and 60% for senior secondary.

In "The East Asian Miracle" The World Bank (1993a) identifies high income growth, early demographic transitions and more equal income distributions as the factors that enabled this extraordinary change, while two education policy variables: the overall budgetary commitment to education and the allocation of resources to secondary education were the major determining factor in East Asia's success.

GDP growth of 7-10% from 1960-1970 increased the resources available for education as well as real wages and the return to education. The population growth declined providing resources for more and better schooling and allowing substantial increases in per student expenditures. Emphasis on universal high quality primary education had important pay-offs for economic efficiency and for equity. Considerable income equality resulted in fewer poor people unable to meet the education expenditures even when the returns are high[44] Resource allocation took full advantage of these favorable conditions. The share of education as a percentage of GDP increased in the HPAEs between 1960 and 1989 from 2.5 to 3.7%,[45] but most importantly public investments in education were allocated with considerable attention to their cost effectiveness and took into account the potential of and the constraints on private funding. Class sizes were large. Singapore pursued a strategy that explicitly emphasized efficiency, quality and equity (Box 4.4). In Vietnam

Box 4.4: The Singapore Experience

Since independence forty years ago, Singapore has made remarkable economic progress underpinned by a continuously improving human capital resource. In 1965 the school system was underdeveloped, fragmented in terms of media of instruction, had an overly academic curriculum, no technical schools and no unified system of teacher preparation. There was poor articulation to labor market needs and an urgent need to strengthen social cohesion between the island's 3 major ethnic groups: Chinese, Malay and Indian. Resources were limited. Faced with these challenges the government adopted a "politics of survival strategy" recognizing that a viable state could only be built on sustained economic growth. Investment in education was an essential element of this strategy complementing the investments in new industries facilitated by the Economic Development Board. Key features were

- tight links between emerging labor market needs and the skills configuration of school leavers including the creation of industry specific training institutions;
- equality of treatment by ensuring equitable access to quality schools for all, providing for the learning of ethnically significant languages, building inter-ethnic solidarity in the civics, social studies, and history curricula, while implementing the politically unpopular but economically imperative policy to keep English as a major medium of instruction;
- insistence that the education system use resources efficiently; this continues to govern education policy till today: e.g. secondary teachers are expected to teach more than one subject, double shift use of facilities continued until 2003 and the employment of a large number of diploma level primary teachers;
- commitment to rigor and standards by keeping O and A level terminal examinations co-managed with Cambridge Board.

Source: S. Gopinathan, (National Institute of Education Singapore), personal communication.

[44] There is a strong and statistically significant negative correlation between basic education enrollments and the level of income inequality (Clarke, 1992). Schultz (1988) found at primary and secondary level

parents pay 50% of the cost of senior secondary education, which has allowed government to target a large proportion of its resources available for secondary education on the expansion of junior secondary education. Korea provides subsidies to private schools to ensure they are broadly accessible. The Korean strategy (Box 4.5) is instructive in its sequencing, financing and attention to equity.

Box 4.5: Developing Secondary Education in South Korea

In 1960 South Korea was a low income country with a GDP per capita equivalent to African countries such as Ghana. By 2000 its economy was ranked twelfth in the world; GNP per capita stood at US$13,980, while Ghana's was less than $300. In 1965, South Korea had reached universal primary education, and by 1990 the secondary enrollment had increased to 90 percent from 35% in 1965. Between 1970 and 1995, the average years of schooling almost doubled from 5.74 years to 10.25 years; and access to secondary education is now almost universal. Korean students today are among the top performers in math and science in OECD countries. Five strategic principles guided the expansion of secondary education:

- Education played a central role in South Korea's development strategy since the 1950s, reflected in policy and budget priorities. Between 1954 and 1959, government spending on education tripled. In 1961, the government implemented a series of five economic development plans, which set national educational goals, curriculum priorities, and assessment policies. Budget allocations increased steadily from 14.3 percent of the total government budget in 1963 to 17.5 percent in 2003. Education expenditure as a percentage of GDP increased from 2.9 percent in 1970 to 4.97 percent in 2003.
- Education development was systematically built on prior achievements. Primary education was emphasized in the 1960s, in the 1970s policy and public funding emphasis shifted to secondary education and in the 1980s to tertiary education
- Public and private resources were mobilized. Financial incentives such as a public subsidy and tax exemption encouraged private provision. As of 2000 private secondary schools enrolled 20% of the students in junior secondary schools and senior secondary schools 55%. In 2005, 42% of total education expenditures were privately financed.
- Equity was an important priority. In 1968 the secondary entrance exam was abolished and replaced by a lottery system based on residence which virtually eliminated elite secondary schools. In 1974 a similar system was adopted for senior secondary schools.
- At the early stages of expansion, South Korea combined a system of centralized financing with a system of autonomous local provision. Autonomy in the allocation and mobilization of resources, made it easier for local education authorities to secure financial and personnel resources.

The Korean experience demonstrates that both access and equity can be achieved simultaneously. Economic and social demand for education in South Korea's rapidly growing economy, helped the country achieve its education goals, however government direction and leadership were essential to ensure equity.

Source: Lee, 2006; World Bank, 2005b; Kim, 2002

The emphasis on education as a key element of the national development policy continues until today in East Asia. In Vietnam, for example, education and training, together with science and technology are at the top of national policy. As a result 90% of the working-age population is literate, and more than 98% of children of primary school age attend school. The country's efforts are now focused on to achieving universal junior secondary education which has resulted in an 84% participation rate of junior secondary school age children in 2004-2005, a transition rate from primary to junior secondary level

income elasticity of enrollments of 0.31 and 0.43. This implies that the positive effect of on school enrollments of lower income inequality can be quite large (World Bank, 1993a).

[45] Although less than in SSA where it increased from 2.4 to 4.1% over the same period.

of 98.5%, and from junior to senior secondary level of 77.1%. Vietnam's average annual GDP growth increased from 5.9% during the period 1985-1994 to 7.0% during the period 1994-2004.

East Asia countries had a vision for the country's economic development and for what that implied in terms of education development. This vision evolved with development and was closely related to the increasing complexity of the economy as they moved from manufacturing simple products to heavy industry and today knowledge based production and service industries (Table 4.1).

Table 4.1 Linking education and economic development in Korea

• Elementary and Secondary Ed. (1960s)	→ Labor intensive light manufacturing
• Vocational-Technical High schools (1970s to 1980s)	→ Capital Intensive heavy and chemical industry
• Expansion of Higher Education(1980s to Present)	→ Electronics, high-tech knowledge Industry

Source: Lee, 2006

The vision applies to the interaction between education and the economy, with a clear understanding that these two national development priorities are mutually dependent and reinforcing. But the emphasis on education's development role goes well beyond economic issues as education has been assigned a key role in nation building, including building the moral values and national cohesion required to make a multi- ethnical society work. For example, while many African countries today -- 40-50 years after independence – consider that their curriculum content still reflects too much their colonial heritage and is not adapted to their national realities Singapore, Korea and more recently Vietnam, almost immediately after independence "renovated" their curriculum to help the school serve the nation's overarching economic and nation-building goals.

Until well into the 20th century education in Latin America was available only for the privileged classes reflecting a colonial history with a negative intellectual bias and the concentration of political power and control in the hands of a few. Until well into the second part of the last century, large numbers of students from poor backgrounds did not complete their basic education while many others from –mostly from the upper and middle classes were able to attend high quality publicly subsidized universities.

In the last 50 years considerable progress has been made in expanding access to education. The number of students at all levels in Latin America increased from 32 million in 1960 to 114 million in 1990. Only three out of every five children were enrolled in first grade in the early 1960s, but today 95% of nine-year-olds are enrolled in school. Enrollment rates since 1960 increased from 60% to 88% at the primary level, from 36% to 72% at the secondary level and from 6% to 27% at the tertiary level. These increased opportunities to enroll in school demonstrate a remarkable expansion of the education system and great efforts in building schools and hiring and training teachers. But low levels of learning achievement, and high repetition and drop-out rates especially among the poor contribute to what De Ferranti et al (2003) call "massive deficits in net

Box: 4.6: Secondary Education Reforms in Brazil

Brazil has a structure with two cycles of basic education - elementary including grade 1-4 and lower secondary including grade 5- 8- and upper secondary education (grades 9 through 11). Inequities have always been large. High technology, industrial and service sectors have produced living standards in the South close to European levels. By contrast in particular the North Eastern states are among the poorest regions of the world. The economic disparities are reflected in the education indicators. In 1971 mandatory basic education was increased from four years to eight years. But by 1982 only 8.9% of the children of there in the rural Northeast were enrolled in lower secondary education (grade 5-9) compared with 33.5% overall in Brazil. Through the 1980s and 1990s, the central government and states implemented a number of reforms in the framework of a 10-year plan for education focused on access and quality through a combination of supply-side policies. This led to significant improvements in access: the gross enrollment ratio in basic education (including lower secondary) increased from roughly 97 percent to above 112 percent, and at the upper secondary level, gross enrollments reached 60 percent, up from 34 percent. Nonetheless, serious problems of equity, efficiency, and quality persisted: in 1996, for every one hundred 18-year-olds, only 66 completed fourth grade, 43 completed eighth grade, and barely 25 finished secondary education. High repetition rates meant that students completed the 8- year basic cycle in more than 10 years, and took another 4 years to complete the 3 years of upper secondary schooling. Consequently, although gross enrollment secondary rates were high, net enrollment rates were very low, especially at the upper secondary cycle (30 percent). Low quality of schooling resulted in high drop and repletion out of the poorest students.

Since 1996 Brazil has noticeably improved its secondary education system, especially the lower secondary cycle.. In 1998 the Fund for the Maintenance and Development of Basic Education and Teacher Appreciation (FUNDEF) tied the allocation of municipal and state education funds to enrollment. Consequently, poor municipal governments gained access to greater resources, and enrollments increased by 6 percent at the lower secondary level .a similar program for upper secondary education is now being considered. Bolsa Escola, a means-tested cash transfer program, was implemented in 2001, providing cash payments to poor families whose children enroll and stay in school. One study finds that Bolsa Escola may have encouraged attendance among children ages 10 to 15 by up to one-third..

Since 1996 the central government also took steps to address other constraints on the expansion of secondary education

- Availability of qualified teachers. All teachers are expected to have completed at least secondary education. A federally funded distance teacher-training program, PROFORMAÇÃO, provides training to teachers in the poor northern and northeastern states.
- Excessive grade repetition is addressed through summer schools, monetary graduation incentives, accelerated instruction programs, learning cycle approaches, and flexible promotion based on academic credit mechanisms. other programs designed to improve efficiency
- Lack of assessment data: The government reopened the National Institute for Educational Research (INEP), which now implements national educational assessments of student performance through the Basic Education National Evaluation System (SAEB) and an exit examination (ENEM) that tests graduates on the upper secondary curriculum.

Inequity continues to be one of the biggest ills of the Brazilian secondary education system. Conditional transfers such as Bolsa Escola and PERI target inequality in access specifically, and FUNDEF has targeted inequalities in access, quality, and achievement by reducing discrepancies in per pupil expenditures. Furthermore, auxiliary programs that fund student health, nutrition, and transportation have helped poor and rural children to stay in school. Nonetheless, Brazil has much room to improve its targeting of secondary education expenditure toward low-income groups: barely 5 percent of expenditure benefits the first income quintile.

Source: Di Gropello, 2006

enrollments in secondary school" (p.29). Compared with a sample of 116 countries the net secondary enrollment ratio in Latin America is 16 percentage points what would be predicted given its per capita GDP, while the East Asian tigers have a surplus of almost 18 points. In addition to the quality problems in the primary system several countries in Latin America followed an "unbalanced" approach to education development: although most adults still have primary education or less as their highest level of educational attainment, so much upgrading took place at the tertiary level and so little at the secondary that by 2000 there were fewer adults with only secondary education than adults with tertiary education, resulting in an education pyramid with a narrow middle. Aside from the gap in the levels of participation in secondary education, there is also a serious gap in what students learn as measured on international tests such as TIMSS and PISA. The underinvestment in secondary education has constrained increases in educational attainment in the region and limited increases in labor productivity and technological upgrading. This has triggered efforts in several countries – for example Brazil (Box 4.6)- to improve the quality of and broaden access to secondary education.

Lessons for SSA

The context for secondary education development in SSA is of course very different from the context in industrialized countries or even in other developing regions. Yet the international experience provides important lessons to consider for countries in SSA as the education transition processes intensify. The most important lessons to reflect on is perhaps that it is unlikely that the reform objectives can be reached or can be justified unless at least two preconditions are in place:

- *Sustained economic growth.* An environment of sluggish economic growth and stagnating modern sector employment is unlikely to generate the private and public resource necessary to fund secondary education at an acceptable level of quality. It is, of course, equally unlikely that sustained economic growth can take place without a steadily growing supply of personnel with education and training beyond the primary level.
- *Improved learning achievement of primary graduates.* Education is cumulative. Students who do not master the knowledge and the skills specified in the primary curriculum cannot be expected to well in secondary school. Secondary schools that in fact provide remedial teaching for primary school graduates entering secondary schools cannot be expected to produce graduates whose knowledge and skills respond to the demands of growing and modernizing societies. EFA goals and secondary education development objectives are therefore inextricably tied together.

The European, the US and the East Asian experiences illustrate differences in possible education development strategies as well as the interactive relationship between secondary education and economic growth. The US experience highlights the potential of decentralization and local autonomy for an early acceleration of secondary enrollments as well as the challenges of equity and quality in later stages. The Asian and European experiences demonstrate the crucial role of government direction and the feasibility of rapid increases in participation rates made possible by strong economic growth, increased and efficiently allocated (especially in the Asian countries) expenditures on education, a

larger proportion of the education budget for secondary education and constraints on public spending on higher education. Conversely, Latin American countries demonstrate how a deficit in secondary education development and an unbalanced development of the education sector can constrain economic growth and development. More generally, the following four lessons seem particularly noteworthy:

- **The balanced development of different sub-sectors of the education system is a bottom-up process**; broad access to primary education of acceptable quality must be in place for successful development of secondary education. This does not mean a fully sequential process, but it does imply a gradually upward shifting emphasis of policy and public resource allocations.
- **How resources are spent is as important as the amount of resources available;** this means a clear definition of the role of the government, pragmatic evidence based policy choices, efficiency in the use of public resources and allocation to inputs that are most cost-effective in their impact on learning.
- **Government direction and leadership** is important to accelerate and sustain progress and ensure equity; yet decentralization and local autonomy holds considerable promise especially in the early stages of secondary school expansion.
- **Public private partnerships are essential** to mobilize the resources necessary for secondary education development, nurture community support and ensure that secondary education responds effectively to the expectations of local communities and national leaders.
- **A coherent vision** on the role and contribution of secondary education to economic development, social progress and building a democratic society must underpin strategy and policy; simply responding to social demand pressure is not enough.

On occasion, countries have successfully flouted the consensus wisdom suggested from the international experience, to respond to specific national conditions. For example, at the time of independence in 1968, Botswana was one of the poorest countries of the world with a per capita income of about US$80. Virtually all professional senior positions in the country, including education were held by expatriates. Going against much international opinion, Botswana chose to focus its initial human resource development efforts on secondary and tertiary education and work backwards to lower levels. Though not totally neglecting the lower levels, the development of the education system was primarily sequenced from the top down. The strong emphasis on investment in human resources even in times of economic austerity has resulted in a human resource base that has allowed the country to reap the benefits of its natural resources and sustain one of the highest GDP growth rates on the continent (ADEA, 2001).

But on the whole the lessons from African strategies are consistent with the patterns found in other regions. Kenya was able to rapidly increase enrollments in secondary education through its Harambee schools, a spontaneous grassroots community initiative to develop greater access to secondary education than what could be provided by the Government at that time. Rapid expansion of primary enrollments created much pressure

Box 4.7 Increasing Access and Improving Quality in Zimbabwe

At Independence in 1980, only 80,000 out of Zimbabwe's 7.5 million black inhabitants had obtained three years of secondary education. Less than 4% of the age group could access secondary education. Within three years enrolment at secondary level reached more than 65%. A strong partnership of government and communities made this possible:

- Parents and community built the school infrastructure, government provided assistance to ensure safety standards and materials including pre-fabricated pillars and roofing.
- Parents paid and controlled fees for construction, furniture, learning materials, and the payment of additional teachers; they also run the schools and ensured attendance.
- Government provided and paid for teachers at the fixed teacher pupil ratio of 1:30.
- Government paid a per capita grant to the school for teaching and learning materials.
- Government provided free materials and in-service training courses for teachers.

In a very short period of time, the number of secondary schools expanded from less than 200 to more than 1,600, the majority of them built by parents themselves. Enrolments increased from less than 200,000 to over 800,000.

One school out of five primary schools was selected as a potential site for a secondary school. These schools immediately established an "upper top", that is, one or two secondary classes at the existing primary school, mainly through double shifting. The "upper tops" were to cover the first four years of secondary schooling. At the same time, the community undertook to establish a new secondary school at an adjacent site, with state planning, supervision and subsidies. Schools were to have a minimum of four classrooms, three teachers' houses, and toilets. Electricity and expensive installations such as laboratories, technical workshops, halls, and libraries, were not included in the initial phases.

This program enabled children to attend day secondary schools close to their homes that cost an average US$50 per student, rather than the traditional boarding schools that cost an average US$250 per student. Only 4% of communities were unable to respond to this partnership system and had to be provided for, generally by commissioning an NGO or church to assist them.

To ensure that education was relevant, of acceptable quality and yet affordable, the MOE:

- Developed a science kit, -the Zim-Sci kit- and provided it to all secondary schools. It cost about US$1,000 and contained materials for experiments during four years with pupil and teacher instruction manuals. Working in pairs, pupil could perform a weekly experiment. Teachers received training through radio and audio-cassettes.
- Provided a minimum of 20 textbooks free of charge for every subject, in addition to per capita grants to schools. These textbooks were printed at a cost, of about US20 cents per copy, using newsprint and comic book type illustrations. Since there were many underqualified teachers textbooks were written utilizing distance teaching methodologies.
- Established a compulsory core curriculum consisting of English, African Language, Science, and Mathematics, practical subjects and an optional social studies subject.

In addition to these junior secondary schools, a number of senior secondary or sixth form schools were established, but their establishment was also dependent on both community effort and state grants. There are presently more than 200 sixth form schools in Zimbabwe.

Source: Fayking Chung, personal communication

to develop the secondary school system. From 1963 to 1973, primary enrollments rose from around 900,000 students to almost 2 million, and the number of secondary students rose from 20,500 to almost 200,000. The experience also illustrates the inefficiencies, quality problems and inequities (Rugh and Bossert, 1998) that can result from this kind of strategy. A similar process with similar outcomes took place in the 1990s in Burundi (ADEA, 2001). The policies adopted by Zimbabwe after independence, demonstrate what can be achieved in a short time with government leadership, popular support and

efficient and effective use of public resources (Box 4.7). Togo, the Francophone country in Africa that has the highest secondary GER, provides an example of the way communities can complement constrained government resources. Public expenditures on education and cost per secondary student are roughly similar to other countries in the sub region. But private community involvement in primary education has allowed the government to allocate a larger share of the education budget to secondary education.

> Can anybody remember when the times were not hard and money not scarce?
>
> **Ralph Waldo Emerson**

Chapter 5
Financing Secondary Education

Expanding access equitably and improving quality and relevance at the same time are the "twin challenges" faced by secondary education systems throughout the developing world (World Bank, 2005b). Responding to these challenges calls for broad reforms everywhere, but perhaps more so in SSA than in any other region. As noted earlier secondary education development in SSA is taking place at a time where education systems need to respond to multiple demands and competing priorities, while increases in public funding for secondary education will be largely dependent on accelerating economic growth and the ability of the government to mobilize public resources. Moreover, a demographic transition that is slow to emerge and uneven, and often fragile economic growth and make the task even more difficult. Thus, even under the best of circumstances the financial framework for secondary education development will be extremely constrained, Expansion of secondary education as it currently exists is financially and educationally inconceivable. The absence of action in the face of rapidly expanding demand for places in secondary schools is likely to have highly negative consequences for quality. Major changes in the way resources are deployed and mobilized will be at the core of the reforms that countries must consider if a purposeful and orderly development of secondary education is to occur. Increasing the efficiency of resource utilization thus adds a third challenge; one that will determine the extent to which progress to the other two will be possible.

This is convincingly demonstrated in recent work by Lewin (2008) and Mingat (2004) who show that in much of SSA the current level of per student cost precludes any significant expansion of secondary education, unless countries are ready to accept significant deteriorations in the teaching and learning environment and as a consequence in student learning achievement. Changes in the way the system currently delivers secondary education and mobilizes and allocates resources will be essential (Lewin, 2008; Mingat 2004: Lewin and Caillods, 2001). These may include:

- increasing the efficiency of resource deployment in secondary education, resulting in reductions in the cost per student;
- reorganizing the way the junior and senior secondary education is provided; and
- diversifying sources of funding

This chapter first summarizes the evidence on the exploding demand for secondary education and shows how different initial conditions result in different enrollment challenges and call for different policy responses. It then discusses the magnitude of the financial challenge under various assumptions and continues with an analysis of the way major cost elements –teacher salaries, teacher deployment, non-salary expenditures,

boarding policy, infrastructure provision and the structure of service delivery– may affect the total resource requirements. Finally the chapter examines how secondary education in much of SSA is being financed through an interwoven web of public and private resources, and concludes with a summary of the challenges and financing options countries may wish to consider. It is of course understood that while financial reforms are essential, they will not suffice and need to be accompanied by changes in what is taught and in the way the system is managed as discussed in the next three chapters.

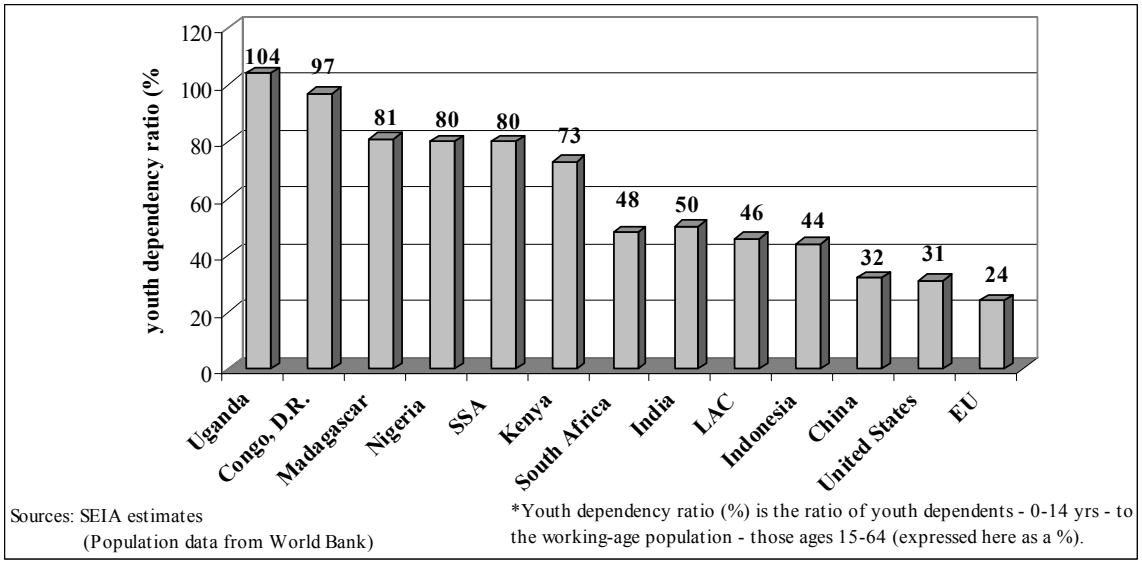
Exploding Demand

The growth in enrollments in secondary education is a function of the growth of the number of children in each age cohort, the proportion that completes the primary course, the percentage of these that are admitted into secondary education and their progress through the secondary system. The demand pressure on secondary systems is intensifying almost everywhere as the number primary school graduates increases rapidly and as a much higher proportion aims to enroll in secondary schools.

More primary school graduates

The size of the school age cohorts is growing on average at about 2% per year varying between minus 1.4% and over 5% (Lewin, 2008). If secondary enrollment rates remain at their 2002 level this would mean an increase in enrollments of about 35% by 2015, solely attributable to the increase in the size of the cohorts of young people. But the increase in primary completion rates[46] that can be expected if the efforts to expand access and retention as part of the EFA and MDGs programs are successful will have an even stronger impact, resulting, in addition, in an increase in the number of primary school graduates of 145% by 2015. The demographic and completion factors together could

Figure 5.1: Youth Dependency Ratio* in Populous Countries and Regions (%), 2005



Sources: SEIA estimates
(Population data from World Bank)

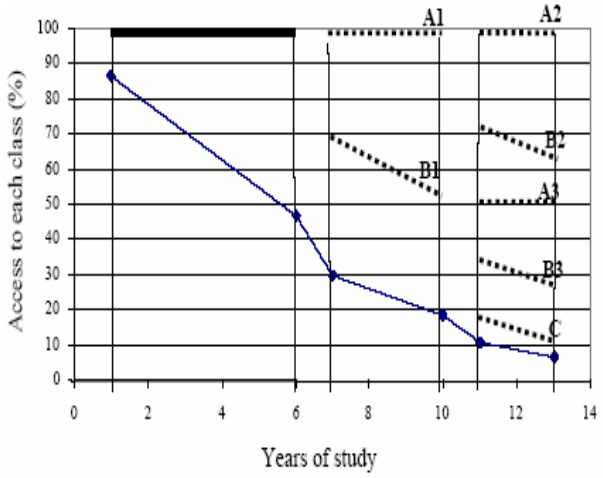
*Youth dependency ratio (%) is the ratio of youth dependents - 0-14 yrs - to the working-age population - those ages 15-64 (expressed here as a %).

[46] The proportion of children of official graduation age that complete primary education; in practice this is calculated by dividing the total number of non-repeaters in the last grade of primary by the total number of children of official graduation age.

increase the number of young people completing primary school by more than 2.7 times from 7.8 million in 2001 in to 20.7 million in 2015[47] (Mingat, 2004). Lewin and Sayed (2005) point out the important impact of demographic factors on the financial burden of schooling because of the very high ratio of school children to the workforce which generates the income from which the cost of education must be paid –directly or through taxes. This dependency ratio[48] is 104% in Uganda, 97% in DRC, 81 in Madagascar 48% in South Africa and 80% for SSA as a whole. In the EU, USA and China this ratio is 24%, 31% and 31% respectively as shown in Figure 5.1).

Impact of higher transition rates

Figure 5.2: Scenarios for the expansion of enrollments in secondary education with different transition rates



Source: Mingat 2004

The growth of enrollments is further determined by the rate of the transition between the end of primary school and the first grade of secondary education, between the last class of junior secondary and the first class of senior secondary education as well as drop out and repetition rates.

Mingat (2004) models possible scenarios with different transition rates for secondary expansion based on 2001 data for a sample of 10 countries[49], as shown in Figure 5.2. The solid line shows that for the base year parameters, the enrollment rate declines from about 88% in grade 1 to less than 50% by grade 6, to 20% by grade 10 and 8% by grade 13. Scenario A1 illustrates 100% completion and transition to junior secondary. B1 indicates junior secondary participation based on current transition rates but 100% completion of primary. A2 and A3 represent 100% transition from the last year of junior secondary to senior secondary and 100% completion. B2 and B3 maintain the current rate of transition and completion in upper secondary education for different levels of completion of junior secondary. C reflects a policy decision to constrain access to upper secondary education. On this basis Mingat (2004) calculates the levels of enrollment resulting from 100% primary access for different levels of secondary enrollment. He finds that that at existing primary/secondary transition rates (63%) and 100% enrollment in primary, students in junior secondary school would be 3.7 times the number in the base year. Universalizing access would imply multiplying enrollments in junior secondary education by a factor 6 – ranging from 2.4 in Togo to 18.1 in Niger – and in senior secondary by a factor 12 – ranging from 5 to 41 in the same countries

[47] In the 33 low income countries (GNI less than $885) in SSA.
[48] The proportion of children of 0-14 compared to the population 15-64 years old
[49] Benin, Cameroon, Madagascar, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, Togo.

Lewin (2008) also calculates different scenarios to estimate the magnitude of enrollment increases for 38 countries in SSA for which data are available, and comes up with similarly daunting numbers. His findings can be summarized as follows::

- To universalize junior secondary education the total number of primary places needs to be increased by more than 30% by 2015 in about 70% of the countries in the data set. In some low primary enrolment countries the number of places will need to increase by more than 80%.
- Only eleven countries are likely to universalize junior secondary if the maximum sustainable rate of increase in junior secondary enrollments is 10% a year (Seychelles, South Africa, Cape Verde, Botswana, Sao Tome and Principe, Namibia, Mauritius, Togo, Ghana, Zimbabwe, Swaziland, and Lesotho); if the maximum rate is set at 5% then only five will achieve this goal (Seychelles, South Africa, Cape Verde, Botswana, Mauritius).
- It will be difficult for most countries to hold primary to secondary transition rates constant if all primary entrants complete the last year of primary school. Half the countries in the data set will not be able to achieve this unless lower secondary enrolments grow at an average of 10% per year to 2015.
- Rates of growth in secondary enrolments above 10% will most often be difficult to sustain. Capital and recurrent expenditure would rise at this rate unless efficiency gains were found that would result in lower the cost per student
- What is feasible will depend on country prioritization of increased access at primary and secondary levels, the resources available, effectiveness of implementation of policy reforms and the costs of expansion; yet in some countries targets for junior secondary education that are achievable and in balance with other sector priorities may have to be set at less than 100% GER.

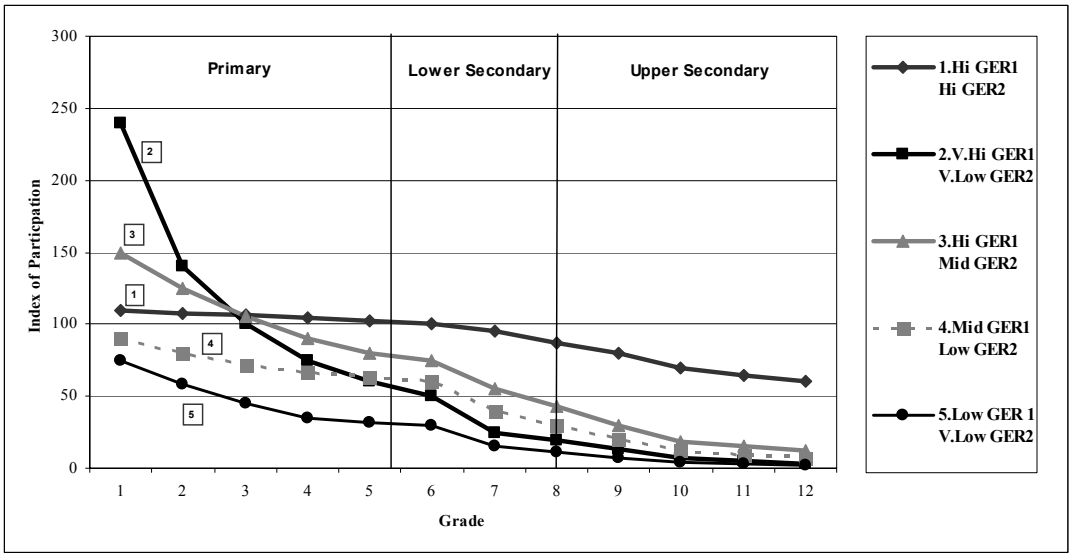
Policy challenges: five different scenarios

The summary findings from these analyses hide the extent to which different initial conditions result in very different enrollment challenges that systems face. Mingat's (2004) estimate that an average of 2.7 times more children will be completing the primary cycle in 2015 than in 2001 obscures considerable variation between countries mainly as a function of current primary enrollment and completion rates. In some countries the number of primary school completers in 2015 – assuming that the EFA target of 100% completion is reached – will be less than two times the current level: Uganda (1.7), Ghana or Togo (1.8), Kenya or Malawi (1.9). In others the number is projected to increase more than four times: Ethiopia (4.1), Sudan or Guinea Bissau (4.2), Chad or the Central African Republic (4.4), Burundi (4.6), Mali (4.9), Angola (5.0), Burkina Faso (5.6), or Niger (7.9). Junior and senior secondary enrollments vary even more depending on initial conditions and assumption on transition. Given this large variation in primary enrollment rates, increases in the number of primary graduates that can be expected and the current enrollment capacity in secondary education, the policy priorities for education development and the place of secondary education in it will differ dramatically between countries.

Lewin (2008) distinguishes five groups of countries (Figure 5.3):

- The first group of countries includes Seychelles, South Africa, Botswana, Mauritius, Namibia, Zimbabwe and Swaziland. All these countries have high primary GERs (between 95% and 114%) and relatively low repetition and drop out through the end of lower secondary education. Participation at the upper secondary level exceeds 50% except in Namibia and Swaziland. They have low levels of over age enrolment. Most of the enrolment growth they face is related to population growth which is generally low.
- The second group also has high primary GERs (103%-140%) but much lower secondary GERs (25% or less with the exception of Equatorial Guinea). It includes Uganda, Rwanda, Equatorial Guinea, Tanzania, Malawi, Madagascar, and Mozambique. In these countries primary intake rates are high and enrollments have expanded rapidly but primary completion rates have remained low since very high drop-out persists. If all enrolled in grade 1 reached grade 6 then the number of primary school leavers would double in most countries in six years. Without major policy reform it will it will be difficult if not impossible in these countries to hold transition rates into lower secondary constant as population growth remains high, retention improves and as a result the number of students reaching the end of primary grows rapidly.
- The third group also has primary GERs of more than 100%, but these countries have no longer the high primary drop-out rates of the second group. Consequently, more children reach the end of primary to make the transition to junior secondary education where GERs are in the range of 30%-40%. The group includes Togo, Lesotho, Nigeria, Benin, and Cameroon. High school age population growth rates will drive future expansion of the primary system. With

Figure 5.3: Enrollment Patterns in Sub Saharan Africa



GER1: primary GER. GER2: Secondary GER.
Note: The age specific enrolment ratio is based on the numbers enrolled in grade 1 divided by the number of children in the grade 1 age group for that year.
Source: Lewin. 2007

appropriate reforms it should be possible to enroll than 50% of the school age children through lower secondary.

- The fourth group has low primary GERs (between 80% and 90%) and all have low rates of junior secondary enrollment. It includes Ghana, Gambia, Zambia, Comores Cote d'Ivoire and Congo. They take in about 90% of the eligible children, but all have substantial drop-out rates. The number of school places needed to provide universal primary education is substantially in excess of those available. These systems need to manage secondary expansion in ways which does not undermine efforts to universalize primary education.
- The fifth group has primary intake rates well below 100%, significant drop-out and high growth rates of the school age population. All have primary GERs below 85%. Junior secondary GERs are much below 30% in most. The group includes Guinea, Eritrea, Ethiopia, Senegal, Mali, Guinea-Bissau, Burundi, Chad, Burkina-Faso, and Niger. Unless entry rates increase and drop-out rates come down the Expansion of lower secondary will be constrained by the small output of successful primary completers.

Table 5.1 Priorities for Secondary Education Development

Group	Main Features	Main Policy Challenges
1	High GER1, High GER2J and GER2S Low Attrition Low population growth	Improving opportunities to learn especially for disadvantaged populations; expansion of access at upper secondary and strengthening preparation for life, entry in the labor market and further learning
2	High GER1, Low GER2J and GER2S, High Attrition High population growth	Improving quality of primary education essential to reduce drop out and better prepare student for further learning. JSE priority starting point for secondary expansion. Increasing efficiency of resource utilization and mobilization of additional resources essential to increase enrollments without jeopardizing quality. Revision of curricula to respond to changes in society and labor markets and reflect the evolving composition of the student body is vital for secondary education development. .
3	High GER1, Mid Range GER2J and GER2S Mid Range Attrition High population growth	Ensuring primary graduates are well prepared for secondary education. Reforms to increase efficiency of resource utilization and mobilization of additional resources essential GER 2 J is to increase to more than 50%. Curriculum revision essential to increase internal efficiency and prepare students for life, work and further learning.
4	Mid Range GER1, Low GER2J and GER2S Mid Range Attrition High population growth	Financing secondary education is a major challenge that needs to be balanced with the financing needs of a primary system with incomplete coverage and low quality. If quality is to remain acceptable GER2J will remain below 50%, unless major reforms are introduced. Strategic focus required for financing and curriculum policy reforms.
5	Low GER1, Very Low GER2J and GER2S Mid Range Attrition High population growth	Improving the access and quality of primary education is central priority. Rate of expansion of secondary education will be contingent on increases in primary completion rate and levels of learning achievements of primary graduates. Strategic focus essential for financing and curriculum policy reforms

GERJ: Gross enrolment ratio JSE; GERS: Gross enrolment ratio JSE
Adapted from Lewin, 2008

Different strategies will be needed in different countries reflecting the differences in initial conditions described above. No single strategy would be appropriate for all of SSA. Table 5.1 summarizes the policy challenges that countries in each of these groupings will have to address as they strive to balance the demands of secondary education with other priorities in the sector. It is important to note that as efforts to rapidly increase primary entry and completion rates are successful, countries in groups 4 and 5 may come to resemble those in Group 2. Group 3 countries are closer to universalizing primary and may face less of a challenge in expanding secondary enrollments to keep pace with increased primary output. Three points are worth highlighting:

- Improved primary participation through to the last grade of primary is an essential accompaniment to managed growth of lower secondary;
- Patterns of participation that result in very high entry and drop out rates may result in high GER2s but are inefficient and costly as they are unlikely to produce graduates with an acceptable level of learning achievement;
- Clear sub-sector priorities need to be set in the light of current conditions, resource availability, and achievable targets.

The dynamics of growth at primary level is an important but, of course, not the only determinant of growth at junior and senior secondary level, and it would be unwise to make mechanical connections. How secondary will grow depends on the resource demands of universalizing primary with a reasonable level of quality, opportunity cost and perceptions of secondary students on the demand for secondary level graduates in the labor force and higher education.

Financing Requirements

Ultimately, the most important determinant of growth in secondary enrollments may be the ability of governments and parents to pay for it. Projections by Lewin (2008), Mingat (2004) and Lewin and Caillods (2001) all conclude that in most countries in SSA the current level of public expenditure per student precludes significant increases in secondary participation rates, especially since the direct and indirect cost of secondary education cannot be afforded by parents in the lower income brackets. The basic arithmetic is straightforward and summarized below.

The cost of expansion

In countries, where the secondary GER is less than 15% (e.g. Burkina Faso, Burundi, Tanzania) increases in secondary level participation to say 60% without reforms would require a quadrupling of allocations to secondary which could absorb resources approaching half the public education budget. This seems impossible, especially where there are EFA and Fast Track Initiative (FTI) commitments to protect spending on primary education and ensure a preparation for further learning of acceptable quality.

Lewin (2008) illustrates the magnitude of financial requirements of secondary education expansion by estimating the funds needed to reach different enrollment targets based on the cost per pupil as a % of GNP per capita, the number of pupils in the age group as a

proportion of the total population, and the desired enrollment rates, using typical SSA values for pupil teacher ratios, teachers' salaries, non-teachers salaries, and non-salary expenditures as a percentage of GNP, for school age groups as a percentage of the total population. On this basis, the resources needed to increase the primary GER to 110% (a level necessary to ensure universal enrollment and completion with 10% repetition), targets of 100% GER for junior and 50% for senior secondary education, recurrent expenditures on education would need to be about 8.4% of GDP of which more than half (4.5% of GDP) would have to allocated to secondary education. This is greatly in excess of current allocations to secondary education of about 2% and unlikely to be feasible in very many countries. If per student cost could be reduced to about 20% of GDP per capita at lower secondary and 40% GDP per capita at upper secondary the same result could be achieved for a recurrent expenditure on secondary education of a little less than 3% of GDP. This is, however, still 50% more than current allocations and would require in most countries that more than 50% of total recurrent education spending be allocated to secondary education. This suggests that many countries may have to consider lower targets in the short term.

The resource requirements for targets for a junior secondary GER of 60% and a senior secondary GER of 30% are calculated as shown in table 5.2. Without policy reforms and assuming that 20%[50] of the education budget is allocated to higher education and other smaller sub-sectors, this would require an allocation of almost 50% of total recurrent education expenditures to secondary education and allocation of over 6.8% of GDP for the total education budget - nearly 3 percentage points more than the 2001 SSA average of 3.90% (Lewin, 2008)[51]. This is more than the average for developed countries (5.1%) and would seem unrealistic for SSA countries, for which the FII benchmarks for total government revenue (excluding grants) range from 14-18% of GDP (Bruns et al. 2003).

Table 5.2 Secondary Expansion Scenario
GER primary 110%; GER junior secondary 60%; GER senior secondary 30%

	Primary	Junior Sec.	Senior Sec.	Other Ed.	Total
Pupil Teacher Ratio	44	30	20		
Teacher salaries /GNP/capita	4.6	6.6	9.3		
Non teaching salaries/GNP/capita	0.4	1.5	2.7		
Non salary expenditure/GNP/capita	0.4	1.5	2.7		
Teacher salaries as % of total recurrent	85%	69%	63%		
Total unit cost % GNP /cap	12%	32%	74%		
% budget on higher ed + other education				20%	
% GNP Needed	**2.43%**	**1.73%**	**1.54%**	**1.14%**	**6.84%**

Source: Lewin 2008

[50]Sector work does indicate very wide variations in higher education allocations from over 40% to below 10%. Brossard and Foko (2006) find that the median allocation is situated around 20%. Expenditure on central and decentralized services is often not allocated by level. Allocations to sub-sectors other than primary, secondary and higher education vary widely between countries. Generally they absorb small proportions of the total education budget.

Scenarios that result in resource requirement closer to current levels -about 4.8% of GNP- aim at targets of 60% and 30% for junior and senior secondary education respectively and call for lower values for the cost per student as a percent of GNP -20% for junior secondary and 40% for senior secondary-- and a reduction of the share of higher education and other sectors to 15% of the education budget.

This type of analysis provides a sense of the magnitude of the challenge, but it does not illustrate the considerable variation between countries that has been noted earlier and applies to financing issues as much as for other indicators.

Country specific projections

Mingat (2004) tackles this issue by projecting resource requirements by country for 2015 for a sample of 10 countries[52] (Table 5.3). His analysis is based on two hypotheses for the growth of enrollments: (i) maintaining the transition rate between primary and junior secondary education and between junior and senior secondary at current levels; and (ii) gradually increasing the primary/secondary transition rate to 100% by 2015 while maintaining the transition rate between junior and senior secondary education at current levels. He adds to these enrollment scenarios, assumptions about the cost per student expressed in units of per capita GDP: (i) maintaining the unit cost for junior and senior secondary in each country at the 2001 level; (ii) fixing the unit cost for junior secondary education in one scenario to 20% of per capita GDP (a value situated in the lower third of the distribution); and to 40 percent in another; and (iii) fixing the cost per student in senior secondary education to at 40% of GDP per capita in a first case and 80% (a value situated approximately in the upper third of the distribution in the sample) in a second

As table 5.3 shows, maintaining transition rates and unit costs at 2001 levels would imply an allocation by 2015 of 1.7% of GDP to junior secondary education and of 1.1% to senior secondary education for a total of 2.8% of GDP; this compares with a 2001 average of .75%, .67% and 1.42%[53] respectively.[54] In other words assuming the EFA goal of universal primary completion by 2015 is reached, the impact of "no change" in transition rates is at least a doubling of the share of public expenditures on secondary education in GDP. Obviously, increases in the transition rates and increases in the cost per student would add to the challenge while reductions in the cost per student can help mitigate it. A combination of the high cost per student scenario, universal access to junior secondary education and unchanged transition rates would require a 6.12% of GDP, more than four times the current share and 50% more than the current share of public expenditures for the whole education sector.

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[51] The UNESCO GMR (2005) gives a median of 3.4% of GNP for education expenditure across an incomplete data set. For countries with GNP/capita below $1500 the average is 3.9%. UNESCO GMR 2006 reports a median level of expenditure of 4.6%.

[52] Benin, Cameroon, Madagascar, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, Togo.

[53] This are the typical SSA averages estimated by Lewin (2007)

[54] But again, variations between countries are significant. In 2001, public secondary education expenditure as a % of GDP in Rwanda was .59% but was .91% and .99% in Cameroon and Mali, respectively (Table 5.4)

The averages mask however, significant differences between the 10 countries in Mingat's sample. In Senegal the unchanged transition rates and cost would require an allocation of 1.83 % of GDP to secondary education compared with .63 % currently. Maintaining the junior secondary unit cost at current levels and reducing the senior secondary unit cost to 40% of GDP per capita (4 times the primary level) would reduce the secondary education cost to 1.39% of GDP. Conversely, in Niger where current unit costs are high and primary completion is low, the "no change" scenario would imply an expenditure of 4.18% of GDP on secondary education. But if the cost per student could be reduced to 20% of GDP per capita for junior secondary education and to 40% for senior secondary education, the same enrollment goal could be reached with an expenditure of 1.52% of GDP, compared with .59 % currently[55].

It is of course possible to construct an almost infinite number of scenarios based on different assumptions regarding transition rates and unit costs. But two points stand out:

- Initial conditions, in particular the primary completion rate, are critically important as they determine the rate of increase in primary graduates seeking admission to into junior secondary. Countries that are already close to the goal of universal completion (e.g. Togo) will find it easier to increase transition rates and expand secondary enrollments that those that still a long way from this goal. For the latter countries the need for increased allocations to primary education and the rapid increase in primary graduates may make it difficult to maintain primary junior secondary rates at current levels.
- The level of cost per student is a second key variable that determines the financing requirements for secondary education. High cost countries such as Niger, Cameroon and Madagascar may find it difficult to expand access to secondary education without policy reforms design to reduce the cost per student.
- Many countries are facing difficult choices and trade-offs between the depth of policy reforms, progress towards expanded access to secondary education and the ability to delivery it at an acceptable level of quality. In many instances short term enrollments will have t be set at less than 100% for lower secondary education and 50% for senior secondary education.

Table 5.4 Determinants of teacher cost (typical data around 2001)	PE	JSE	SSE
Pupil Teacher Ratio	44	30	20
Teacher salaries /GNP/capita	4.6	6.6	9.3
Non teaching salaries/GNP/capita	0.4	1.5	2.7
Non salary expenditure/GNP/capita	0.4	1.5	2.7
Teacher salaries as % of total recurrent	85	69	63

Source: Lewin 2008

Teacher Salary Expenditures

Teacher salary expenditures are the principal determinant of the cost of secondary education (Table 5.4). The burden of the salary expense is determined by the level of the teacher salary in relation to GDP per capita, the ability of the government to raise revenue and the share of education the budget as well as by the efficiency of utilization of teachers, indicated by the pupil-teacher and class-teacher ratio. In a few countries teacher salaries are too high to allow developing secondary education without jeopardizing the

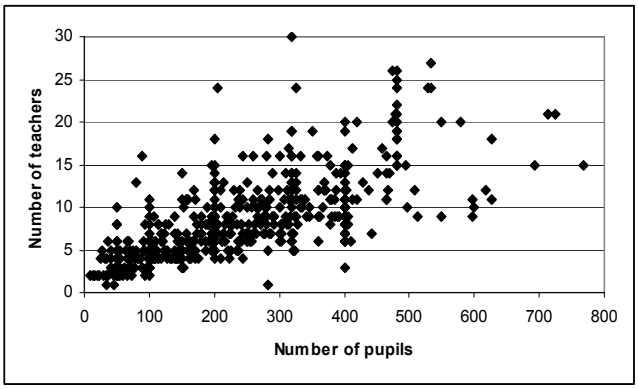
[55] In 2002 in Niger, the cost per student was in JSE: 66,344 (49% GDP p.c.) and in SSE: 213,969 Fcfa 157% GDP p.c. CSR, Africa Region, World Bank, 2004.

quality of instruction through excessive class sizes and the absence of resources for essential non-salary items; in some others the teacher salary levels are so low that they adversely affect teacher motivation, force teachers to work in second jobs and cause serious problems of absenteeism. But in most countries the more important challenge is efficiency of teacher utilization.

Teacher utilization and deployment

The total salary budget and the effectiveness of these expenditures are determined as much – and in many countries even more- by policies governing the utilization and deployment of teachers as they are by the level of salaries. Inefficiencies in teacher utilization can increase the cost per student in a major way by causing pupil-teacher ratios and teaching loads to be unnecessarily low. UIS data report pupil-teacher ratio averages for the region of about 30:1 in junior secondary and 22:1 in senior secondary. But these averages hide large variations between countries and perhaps most importantly within countries. National secondary pupil:teacher ratios vary from 14:1 in the Seychelles and the Comoros at the low end and 46 in Malawi and 54 in Ethiopia (UNESCO, 2006). High enrollment systems generally have PTRs of 35:1 in junior secondary and 25:1 at the senior secondary level. Where the PTRs are much lower than this, cost per pupil is likely to be undesirably high.

Figure 5.4: Disparities in teacher allocation in lower secondary schools, Malawi 2001



Source: Malawi CSR

Within country differences also can be very large. In Zambia for example 22% of the schools have PTRs below 15:1 and 60% below 20:1. In Ghana 42% of the senior secondary schools have ratios below 15:1 and 21% below 10:1 (Lewin, 2008). Figure 5.4 indicates the dispersion in teacher allocation among schools in Malawi. Obviously a reduction in the –often random- variation between schools in PTR is important to reduce the educationally undesirable impact of very high PTRs.

Further inefficiency in teacher deployment is caused by the discrepancy in many countries between the number of hours a teacher is officially required to teach and the number actually delivered. In Uganda 34% of the secondary teachers are underutilized teaching on average less than 15 hours a week (Liang, 2002). In Zambia typical teaching loads are estimated between 15 and 20 periods per week compared with 36 periods for pupils (Bennell et al, 2007). In Kenya teaching loads averaged 13 hours per week for secondary (grade 6-12) teachers (Rajkumar and Onsomu, 2004). Field research by Mulkeen et al (2007) in 6 SSA countries[56] found that teachers taught on average 14 class periods per week. In Uganda secondary school teachers typically teach no more than 3

[56] Ghana, Ethiopia, Tanzania, Guinea, Madagascar, and Uganda

periods a day; with a school timetable of 7 periods; this results in a teacher:class ratio that exceeds 2 (Lewin, 2003).

In Francophone countries, i.e., Madagascar and Guinea, teachers surveyed taught between 4 and 8 class periods per week. In several OECD and WEI[57] countries teaching loads are much higher (Table 5.5)

Table 5.5: Teaching loads (hours) in selected OECD and WEI countries (2003)

Country	Junior secondary education	Senior secondary education	Country	Junior secondary education	Senior secondary education
New Zealand	24.8	25.0	Jordan	22.5	22.5
Scotland	23.5	23.5	Malaysia	19.5	19.5
Ireland	22.3	22.3	Paraguay	21.4	24.1
USA	31.3	31.1	Peru	32..5	32.5
OECD mean	18.9	18.8	Philippines	29.4	29.4
Argentina	23.7	23.7	Russia	27.0	27.0
Brazil	23.6	23.6	Thailand	16.3	16.3
Chile	20.0	20.0	Tunisia	18.3	18.3
Egypt	21.6	21.6	Uruguay	11.9	11.9
India	20.8	20.8	Zimbabwe	25.8	25.8
Indonesia	16.8	16.8	WEI mean	21.8	21.55
Jamaica	25.0	25.0			

Source: UIS-OECD, 2005

Mulkeen et al (2007) further show the extent to which teacher deployment at secondary level is complicated by teacher specialization. Teachers are typically specialists in one or two subjects, and there are frequently shortages in specific subject areas such as science and mathematics and excess supply in others. They find that in Ghana 40% of the teachers teach less than 18 periods (of which almost half less than less than 11) while about 20% appear overextended teaching 25-35 periods. Rajkumar and Onsomu (2004) document a similar situation in Kenya. There may be several reasons for underutilization: (a) schools have small student enrollments and do not have enough teaching periods for a full teaching load; (b) teachers are only teaching one subject, rather than two or three; or (c) few classes are offered in subject(s) teachers are qualified to teach.

The problems are most apparent in small schools which are often started without clear policy guidelines for their efficient operation. In Kenya for example there are 650 schools out of a total of 3800, with an enrollment of less than 25 students in Form 1 (Rajkumar and Onsomu, 2004); in Ghana 16% of the senior secondary schools have an enrollment of less than 100 (Akyeampong, 2005); Senegal and Guinea are opening small neighborhood junior secondary schools (collèges de proximité) without a clear strategy for their efficient operation. Curricula that offer a large number of optional subjects for which there are often only a few students cannot be implemented efficiently in small schools, especially when teachers are not prepared to teach several subjects. Administrative rigidities often exacerbate these problems by not encouraging or even precluding the employment of part-time teachers (paid on the basis of number of hours taught) for subjects that are taught only a few hours week, the sharing of teachers

[57] See footnote 6, chapter 4 for a summary description of the WEI project

between neighboring schools or the establishment of minimum enrollment requirements before a subject can be offered. The consequence of these inefficiencies in teacher deployment is that low PTRs often do not translate into small classes. In Zambia for example the average PTR is 1:22 but the average class size 1:39 (CIDT, 2005). Moreover the financial implications can be substantial. In Kenya for example a comprehensive reform of several aspects teacher deployment policy would allow an increase of secondary enrollments by 50% without increasing the number of teachers (Box 5.1).

Box 5.1 Increasing the efficiency of teacher utilization in Kenya

A 2004 World Bank study projected that it would be possible to increase secondary enrollments (grade 9-12) by 50% without increasing the number of teachers by:

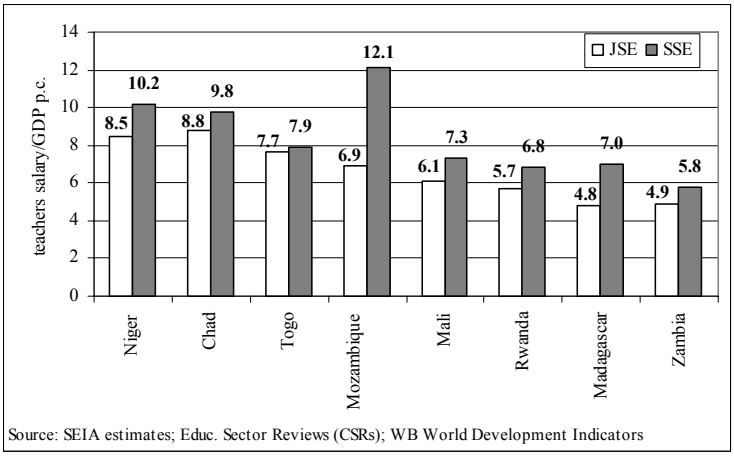
- Increasing official teaching load from 18 to 25 hours a week;
- Using part time teachers for subjects that are taught only a few periods a week;
- Increasing class sizes from an average 36 to about 45;
- Expanding existing schools to at least three parallel streams;
- Sharing teachers across schools
- Establishing a minimum class size for optional subjects;
- Establishing a minimum teaching load for the employment of a teacher;
- Limiting the time allocated to administrative duties

Source: Rajkumar and Onsomu, 2004

Salary level and GDP per capita

Average salary levels-estimated for a sample of 17 countries (Mingat, 2004) increase as the level of education rises: from 4.6 times per capita GDP at primary level, to 6.6 times per capita GDP at the junior secondary level 9.3 times per capita GDP at the senior secondary. The variation around the average is considerable. In Mozambique the salary of a qualified junior secondary teacher is 13.1 and senior secondary teacher with a masters degree 27.2 times GDP per capita[58]. In the Democratic Republic of Congo on the other hand, these multiples are 3.6 and 3.8. Figure 5.5 provides data for selected SSA countries in SSA for junior and secondary education.

Figure 5.5: JSE and SSE Teacher Salaries as Multiples of GDP p.c., latest available dates (1998-2004)



Source: SEIA estimates; Educ. Sector Reviews (CSRs); WB World Development Indicators

Where teacher salary levels are a very high multiple of GDP per capita, they effectively, preclude the expansion of the system at a reasonable level of quality. In these countries it may be inevitable to limit increases in teacher salaries or recruit teachers with lower formal qualifications. Lewin (2008) estimates that a reduction in teacher salary from the current SSA average to 3.5, 4.5 and 6 times GDP per capita, could generate savings equivalent to 25% of the

[58] In fact there is a mix of teachers with different qualifications in senior secondary institutions. Figure 5.5 reflects the average salary for this mix.

overall education budget, and allow the enrollment of many more children without increases in total expenditures. Obviously moving salary levels to these kinds of ratios would generate even greater savings in countries that currently have above average salary levels.

Such changes in teacher remuneration policy often raise understandable concerns about the quality of instruction. Unfortunately there is little empirical evidence on the relation between teacher salaries and student performance in secondary education in SSA. But at the primary level research findings from several countries have found that the students taught by contract or volunteer teachers, who are paid considerably less than the regular civil service salary do not perform any worse and in some cases even better than other students (see Michaelowa and Wechtler, 2006 for a summary review)[59]. It is also worth considering that in most countries –Senegal is an example- these jobs do attract many applicants with the strong general education qualifications. In fact, faced with few prospects for modern sector employment many secondary school graduates or are ready to enter teaching at relatively low salaries. In Senegal almost 30 candidates applied for every opening available at one third of the civil service teacher salary. In Mali and Chad primary teachers employed by communities, are willing to work while being paid about half the official salary. In Chad 44% of the primary teachers are paid by PTAs and work for a salary of equivalent to one third of GDP per capita or less –sometimes as little as 9%.

But in many countries salaries are low and many teachers often work additional hours to supplement their salary. In Zambia, upper basic (Grades 8 and 9) teachers employed at "open schools"[60] in Lusaka receive around US$0.56 – $0.90 (K.2,500-4,000) per lesson. At schools in Chongwe District these teachers are paid US$0.22 - $0.78 (K. 1,000-3,500) per lesson[61] (Bennell et al., 2007). Teachers in open secondary schools are paid up to US$0.56 (K2,500) per APU (Academic Production Unit[62]) per lesson in addition to their normal salary). Low salaries often reflect adverse economic conditions and poor pay scales throughout the civil service. A resumption of economic growth and efficient management of public resources is often a precondition for improvements in government salary scales.

The salary cost burden of secondary education in SSA is further affected by a salary differential with primary school teachers that is, in most countries, larger than what is found in other regions. The average teacher salary of 6.6 times GDP/capita in junior

[59] This evidence mainly refers to high cost Francophone countries; in fact the contract teacher salaries are equivalent or better than in many Anglophone countries.

[60] "Open secondary schools" offer Grade 8 and 9 classes on an unofficial basis – they are not officially registered and resourced by the government. These classes are usually taught in the morning along with Grades 1-7, and the participating teachers receive salary supplementation. (Bennell et al., 2007)

[61] In 2005, US$1 = 4,464 Zambian Kwachas (Source: WB World Development Indicators and Global Development Finance).

[62] Academic Production Units (APUs) exist in one-third of all government high schools and are officially sanctioned and regulated by the Zambia Ministry of Education. They offer afternoon sessions and enroll pupils who fail to find normal places in government schools. The APU fees paid by students supplement the salaries of APU teachers, who participate voluntarily see box 2.3.

secondary and 9.3 times GDP/capita in senior secondary is, respectively, 1.4 and 2 times the average salary at the primary level in the same countries. Table 5.6 illustrates the point for a number of mainly middle income countries[63]. Similarly in industrialized countries there is usually not much difference between primary and secondary teacher salary levels. On average, the starting salary of junior secondary teacher and senior secondary teachers in OECD countries is 1.06 times and 1.10 times respectively, that of a primary teacher. Switzerland is the only OECD country with a multiple of 1.4 times or more.

Table 5.6 : Beginning teacher salaries as a multiple of primary teacher salaries

Country	JSE	SSE	Country	JSE	SSE
Argentina	1.37	1.37	Malaysia	1.46	1.46
Brazil	1.21	1.74	Paraguay	1.56	1.56
Chile	1.00	1.00	Peru	0.99	0.99
Egypt	1.00		Philippines	1.00	1.00
India	1.22	1.48	Sri Lanka	1.00	1.27
Indonesia	1.00	1.04	Thailand	1.00	1.00
Jamaica	1.00	1.00	Tunisia	1.27	1.55
Jordan	1.00	1.00	Uruguay	1.00	1.09

Source: UIS-OECD, 2005; 2002.

The indicative framework proposed by Bruns et al. (2003) for primary education suggests a teachers salary of 3.5 times GNP per capita– reflecting the reality that in low come countries teachers salaries will be a higher GDP multiple than in middle and high income countries. If a multiple of 1.25 typical for the middle income country primary/ secondary education is applied to the FTI benchmarks, teacher salaries of 4.75 times GNP per capita for JSE and 6.25 times GNP per capita for SSE would result.

Managing salary cost

Clearly countries will have to establish a system of teacher pay that is in line with national resources. This is almost never easy, but it will typically involve increases in teacher productivity coupled with realistic salary levels. In a review of the issues in recruiting, retaining and retraining secondary teachers and principals Mulkeen et al. (2007) have noted that many of the more promising interventions cost more than the governments are willing (and often able) to pay and policy changes are often controversial and politically difficult to implement in the face of the opposition of teachers unions. The main strategies countries are adopting are summarized below:

- *Hiring contract teachers outside the civil service scale*. This is being done in several ways. In many countries (e.g. Kenya, Chad and Mali) school management committees or PTA's directly employ teachers often at rates considerably below the official salary schedules. In other countries governments are hiring teachers as contract workers rather as civil servants often at salaries much significant below the formal salary scale. In Mali contract teachers and non-permanent teachers represent 11% of the staff in junior secondary schools and 28% at the senior secondary level. In Benin 72% of the teachers in public secondary schools are contract or temporary teachers. Senegal and Burkina Faso

[63] These are countries participation in the UIS/OECD World Education Indicators (WEI) program

are implementing similar policies. Even without formal policies many countries are hiring untrained contract teachers; in Uganda they represent 15% of the secondary teaching force. Experience in these countries suggest though, that to be sustainable these strategies need to be implemented with due regard to the contract teachers longer term career prospects and professional development needs.

- *Reducing the length of pre-service training*. This usually allows the recruitment of teachers at a lower starting point in civil service pay scale. Mozambique, for example plans to train teachers for junior secondary education in a one year program after secondary education instead of a three or five year program at the 'Universidad Pedagogica". This strategy also reduces the cost of training a teacher and at the same time increases the capacity of teacher training institutes to graduate more teachers.
- *Assigning qualified primary teachers to teach in the beginning grades of junior secondary programs*. This typically happens in countries with a long (8 years or more) basic education cycle where primary school teachers may teach the junior secondary grades. Examples are Kenya with an 8 year cycle, Zambia with a 9 year cycle. But sometimes this is forced by a growth of secondary enrollments exceeding the national capacity to train and employ teachers; for example, secondary teacher shortages have forced Mozambique into a situation where 80% of the teachers in junior secondary have been trained as primary school teachers. Similarly in Uganda only 28% of the secondary teachers have the formal qualifications for teaching at that level (Mulkeen et al. 2007).
- *Granting salary increases that are less than the growth in nominal GDP*. This has been perhaps the most common way of reducing the burden of the salary bill. Mulkeen et al. (2007) report that between 1980 and 1990 teacher salaries in countries such as Botswana, Burkina Faso, Burundi, The Gambia, Guinea, Malawi and Seychelles fell by 45% or more as a multiple of GDP per capita. In countries where GDP is growing it may be possible to grant teachers salary increases that compensate for inflation but which do not (fully) reflect real growth in GDP and government revenue.

In sum, there is little doubt that teacher salary and deployment policies are a central part of secondary education development policy. In countries with high teacher salary/ GDP per capita multiples the impact of mitigating salary increases can be substantial. Lewin (2008) models a scenario for increasing the gross junior secondary school enrollment ratio to 60% (from the current 26%). Without reforms this would result in an increase in the expenditure on junior secondary education from .75% of GDP to 1.75%; with reforms resulting in teacher salaries at 4.5 times GNP (instead of 6.6) per capita and an increase in the PTR to 35 (from 30) the share of GDP require to finance the expanded junior secondary enrollments would decrease to 1.19%. In other words the gross enrollment rate could double with an increase in total education expenditures of a little more than 11%; without reforms education expenditures would need to increase by as much as 25% to reach the same goal. Increasing senior secondary enrollments from 13% to 30% would increase expenditures on senior secondary education from .67% to 1.57% of GDP; with reforms (increasing the PTR from 20 to 25 and employing teachers with salaries of 6

times GDP per capita in stead of 9.3) only .96% of GDP will be required.

Yet, in practice teacher salaries are generally not susceptible to substantial short term change without labor relations problems. They reflect market conditions, public negotiations and compromises, and historic practice. A meaningful expansion of secondary education will most often require a combination of two things. Teacher productivity –measured by the number of students a teacher teaches at an acceptable level of instructional quality- needs to increase faster than salaries and where teachers salaries as a proportion of GDP are well over the levels found in high secondary enrolment countries in SSA it is likely that some adjustment is needed over a manageable time scale. If neither is possible mass secondary enrolment will remain financially unsustainable.

Deployment policies affect the cost per student through the class size. In the 1994/95 TIMMS[64] Singapore, Korea, Japan and Hong Kong[65] were the highest performing countries for grade 7 and 8 notwithstanding classes that were among largest of all participating countries: 33 in Singapore, 36 in Japan, 40 in Hong Kong, and in Korea 48 in science and 56 in math classes. Woessmann and West (2002) analyzed the effect of class size on student performance in 18 countries that participated in 1994/95 TIMMS. They suggest that class size effects are related to the quality of the teaching force:

> "Smaller classes have an observable effect only where the average capability of the teaching force appears to be low. Japan and Singapore exhibit no class size effects but high overall performance because they have a capable teaching force. Greece and Iceland exhibit class size effects and poor performance because they have a population of relatively less capable teachers. An apparent implication is that it may be better policy to devote resources to employing more capable teachers than to reducing class sizes" (p. 29)

This is a suggestion that many African countries may wish to consider as they reflect on ways to expand access to secondary education of acceptable quality. A teacher policy that results in a competent teaching force, with a level of pay sustainable from national resources –possibly 4.75 to 6 25 times GNP per capita[66]- , that is deployed efficiently and teaching a full load of about 30 hours to classes of about 40 students is likely to be a key element of secondary education reform package in much of sub-Saharan Africa.

Country situations clearly differ and countries will need to define a national policy framework that provides for a teacher salary policy that is financially sustainable and at the same creates an environment that is conducive to instruction of acceptable quality. In many cases this will imply policies that include salary differentiation between different types of teachers, incentives and opportunities to develop professionally and decentralized recruitment responding to local needs and priorities within a clearly defined budget envelope. Reforms are often difficult, but a no-action strategy in the face of expanding enrollments results almost inevitable in the recruitment of large numbers of teachers who are untrained and/or under-qualified.

[64] See chapter 2 footnote 4
[65] Hong Kong grade 8 science students were 17th out of 40 participating countries
[66] See chapter 9 for a further discussion

It will also be important to carefully analyze teacher supply issues. In some countries there is a surplus of secondary teachers in the labor market (e.g. Uganda and Kenya where training output has regularly exceeded the supply of new jobs); in others shortages have been persistent (e.g. Malawi and Tanzania where secondary output into training has been very constrained). It is also to consider the availability of secondary school and university graduates who can be trained without to much difficulty. Countries differ considerably in the ratio of newly trained teachers to the existing stock of teachers (Lewin and Stuart 2003). Where output is a small proportion of total demand massive expansion in training will be needed (e.g. Lesotho, Tanzania). These issues are further discussed in chapter 7.

Recurrent expenditures other than teacher salaries

The share of recurrent expenditure other than teachers' salary in secondary education is higher than in primary education (Table 5.3): 31% and 37% for junior and senior secondary education respectively compared with 15% for primary (Lewin, 2008). These expenditures include several different cost categories such as salaries of non-teaching staff including administrators, instructional materials and supplies, subsidies to students. Lewin (2008) estimates that on average half is for salary expenditures of non-teaching staff, leaving 13.5% and 18.5% for non-salary expenditures or about $30 and $95 per student[67]. There is a very large variation between countries in these allocations (Mingat, 2004), but they do suggest under-funding and inefficiencies in many countries. Estimates of a package of essential inputs (Verspoor, 2006) for primary education are $10-15 per student per year. This undoubtedly is insufficient for the secondary level. Effective instruction at the secondary level, especially in math, science and ICT cannot happen without an adequate textbooks, reference materials, classroom and school supplies and equipment.

Secondary textbooks especially at the senior secondary level are often imported and produced at high cost production and presentational specifications that are unaffordable for many parents and governments in SSA. In all the poorest countries textbooks and other curriculum materials are widely unavailable or in short supply and much learning takes place without access to any printed material (Read et al. 2007). Many students do not have textbooks and try to borrow from friends, make do with course notes or try to use a copy from the often poorly stocked school library. Science and technology are taught often under conditions where effective teaching will be difficult to achieve (Ottevanger et al, 2007).

Many secondary curricula in Africa are designed with little or no consideration of the cost implications for either government or parents. Textbook requirements resulting from secondary curriculum specifications vary considerably. Read et al. (2007) found a range from a low of 6 titles to a high of 14 titles for junior secondary. Where there are no

[67] Based on a $745 per capita GNI (current $2005, World Bank) for sub Saharan Africa and a unit cost of .3 times GNI/capita for JSE and .7 for SSE. If unit cost were to come down to .2 and .4 GNI per capita the amounts available for non-salary recurrent expenditures would come down to $20 and $55 respectively. For countries with GNI of $400 the amounts would however be only $15-$30

national approved textbook lists there can be significant variations in basic requirements between individual schools in the same country. Where parents are expected to purchase textbooks requirements specified by the schools are often unrealistic because of high prices and poor availability. As result few students even attempt to meet the requirements.

The price range of recommended/approved textbooks and basic reference books (dictionaries and atlases) is very large with average textbook prices 4 to 5 times greater in some countries than in others. Kenya and Tanzania have relatively low prices while Cote d'Ivoire, Cameroon, Lesotho and Uganda are at the high end. Moreover, textbook prices can vary considerably within individual countries because of price mark-ups reflecting distance and the absence of competition. A rough estimate based on data collected by Read et al (2007) would be that a set of books at the lower secondary level may range from some $20 in Tanzania to more than a $100 in Togo. At the upper secondary the range is from $25 to more than $250. Atlases and dictionaries are in addition.

Evidence from Tanzania, Kenya and Ghana suggests that with careful management a cost of $4-6[68] per textbook book can be achieved; with a total number of 6-7 books this would imply a total cost of about $40 for a complete set of books or $10 per year assuming a four year lifespan. Even if the per student cost of secondary education would come down to .2 times GNI per capita for JSE and .4 for SSE (see footnote 21), an allocation of 15-20% of the recurrent budget textbooks and instructional materials would still allow for significant improvements in book availability. But, especially the lowest income countries (GNI less than $400) these improvement will have to happen in conjunction

Box 5.2: Rental schemes in Lesotho and Malawi

A successful textbook rental scheme and revolving fund operated in Lesotho for primary school textbooks from the early 1980s through to 2005, when government decided to provide free primary textbooks. A new scheme targeted for junior secondary textbooks was designed and then approved by the MOE in 2004. Junior secondary school textbooks were provided to students on a rental basis with the rental charge fixed at 20% of the cost price, based on a target book life of 5 years.

In 2000, Malawi introduced textbook rentals and school-based revolving funds for secondary schools with the support of a Danida Education Project. The scheme was based on the provision of matching funds to schools against the collection of rental fees from parents/students. Rental fees were set nationally but individual secondary schools were responsible for collection and banking in school bank accounts and the secure maintenance of the accumulated fees. The scheme was designed in close association with local publishing and bookselling associations and had a stimulating impact on both parts of the local book trade. It was expected that after 5 years of matching fund support, schools would have accumulated sufficient funding to order their replacement requirements. Donor support ended early in 2002 but the rental scheme has continued with reasonable effectiveness simply because it provides cheaper textbook costs and improved access to textbooks to students. In 2006 85% of secondary school students paid their textbook rental fees as part of the total secondary school fee. The 15% who don't pay are those who cannot pay for any part of the school fees. The textbook rental system is working reasonably well, but many schools divert part of the textbook rental fees for other purposes and almost 50% of the collected rental fees cannot be accounted for**.**

Source: Read et al, 2007

[68] But very small market size combined with a requirement for locally specific content and high production specifications will always create more expensive books.

with policy reforms in publishing, procurement, distribution and school level utilization – discussed in more detail in chapter 7- as well as increases in the availability of funds that will allow schools to provide access to textbooks, readers and reference materials.

Governments –often with the support of donors- have supported the supply of textbooks in SSA usually via bulk procurements and distribution to schools, or less commonly via subsidies to schools, students or producers. In many countries parents are expected to purchase books but increasingly they are unable to do so. They almost always prefer rental or loan schemes which reduce their cost and shift the risk of obsolescence or depreciation to the school. Unfortunately textbook loan and rental schemes have –with some notable exceptions – been problematic to implement. They add to the financial burden on schools that are already strapped for funding and are beset financial management problem (Box 5.2**).** Yet, especially when managed at the school level, they represent the best opportunity for improving the availability of textbooks in secondary schools.

Effective financing systems for textbooks and other learning materials specify a limited number of required books with affordable specifications, provide predictable financing and are sustainable from domestic resources. Many parents will not be able to afford the full complement of required books. In several countries governments are contributing to reduce the burden of textbook purchases (Box 5.3), with government support often specifically targeted at the poor as in Senegal, Uganda and Ghana. But ultimately a comprehensive textbook policy framework will be necessary to ensure access to textbooks for all students.

Limiting book requirements, reducing the cost of books and a school based initiatives including the rehabilitation of school libraries, rental/loan schemes and the creation of a used book market will be necessary to ensure that all students have access to printed materials. These issues are discussed further in chapter 7.

Box 5.3: Combing government and private funding for textbooks

- Government funding for textbooks in rural areas; parental contributions in urban areas (e.g. Senegal)
- Government funding for "core" textbooks; parental funding for "non-core" textbooks
- Government funding for safety net supplies; parent funding for the rest (e.g. Uganda, Ghana)
- Government/Donor funding for the provision of initial book stocks; government/parents replenish and maintain (e.g. Malawi and Lesotho rental schemes)
- Government provides subsidies to reduce costs to parents (e.g. Malawi from 1999 to 2002.
- Harambees from the community to purchase textbooks sets for the library to assist poorer parents (e.g. Kenya)

Boarding

Boarding schools constitute the majority of public secondary schools in several low enrollment countries (e.g. Rwanda, Uganda, and Tanzania) and provide a substantial minority of places in many others (e.g. Ghana). Elective boarding is common in especially in Anglophone SSA; it can double or triple the cost per pupil and thus result in much lower enrollment rates than would otherwise be the case. In Ghana the 2002 boarding fee ($135) charged by secondary schools represents 60% of the total student

cost at the senior secondary level (Akyeampong, 2005). In Zambia the cost of government secondary boarding schools was four time the cost of day schools (Bennell et al, 2007). This is in striking contrast with Francophone Africa where boarding schools are virtually unknown. Informal arrangements with family members to allow students from outlying areas to attend secondary school are common, however. The associated costs are borne privately but are certainly much lower than the formal fees.

Boarding traditions often are cultural and dating back to colonial times when they made sense because of the large catchment areas of the very few secondary school that existed. Where they continued they have typically been perceived as providing superior schooling for the elite, but their cost make them quite inappropriate as a model for mass schooling. Where the cost are borne publicly they create an unsustainable claim on public resources; where they are largely borne privately they create an insurmountable obstacle to entry for the poor (and even not so poor). Moving away from boarding to day schooling can be a major source of cost savings (Lewin, 2008) and a precondition for the creation of mass access to secondary schooling. To be equitable and successful a day schooling strategy will need to include arrangements for the cost-effective operation of day schools even where the pupil numbers are relatively small, for example: a curriculum with limited choice, flexibility in timetabling, teachers who can teach several subjects, and budgets to employ part time local teachers (Chapter 7 discusses this point in some more detail).

Infrastructure development

Expanded secondary education requires development expenditure to construct additional classrooms, laboratories and workshops and new schools, provide furniture, equipment and learning materials, and provide supporting infrastructure. Costs are associated with design criteria and specifications and costs can vary over a wide range but are often high. At the same time rapid increases in student numbers are forcing countries towards emergency solutions. In Mozambique for example secondary schools are taking over the buildings of primary schools, which are then force into open air classes or multiple shift arrangements. Double or triple shifting is increasingly common in many countries including for example Senegal, Guinea and Mozambique (Chapter 2, Box 2.1)

It is important to manage the cost of infrastructure development with care. Low cost design and construction is essential given the number of new places needed in low enrollment countries. Developing strategies for a more intensive use of buildings is important: double shift use of building if well organized can result in significant cost savings. Singapore is an example of a high income country that ended double shift use of school buildings only in 2003. As long as the number of hours of effective instruction is not compromised –as it is almost inevitably in triple shift arrangements- double shift use of classrooms will be highly cost effective.

Simple, standardized classroom and school designs, strategic construction of specialized facilities and school mapping can help. But most importantly, community involvement in the development of infrastructure can play an important role, especially when the government provides technical support and recognizes the limitations on what the poorest communities can contribute. In Kenya for example the government has rarely provided

financial support for infrastructure development. The Harambee movement motivated parents and communities to take the lead in this area.

Laboratory provision can add significantly to the cost of secondary school infrastructure. The cost of laboratories caries enormously across countries and may be five or more times the cost of normal classrooms. Yet there is little evidence that learning gains are commensurate (Caillods et al, 1997). Where the cost are high and many secondary schools are without specialized science teaching facilities lower cost options should be considered. The most obvious one is to designate an ordinary classroom for science teaching and provide it with a basic range of basic facilities adequate to teach non-specialized science. This should be possible at no more than double the cost of an ordinary classroom.

Structure of provision

Changes in the way secondary education is organized and provided can have important cost implications. A long primary cycle is often highly effective in terms of access and cost. It is tantamount to organizing junior secondary education as part of basic education separate from senior secondary education. Kenya has an 8 year basic education cycle. Zambia has decided to transfer grade 8 and 9 to the primary schools. Madagascar is extending the duration of primary education from 5 to 7 years. Since the cost per student in junior secondary education is on average three times that of primary education delivering part of the junior secondary program in primary schools with cost parameters comparable (or even somewhat higher) than those in primary schools is financially attractive. Such a strategy can free up secondary places, reduce the cost of infrastructure provision and constrain salary cost.

Box 5.4 Zambia: Incorporating junior secondary into basic education

The 1996 National Education Policy (NPE) stipulated that that high schools should move to a Grade 10–12 model and that grades 8 and 9 would be offered in basic schools, as "upper basic" grades. Actual adoption of this model has been slow as less than 16% of the high schools have adopted it. Many Grant-aided schools want to maintain their pupils from grade 8 to 12, as they strongly believe that children should attend the same secondary school for at least five years. Many basic schools do not have qualified teachers and facilities for grades 8 and 9.

Since the abolition of fees for middle basic education (grades 5-7) in 2002, the fees collected from upper basic (Grades 8 and 9) pupils have become significantly important for the overall financing of basic schools as a whole.

Source: CIDT (2005); Bennell et al. 2007

Yet these kinds of reforms need to be planned with considerable care –including curriculum reforms and teacher upgrading- to avoid potential negative impact on quality. In Zambia (Box 5.4) actual reform implementation has been slow and many schools continue to offer grade 8-12 in spite of a government policy that aims at a system of 8 years primary and 3 years high school education. On the other hand the 1985 reform in Kenya towards an 8 years primary course followed by 4 years secondary education is now well established, although nostalgia for the "olden days" and criticism of the fragmented and vocationally oriented secondary curriculum leads occasionally to calls to revert to the old 7-4-2-3 system (Kivuva, 2002).

Ghana has undertaken perhaps the most radical restructuring of secondary education in the region when in 1986 it replaced a system that for most students –except a number from relatively better off families[69]- provided 17 years of pre university education with one that provided all with 12 years, increased the supply of essential inputs and reduced or eliminated public subsidies at the secondary and tertiary level. A review of the impact of these changes (World Bank, 2004a) found significant improvements in access and quality. By 2000, over 90 percent of Ghanaians aged 15 and above had attended school compared to 75 percent 20 years earlier. In addition, drop-out rates had fallen, so completion rates have risen: by 2003, 92 percent of those entering grade 1 completed Junior Secondary School (grade 9). Junior Secondary School graduates score higher than Middle School graduates 15 years earlier, despite the latter receiving 10 rather than 9 years[70].

Open and distance education programs are a parallel delivery system that offers attractive opportunities to expand access to secondary education at reasonable cost. Self instructional printed materials replace much of classroom instruction and the cost of the teacher and infrastructure is reduced considerably. In Malawi, for example, the use of correspondence education with tutorial support through study centers operated at one fifth the cost per student of that in a regular school half the cost per graduate[71]. The National Correspondence College in Zambia operated with even lower relative cost (Murphy et al. 2002). Distance education systems that are designed to improve the quality of conventional education programs usually result in increasing per student cost, since they are usually add-ons. The costs vary with the technology used which can vary from radio instruction to educational television (Box 5.5) and computer/internet based learning. Radio based instruction can be delivered at relatively low cost ($3-$8 per student dependent on the size of the audience), educational television can be effective but requires a large audience to be cost-effective while computer/internet learning may cost as much as $80-$100 (1998 estimates). While the newer computer based technologies hold considerable promise, the potential is often not easy to realize

Box 5.5 Educational television for secondary education

Telesecundaria is a satellite television based program in Mexico that offers secondary education as part of the national system. It provides a complete package of support to teachers and students in remote rural areas. Instruction is delivered through broadcasts, teachers and text. Almost 800,000 students are currently enrolled in the program. Costs are comparable to those of conventional schools in more populated urban areas.

To be eligible for participation communities need 15 primary school completers and a place to study. The government provides a teacher, a satellite dish, wiring, the instructional program and textbooks.

Several other countries in the region have adapted the programs, using video instead of satellite broadcasts.

Source: Murphy et al 2002

[69] Children these families attended private primary schools and were able to skip the middle school stage: in 1985, 30 percent of secondary entrants were from private primary schools, most of the rest coming from the fourth year of middle school.

[70] On the other hand the scores of secondary school graduates do not reach the levels of the much smaller group of secondary graduates in 1987.

[71] Chronic under funding of the program in the late 1980s led to poor quality and ultimately its collapse and integration in the regular system of the study centers at a very low level of quality.

and especially in resource constrained environments older technologies may be more cost-effective (Castro, 2004). Tapping this potential may, however, require regional collaboration to realize economies of scale that are essential for efficient operation. In fact, distance education may be most effective for equivalency programs at the senior secondary level and for instructional and subject matter support for under-qualified teachers.

In many countries the longer basic education cycle provides the opportunity to strengthen levels of basic skill acquisition of the students and postpone the introduction of costly vocational subjects. A recent white paper of the government of Ghana concludes:

> "…while chasing after … unrealistic goals in technical and vocational skills, the JSS system has failed to do more to strengthen the basic skills of Ghanaian youth in numeracy and literacy." (Republic of Ghana, 2004; p.11)

and proposes to emphasize the teaching of language skills in English, French and Ghanaian languages, mathematics, science, social sciences, computer literacy, life skills and good citizenship. Similarly Kenya recently narrowed its curriculum content to focus on these generic skills (Kivuva, 2002).

Table 5.7 TVET Unit cost as a % of GDP in selected countries

	Junior general secondary	Senior general secondary	Technical and Vocational
Benin	15.8	56.2	78
Burkina F.	39	84	
Burundi	64	64	
Cameroon	31.6	37.1	61
Congo	12.7	36.8	
C.-d'Ivoire	35	72	111
Ethiopia	28.2	46.8	284
Gambia	25.8	166.4	
Guinea	13.4	17.6	140
Madagascar	26.7	64.4	83
Mali	26.5	117.1	203
Mauritania	39.6	33.8	188
Mozambique	22.6	45.5	55.6
Niger	49	157	
Rwanda	47.4	64.3	
Senegal	14.7	70.3	95
Chad	26.6	35.8	205
Togo	22	34.1	104
Zambia	25.3	21.7	
Average	**30**	**64**	**134**
Range	**[13 – 64]**	**[18 – 156]**	**[56 – 284]**

Source: Brossard and Amelewonou, 2005

The High Cost of TVET

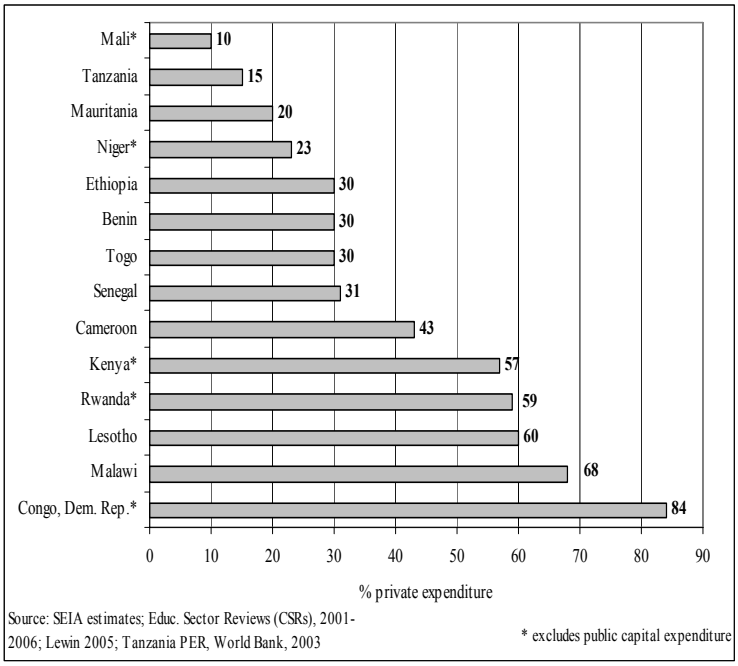
The cost of TVET institutions is usually a multiple of the cost of general secondary schools. Class sizes are usually much smaller and the cost of equipment, supplies and specialized facilities much higher than in general education programs. On average per student cost in technical/vocational education are 134% of GDP per capita (the equivalent of the expenditure on 12 primary, 4 junior secondary and two senior secondary pupils (Table 5.7). This kind of cost difference virtually precludes a massive expansion of enrollments in TVET, and reduces the opportunity for many children to pursue a secondary education. Moreover, TVET programs have often been poorly linked to labor market requirements (Johanson and Adams, 2004; Brossard and Amelewonou 2005).

Similarly, there is considerable evidence summarized by Lauglo (2005) that offering vocational subjects in secondary schools can be very costly: capital cost in Kenya for vocational subjects were up to 14 times (metal work) the cost of a standard classroom, total teaching cost (including annualized capital cost) in Ghana up to three times cost of general education arts program (mainly due to recurrent cost) and in Botswana up to four times subject cost of a normal classroom. They conclude that:

> "The degree of institutional integration of vocational training with the main stream of the secondary system, which may be advisable countries with well functioning and well resourced secondary school systems *that enroll the great majority of youth* makes little sense in systems which enroll a modest minority of the age group, which are in urgent need of quality improvement in core general education subjects, and in which financial and human resources needed to develop and sustain vocational subjects are much scarcer than in economically advanced countries" (p.44)

There are also real limits on the demand side. Uganda's Community Polytechnics are not only high cost abut also have failed to attract significant numbers of primary school leavers and are the most recent in a line of failed attempts at this level. Given these experiences and in conjunction with the longer basic education programs discussed above, specific technical and vocational training is increasingly being postponed to the senior secondary level in formal and non-formal school settings. This is consistent with the recommendations of the recent review by Johanson and Adams (2004) who emphasize the importance strong basic skill acquisition for high quality TVET as well as the diversity of delivery modes and financing arrangements.

Figure 5.8: SSA Countries: Private/Household Expenditure as % of Total SE Expenditure, latest available (1998-2004)



Sources of Funding

Parents are an increasingly important source of funding for secondary education (Figure 5.8). They pay tuition and other fees to private and public schools hire private tutors, purchase books, supplies and uniforms and provide for formal or informal boarding. After food, education often is the largest household expenditure. The resulting burden on households often is significant. In Zambia, for instance, it amounts to some 16 percent of spending on items other than food, with similar numbers in Ghana and Uganda. The poorer the family, the greater the burden of education

spending is (Bentouaet-Kattan and Burnett, 2004).

In many countries public and private spending are inextricably mixed as parents buy textbooks, pay fees, and build classrooms while the government pays (most but not all) teacher salaries and provides some supplies for government schools. In public schools in Uganda, Tanzania and Zambia more than half of the total costs per student are financed through fees and other parental contributions (Lewin, 2008). In other countries government subsidizes private schools through grants-in-aid or by providing access to credit or land grants. In Burkina Faso the government agreed to fund the construction of classrooms for private schools on condition that the owner builds one classroom within at most a year for each one constructed with government funds (World Bank, 2001b). Zambia established in 1996 education Production Units which enroll students which enroll students who fail to find regular places in fee-paying afternoon sessions run by teachers (who participate on a voluntary basis to supplement their income) in school premises. In Ivory Coast much of the expansion of secondary enrollments has taken place by the private sector enrolling students who benefit from publicly funded scholarships (Bih, 2003). In Kenya virtually all physical facilities for government secondary schools have been funded by parents. In Chad half of the teachers in junior secondary schools are community teachers mostly paid by parents (CSR). In Benin the majority of the teachers in junior secondary schools are local contract teachers paid by families. In Zimbabwe most schools which are classified as private receive government support in the form of payment of teachers' salaries, and a per capita grant for non-recurrent expenditure and building grants (Lewin and Caillods, 2001). In Rwanda more than 15% of total secondary education expenditures (1999) were allocated to food and financial aid for students. In DRC parents pay more than 80% of the cost in both private and public secondary schools (CSR).

Fees and other parental and community contributions reduce the public finance burden of expanding access to public schools. Table 5.8 shows the fees charged by public and private schools in selected countries in Sub Saharan Africa. Especially when fee income is retained at school level it can help finance higher levels of enrollment and support greater availability of learning materials. Diversifying sources of funding by building partnerships with private (non profit and for profit) providers has allowed in several countries to expand access even when resources are constrained (Vawda and Patrinos, 1999).

Table 5.8: SE Annual Fees in a few selected countries ($US)

country	public	private
Ghana (2005)		
JSE urban	2	45
JSE rural	3	
SSE urban w/hostel	13	69
SSE rural /hostel	18	
Kenya (2005)		
National	344	66 - 6,618
Provincial	291	
District	132	
Cameroon (2001)		
general secondary	7	183
urban	115	
rural	66	
technical secondary	127	273
urban	179	
rural	100	

Sources: CSRs, AFTHD, World Bank, 2003; Akyeampong, 2005; Latham, 2005; World Bank WDI & GDF (exchange rates)

Yet, the high level of privately borne cost clearly is a barrier for the enrollment of students from poor families. The central issue is whether fees and other payments will be affordable by poor households and what effects they will have on participation. Lewin and Sayed (2005) in a study of non-government secondary schools in Malawi and South Africa, relate fee levels to household income data, and conclude that many families will excluded by poverty from participation at secondary level in full-cost non-government schools. For-profit organizations will not operate at a loss. Not-for-profit organizations are unlikely to be able to offer schooling opportunities on a national level to large numbers. The same may be true where public schools expect parents to make substantial fee payments. In Malawi the effect is so strong that few outside the richest 20% of households can afford to participate. For Ghana senior secondary education is out of reach for the poorest 60% (Akyeampong, 2005). In Uganda "high cost" was the most important reason (70%) for dropping out of secondary school (Liang, 2002). In both Uganda and Tanzania those outside the top 25% of income will not be able to afford unsubsidized secondary schooling (Lewin, 2008)

A balance has to be established between encouraging private and community contributions to these activities, and ensuring that they do not constitute an unreasonable additional burden on poor households. This will probably imply charging fees but selectively waiving fees for poor households and/or direct bursaries towards those who cannot pay. There are many possible approaches to cost sharing and cost recovery that can and should be facilitated (Table 5.9). These need to be developed. But they will need to be linked to the capacity of households to support fees and contributions so that they do not become exclusionary. As previously noted where the private cost are high – usually because of tuition and boarding fees- expansion will be constrained by the inability of parents to meet the cost of secondary education.

Table 5.: Public-private financing schemes in Sub Saharan Africa

Country	***Mechanism***
Botswana	Matching-grant schemes
Chad	Community financing
Côte d'Ivoire	Government sponsorship of students at private institutions
Gambia	Targeted scholarships, capitation grants for all students
Kenya	Voucher for informal sector workers for short-term skill upgrading courses
Lesotho	Government partnership with churches to share costs
Mauritius	Matching-grant schemes
Senegal	Scholarships for students to attend private and public schools in Dakar
Tanzania	Matching-grant schemes, targeted bursaries for secondary school girls
Source: Latham, 2005	

Subsidies to students through the provision of subsidized boarding or scholarships for tuition and other fees are well justified to the extent that they benefit qualified low income students. Too often they are not effectively -or not at all- targeted and are in fact a subsidy to students from better off families who typically dominate enrollments at that level. In Kenya for example, secondary education scholarships are distributed by

members of parliaments often with more consideration of political allegiance than need or academic merit. In Mali almost 20% of the secondary education expenditures are for scholarships, "disbursed with scant regard to any criteria related to performance or qualification of the candidate" (The World Bank, 2000, p.60). On the other hand, Cote d'Ivoire has established a system of financial support for secondary education that while far from perfectly targeted provides lower income families with proportionally more support in meeting their education expenditures. (Box 5.6). Reforming scholarship will be an important element of secondary education reform proms in many countries.

Box 5.6: Cote d'Ivoire: Targeted public support for private schooling

Cote d'Ivoire has a long standing policy of public support to private education, by outsourcing part of provision. Public subsidies to private schools vary according to fee level (the higher the fee charged by the school, the lower the subsidy) and region (schools in Abidjan receive less than those outside Abidjan). Elite schools have the highest fees. However, secular private school fees are high, ranging from $100-200 to well over $1,000. Religious school fees are much lower, ranging from a few dollars in rural areas to $166 in Abidjan. Fees in wealthier religious schools tend to be higher than average, with the excess cross subsidizing schools in poorer areas.

In 1995/96 the government paid the equivalent of $66 per student per year to religious schools outside Abidjan whose fees are less than $50, but $41 per student per year in Abidjan for schools with fees less than $83. Schools with higher fees do not receive any subsidy. The state pays private lower secondary schools $200 and private upper-secondary schools $233 per student per year for students it sponsors to attend private schools.

Estimates of the percentage of family education expenses covered by subsidies across family expenditure quintiles show that, in both the cases of public and private school attendance, there is a clear tendency for the share of family education expenditure covered by subsidies to decline for the higher family expenditure quintiles. This decline, however, is significantly more pronounced for private schools. The subsidy system is pro-poor, and more so for private schools.

Source: Sakellariou and Patrinos, 2003

Conclusion

The challenge of secondary education development in sub Saharan Africa is daunting. The preceding analysis demonstrates that without reforms in the way the system is financed and organized, resulting in significant reductions in the unit cost[72], access to secondary education cannot be accelerated while maintaining an acceptable level of quality. Several key points are important to highlight.

First. The resource environment for the development of secondary education in SSA is unlike the one faced by industrialized countries or other developing countries earlier in their development:

- Income levels are lower, income distribution is more skewed, economic growth is uneven and large parts of the economy are subsistence based; secondary education expansion is taking place earlier in the development process and at much lower levels of GDP/capita;

[72] In OECD type countries the ratio secondary recurrent to primary recurrent unit costs is always less than 2:1 and often below 1.5:1. Where the recurrent unit cost ratio secondary:primary is more than about 3:1 it becomes difficult if not impossible to universalize secondary from domestic resources. Averages for SSA are around 3:1 for lower secondary and 6:1 for upper secondary (table 5.1).

- Fertility rates and dependency ratios remain high;
- Primary education development remains incomplete and still requires significant additional resources;
- Several cost parameters – often still part of the colonial legacy – are unsustainable in a rapidly growing system.

Second. In most countries the expansion of access will not be possible unless the cost per student come down. This will mean teachers are deployed efficiently by:

- increasing pupil-teacher ratios, class sizes and the contact hours of teachers while reducing teacher class ratios;
- bringing, where necessary, teacher salary levels in line with the national resources available;
- reducing publicly funded boarding expenditures by limiting access at public expense to poor students from remote and sparsely populated areas;
- managing the cost of infrastructure is carefully; and
- targeting scholarships carefully on the basis of need and demonstrated academic performance

Very often these cost reduction measures will need to be combined with policies designed to ensure an adequate supply of inputs –in particular textbooks- essential for a school environment that provides meaningful opportunities to learn.

Third. Countries will need to take a hard look at the structure and organization of the system they have inherited and have often been reluctant to change. The duration of the basic education cycle and its cost parameters, the starting point and the modalities for vocational and technical education as well as issues related to curriculum content especially in junior secondary education are key elements of the transformations that will be impossible to avoid.

Fourth. Undoubtedly, more public resource will be necessary to meet the goals of a rapid expansion of junior secondary education and a gradual development of the senior secondary level. In most countries these will have to be generated by accelerating economic growth and increases in the growth of government revenue. But in few countries public efforts will be enough. Governments will need to create an environment where public and private resources combine to support secondary education.

Fifth. Financing secondary education development will almost require hard choices and trade-offs reflected in strategies that:

- are based on a comprehensive sector approach to planning taking into account the interactions between allocations to the primary, secondary and tertiary sectors and a full exploration of the forward liabilities;
- protect investments in primary education to ensure that the gains of the last ten years are undermined by losses in quality or access;
- ensure that levels of secondary school's teacher's salaries are aligned with teacher productivity and national resource availability,

- establish investment criteria that recognize that high cost TVET cannot be provided to many students without denying others access at secondary level;
- address also non-financial constraints on growth including teacher training capacity and lead times on developing infrastructure and learning materials.

Sixth. The diversity in country conditions makes it imperative for each country to design its own national strategy for secondary education development; carefully reviewing policy options and the experience of other countries in the Africa region is an important first step in this process but it cannot be a substitute for a diagnosis of the specific challenges and the identification of politically feasible and financially sustainable policy options specific to each country.

Seventh. Adaptation of curricula to the demands of modern society and changes by the management and governance of the system will almost always be essential parts of secondary education development strategies. These issues will be discussed in the next chapters.

Eighth. Many of the options for reform will be controversial and generate considerable opposition from those who have a vested interest in the present arrangements. Developing a national consensus through a frank dialogue with all stakeholders to raise awareness of the options and their implication is an urgent priority almost everywhere.

> The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.
>
> Alvin Toffler

Chapter 6
Quality and Relevance in Curricula, Assessments and Examinations[73]

The pressures of participation in an increasingly competitive global economy are changing everywhere the expectations of what graduates of secondary education and training programs should know and, most importantly, be able to do. In middle and higher income countries governments and private sector stakeholders emphasize the importance of graduating students from secondary schools with the knowledge, competencies, attitudes and skills that will allow them to be successful in economies with labor markets that increasingly emphasize: the capacity to acquire new knowledge and skills; readiness to take initiative; and contribute to innovation in products and processes. Asian and Latin American countries –Korea, Singapore, Thailand, Vietnam, Chile, Argentina, Costa Rica and Mexico for example - have reformed their secondary education and training systems, focusing on the quality and relevance of learning outcomes. Increasingly, secondary education and training are also recognized as indispensable tools to providing young adolescents with key skills and competencies to become productive citizens, capable of leading healthy lives and contribute to development in their communities. Unsurprisingly, secondary education reform has been high on the agenda in many OECD countries for several decades.

SSA is –as other regions of the world- confronted with the need to respond to the demands of economic growth, competitiveness in the world economy and changing social demands from society. A sustainable financial framework for secondary education development (chapter 5) is necessary but not sufficient to deal with these challenges and establish the human capital foundation necessary for economic competitiveness in a global economy and strengthen the social capital necessary for the effective functioning of society. Changes in curriculum content, examinations and assessment strategies are an essential complement. The implications for secondary education are significant. The key priority should be ensuring the relevance of the curriculum content so that students can graduate with the knowledge, skills and attitudes that will allow them to function effectively in a rapidly changing economic and social environment. The fast-paced

[73] The first draft of this chapter was prepared by Jacob Bregman drawing heavily on SEIA Thematic study #5 *"Curriculum, Assessment and Examination in Sub-Saharan Africa (SSA)* by Ramon Leyendecker, Wout Ottevanger and Jan van den Akker (University Twente and Vrije University Amsterdam, Netherlands) and Thematic study # 7 (2008) Science, mathematics and ICT in Secondary Education in Sub Saharan Africa (SMICT) by Wout Ottevanger, Jan van den Akker and Leo de Feiter. Extensive comments by Andrew Clegg of the Conference edition were helpful in for the final drafting

evolution of science and technology and new application of Information and Communications Technology (ICT) need to be reflected in the curricula. Far-reaching changes in curriculum content and instructional strategies will be required if they are to provide real opportunities to learn to a much larger proportion of the age group –many with socio-economic backgrounds and aspirations markedly different from students who attended secondary school in the past. The need for differentiation in curriculum content and instructional strategies becomes inescapable as access to secondary education broadens and its purposes diversify. Most importantly, "learning to know" and "learning to live together" (Delors, 1996) are curriculum priorities that no country can ignore.

Clearly, a relevant and well designed curriculum essential but its impact will be determined by what happens in schools and classrooms. Competent teachers, supported by effective head teachers and administrators, and students who have access to a basic supply of textbooks and other instructional materials are essential to ensure that students acquire the knowledge and the skills specified in the curriculum. This will be discussed in Chapter 7. This chapter will review global trends in curriculum reforms and related changes in examination and assessment trends and practices in SSA, as well as priorities for reforms. Curriculum issues are very local by their very nature; in many cases the general trends discussed in this chapter will therefore not apply in specific country situations.

Global Trends in Secondary Education Curriculum Content

Most middle and higher income countries have legislated compulsory education up to the age of 16 years and at the same implemented a combination of curricular, structural and management reforms (Box 6.1). Basic education usually starts at age 5 with pre-school and continues through JSE. The traditional JSE subjects (about 12-15) have been repackaged and streamlined within a basic education cycle of about 9 years.

JSE examinations have been redesigned to become instruments that guide and encourage students to select a pathway at SSE level linked to their skills and future job aspirations. Assessment tools (national, school-based, and subject-based) have been developed to monitor progress in student learning and provide students with targeted learning support. As a result junior and senior secondary education have, in fact, become quite distinct. In most countries JSE today is part of an integrated basic education foundation curriculum, emphasizing generic skills and competencies. SSE on the other hand is explicitly focused on the preparation of student for work and further education and training.

Priorities for reform

Almost all OECD countries have policies and strong incentives in place to encourage youth to remain in senior secondary schools or training institutes beyond the compulsory school age which most often ends with JSE. This has stimulated a large number of reforms at the senior secondary level. SSE typically focuses on giving graduates the competencies and knowledge that will allow them to choose between further learning, initial job-training or transition into the workforce. Education and training programs at

Box 6.1: Trends in secondary education reforms in the past decade in OECD countries

- Meeting the needs and aspirations of all secondary school-age people, including those who need extra support in learning, with strong emphasis on equity of access, raising learning achievement and improved personal and professional skills for employment.
- Increasing participation in education and training beyond compulsory education (ages 16 and up), including higher education and vocational (job) training, in combination with school-work mix programs, and readiness to participate in Life-Long Learning programs.
- Using and integrating ICT as learning and teaching tools. This includes specific teacher training for using ICT as a pedagogic tool, and (separately) the development of ICT as a self-standing subject to provide all secondary graduates with basic ICT skills.
- Developing general skills for further study and faster integration in the "world-of-work": (i) use and apply communication and information; (ii) apply basic mathematics and science principles; (iii) working knowledge of at least one foreign international language; (iv) problem solving attitude and competency; (v) ability to work in groups; and (vi) general skills to undertake further learning and job training.
- Modernizing the curricula with specific standards for JSE and SSE with a strong focus on general skills. JSE is seen as a natural extension of primary education and part of the basic education cycle. Most SSE is a mix of vocational and academic education, with considerable variation in emphasis between countries.
- Promoting of flexible, integrated and innovative networks of providers committed to achieving ambitious new goals often with new, shorter and innovative mechanisms and routes to obtain secondary qualifications, such as distance learning, ICT use, and shorter courses adapted for second-chance students and adults; the role of the private sector as provider, manager and financier is actively encouraged by OECD governments.
- Encouraging the autonomy of secondary schools; many have grown elaborate institutional links within the secondary level and with tertiary institutions.

Source: review of several education and training websites of OECD countries

this level are usually highly diversified with a large number of institutions and providers offering opportunities for further learning

Reforms are aiming to ensure that the senior secondary cycle is better connected to the demands from society and the economy. Rapidly changing technology and the pressure of competitiveness in an increasingly open world economy is changing skill requirement in the workplace. Different jobs are being created at a faster pace. This requires more, better and differently skilled graduates from secondary education and training institutes. The general trend is one of more emphasis on higher level generic skills in secondary schools, with particular attention to problem solving (Box 6.2), while in several countries much of the job-specific vocational training is shifted to specialized training institutes. SSE curriculum content has been changed with more emphasis on core knowledge and teacher support systems have been strengthened. At the same time more flexible pathways have been created, resulting in study tracks that allow students to select a group of subjects related to specific academic interest or professional career areas while students are provided with better professional guidance. . For students this translates into better opportunities to explore the transition from school to work, even though in most OECD countries half to three quarters of the students continue to further learning, often combining work with study.

Box 6.2 Problem solving as a key competence in the secondary curriculum

Denmark, Hong Kong, New Zealand and Queensland (Australia) all specified problem solving as part of their curriculum. The New Zealand Ministry of Education further broke down the skill of problem solving to include the following:

- thinking critically, creatively, reflectively and logically
- exercising imagination, initiative and flexibility
- identifying, describing and redefining problems
- analyzing problems from a variety of different perspectives
- making connections and establishing relationships
- enquiring and researching, and exploring, generating and developing ideas
- trying out innovative and original ideas
- designing and making
- testing ideas and solutions and making decisions on the basis of experience and evidence
- evaluating processes and solutions.

Source: Leyendecker et al., 2008

Information and Communication Technology (ICT) is an increasingly important part of the curriculum. It encompasses a wide range of technology tools for data collection, sorting, organization and analysis. What used to be referred to as "Computer Studies" in the early 1990s is included in ICT, but is now incorporated in a much more structured and in-depth content dealing with information and technology. In addition, changes in ICT continue at a rapid pace and most countries follow the changes and adapt their curriculum requirements for ICT as quickly as possible. "Computer Literacy" is now mainly taught at primary and junior secondary level in an integrated manner. Most OECD countries (and Asian middle level income countries) are struggling to keep the ICT curriculum content up-to-date and linked to labor market demand. Many students select subjects that can get them entry into post-secondary studies that are related to technology in the areas of health, entertainment, office technology, laboratory technology. Therefore at the SSE level the curriculum content for ICT is kept general, but in many cases with specific emphasis on certain job-groups.

New technologies also are changing the way teaching and learning takes place. Instructional strategies increasingly rely on the use of technology tools for information and data management to help students develop understanding and construct knowledge, instead of the traditional rote learning and memorization of information provided by teachers. Technology also provides teachers with access to pedagogic instruments and instructional practices that have been found effective. Many countries now have professional services and websites that support teachers' pre- and in-service training.

Finally, secondary schools are increasingly seen as more than just academic preparatory institutions; they are expected to foster attitudes and skills that allow students to lead healthier lives, be more productive, easily transfer from schools to work, and take preventive action against social ills. The stakes for reform at senior secondary education level are high in terms of private economic and social pay-offs for the individual and for national economic growth. This drives OECD countries to almost constant reform and renewal of their senior secondary education and training systems.

Most countries are moving away from costly, and often out-of-date, specialized job training at the secondary level while many are experimenting with innovative schemes.

For example in Scotland vocational training courses are offered as selective modules at the upper-secondary level in addition to the more academic-oriented subjects, through institutional cooperation between "vocational colleges" and more traditional secondary schools. In the UK, Ireland and Denmark senior secondary schools are becoming more specialized offering in one or two programs, in which they want to excel. At the tertiary level universities and specialized training institutions, have started to offer more diverse vocational training, in many instances with private sector support and collaboration. In the USA Community Colleges are major providers of technical and vocational training; a flexible organizational structure allows them to quickly adapt to the changing labor market demands. Chile has implemented a major reform of the secondary education redefining structure and content, including a drastic reorganization of traditional vocational programs, to prepare students better for further study and work in a rapidly changing society (Box 6.3).

Box 6.3: Secondary education reform in Chile (1998-2002)

The reform of secondary education in Chile was driven by the need to establish a national curriculum framework; respond to the needs of a more differentiated student body that resulted from the rapid expansion of coverage; and desire to establish different and higher standards. For grades 9 and 10 a common curriculum was developed that all schools –general as well as vocational – had to follow. During the final two years (grade 11 and 12) both vocational and general secondary schools combine general and specialized education. The more than 400 specialties in vocational/ professional schools were reorganized in 14 economic sectors with 46 specialties. These new specialties are now offered to students who have completed a much more robust basis of general education than was available before the reform. The new curriculum specializations are designed to prepare students for a life of work in a particular occupational sector rather than for a particular job. This is expected to allow students to adapt their skills reacting to rapidly changing technologies and occupations. The content of the subject matter was changed to emphasize skills and competencies rather than content knowledge; establish higher standards of achievement; ensure relevance by pursuing connections to students' lives. University entrance examinations were redesigned to a curriculum referenced model.
Source: Cox, 2004

Examinations and assessment

The quality and relevance of learning and teaching in secondary education, is intricately linked to curriculum, examination and assessment policies and practices. Traditional high stakes examinations were designed to select academically high performing students for further education. In fact they often measured teacher performance rather than student ability and discriminated against students from families with lower socio-economic status. Efforts in the OECD and also Asian countries (Korea, Singapore, Thailand, and Vietnam) to improve the quality of their secondary education and training systems have focused not only on revamping their curricula but also on restructuring their national examination system, introducing national assessments and participating in international assessments. Box 6.4 summarizes the nature of examinations and different types of assessments. Reform is often a complex and politicized process which affects the interests of major stakeholders (parents, teachers and other school staff, teacher unions, employer organizations, religious authorities, and other civil society special interest groups). The success of reforms of secondary education in most OECD countries has largely depended on reaching consensus during a national debate, since the stakes for families and students are high.

Box 6.4 Examinations and Assessments

Examinations serve a number of important functions. First, they set goals and standards for instruction. Second, they are used to select students in pyramidal education systems in which the number of places diminishes at each successive level. Third, the examinations have a certification and diagnostic function, guiding student choices for further education and training. Fourth, examinations may serve an accountability function for teachers and schools. Finally, especially at the end of secondary schooling, they facilitate the international mobility of students

National assessments are designed to provide information on the achievements, not of individual students, but of a whole education system, or a clearly defined part of it (e.g., fourth grade pupils or 11-year olds). The centerpiece of the assessment is the collection of data in schools with students responding to tests and questionnaires in groups.

International assessments share many procedural features with national assessments, although they differ from them most obviously in the fact that they have to be designed to allow administration in more than one country. They provide some indication of where the achievement of students in a country stands relative to the achievements of students in other countries.

Classroom assessment of students' learning is an integral component of the teaching-learning process. Much of it is subjective, informal, immediate, on-going, and intuitive, as it interacts with learning as it occurs, monitoring student behavior, scholastic performance, and responsiveness to instruction. In addition to ongoing teacher observation, it involves classroom questioning and dialogue, the marking of homework, and the use of portfolios. Its function is primarily formative and designed to assist or improve students' acquisition of knowledge and skills.

Source: Kellaghan and Greaney 2004.

In OECD countries examination systems today support the goal of keeping students in the system rather than selecting them out. This required ensuring that they discriminate effectively over a wide range of achievement. Significant restrictions on repetition practices were introduced and automatic access to JSE, and also SSE, has become common, although a diagnostic assessment of students at the end of this cycle often remains as a guide for study choices at the next. The concept of pass/fail has largely disappeared as examinations focus more on what students know rather than tripping them up; a greater variety of skills with an emphasis on understanding and problem solving are tested; norm referenced papers have been applied by criterion referenced papers; and the process of examining has been separated from curriculum construction with a set of standards indicating clearly what should be tested.

In all OECD countries, the need for better monitoring of performance outcomes in terms of quality and efficiency is now widely accepted. New and efficient monitoring tools (using ICT) are on the market and are continuing to drive system changes. International assessment is gaining ground through programs like PISA, TIMSS and PIRLS.[74] The OECD's PISA and TIMSS assessments have over the past years become a widely accepted international comparative tool for measuring the quality of education system outcomes, including not only assessment of student performance but also of teachers skills and students' backgrounds. The outcomes have captured the interest of politicians, education authorities and parents, and in most countries the results of, for example, PISA

[74] PIRLS progress in International Reading Literacy Survey is a large international comparative study of the reading literacy of young students. It assessed reading achievement in 2001 approximately 150,000 4th graders in 35 countries.

2006 has been given wide attention in the press[75] and was followed by political announcements for a restructuring of the secondary curricula and other measures to improve quality in several countries. . National assessments are also gaining importance as indispensable instruments to complement education MISs, monitor system wide progress in student learning over time and allow identification and analysis of causes for success and failure. The results from these assessments stimulate debates on education quality in each of the participating countries.

Examinations and assessments may cripple a curriculum, or they may drive and steer it. Most secondary teachers, principals, parents, and politicians judge educational success in terms of examination results. Secondary schools and teachers often are (or think they are) measured according to the examination results of their students, as reported in the United Kingdom in the school league tables and in the USA with Adequate Yearly Progress reports required by the No Child Left Behind act. Assessment and examinations have multiple potentials and consequences for curriculum development and implementation. The successful implementation educational reform hinges prominently on it.

The landscape of secondary education curricula in SSA

Most countries in SSA have traditionally maintained secondary education systems for their elite, admitting a small privileged proportion of students through selective "high stakes" examinations. Teachers and school officials often explain these restrictive practices with the quality assurance argument: restricted access ensures that students who are admitted are well prepared and able to master the curriculum. At the same time SSA governments are becoming increasingly concerned about large numbers of primary school graduates who fail to enter secondary school. As alternative for students who were not admitted into the "elite" academic streams and institutions, many secondary systems in SSA offer opportunities for vocational training in separate institutions or as options or tracks in secondary schools. These programs –especially those established at the junior secondary level- are often supply driven, costly and poorly related to labor market demands. They typically enroll a small number of students and do little to respond to the increasing demand for access to post primary education (Chapter 2).

In most countries examinations are intended to select the academically most deserving students for the limited number of places available at the next level in the public system. In practice few do so reliably; and even when they do, poor and rural students are often disadvantaged by their inadequate academic preparation, unfamiliarity with examination procedures and inability to influence the process with illicit means. Exacerbating the problems is the practice of establishing pass rates on the basis of an average grades which

[75] The PISA 2006 results in Germany gave a shock to the government and politicians, because Germany did less well than expected and had fallen behind compared to the PISA 2003. A national reflection is now underway, and suddenly the government started to review its financing for secondary education and training. In England and Asian countries the same attention is given to PISA and TIMSS results. other countries received PISA and TIMSS tools are more powerful if countries participate for the "longer term". PISA, for example, started in 200 and announced it would hold three assessment rounds with 3-year intervals. See for further information (http://www.oecd.org/pages/0,2966,en_32252351_32235731_1_1_1_1_1,00.html and http://timss.bc.edu/)

provides a strong incentives for students to select easy subjects (e.g. bible studies) instead of hard ones (math and science). Reform has been difficult as the need to regulate student flows based on the available number of spaces at the next level overrides other functions (Box 6.4). Nevertheless, the mechanism has come under pressure, due to the growing numbers of graduates at primary and secondary levels, especially where the final secondary exam is used to determine access to tertiary institutions. In response to the biases inherent in pure merit based selection, many countries have established quotas or differential pass levels to limit regional and gender inequities in admissions to secondary and tertiary education.

The cost of these highly selective examinations is considerable. It swells the number of students in the final grades of primary, junior secondary and senior secondary education as those without the grades required for admission at the next level repeat to try again the next year. It represents a waste of human capital as those with the potential to reach higher levels of education and training are excluded. It is also socially disruptive when certain groups of the population are disproportionally denied access and excluded from leadership positions. Everywhere, more and more students sit for entrance examinations to secondary schools and universities. But without concomitant increases in places at the next level this will inevitably results in higher grades required for selection and declining admission rates. It is therefore no great surprise that examination results are often announced amidst considerable public criticism and that the expansion of access to secondary education has become a "hot political issue" almost everywhere.

The legacy

African secondary education systems still exhibit strong features inherited from a colonial past. There has been surprisingly little change in curricula, assessment and examinations at the secondary levels in Sub-Saharan African countries the past two decades (Lewin, 2008; Kellaghan and Greaney, 2004). Most still have curriculum structures and examination systems that reflect the way secondary education France and Britain was organized in the 1970s and 80s. While many SSA countries have attempted to launch reforms of secondary education since the 1980s, systems have often been resistant to reform and many African educators consider that the impact at the school and classroom level has been marginal[76]. Many Anglophone secondary education systems in Africa continue to use the General Certificate of Secondary Education (GCSE) and its predecessor, the O-levels, from Cambridge or other English institutions under license as is the case for example in Botswana, Nigeria, Mauritius, Tanzania, and Uganda. At senior secondary education (SSE) level the English AS and A-levels are also used widely.

Most SAA countries have localized curricula and examinations, or are in the process of doing so. But many curriculum changes have been partial and limited to the introduction of new subjects and new topics. Many countries maintain ties with external agencies. Namibia and Botswana have kept their relation with the "University of Cambridge Examination Board" to ensure appropriate standard setting in their JSE and SSE examinations. Ghana and Nigeria conduct their examinations under the auspices of the West African Examination Council (WAEC). South Africa has re-established a quality

[76] See 1st and 2nd regional SEIA conference reports; (World Bank 2002a and 2004c)

assurance board for secondary education, and in 2005 has compared its examination questions against Scottish standards when increased in pass rates partly reflected in the year 2000 and 2003 raised concerns in the country about a possible decline in standards

In Francophone SSA countries the French curriculum structure, content and related examinations still exert considerable influence. French secondary education provides 7 years of schooling (4+3). Junior secondary education -the "Collège" – leads to the "Diplôme National du Brevet" based on an examination in about 6-7 subjects composed by national education authorities. Senior secondary education – the "Lycée" - leads to the "Baccalauréat", which is diversified into streams. Most Francophone countries in SSA follow this model and attempt to keep standards similar to those in France, through coordination and formal and informal exchanges of practices between the academics of the African countries and their French colleagues and universities.

Student selection for entry in the senior secondary cycle is regulated on the bases of the results from the "Brevet". In most Francophone African countries all students who obtain the "Baccalauréat" have the right to enter tertiary education institutions as is the case in France. Since the number of places in tertiary education is limited the selection of for admission to the "Baccalauréat" exam and the success rate are strictly regulated. A key issue is the imbalance between number of students that opt for a particular stream in SSE and the number of places in corresponding options in tertiary institutions. In most countries there is a shortage of students selecting the ""Baccalauréat" Scientifique". In SSA the enrolment and exam success rates are much lower than in France where the Baccalauréat" success rate is about 90 percent and on average about 80 percent of the age group continue into higher education.

Similarly, in countries like Mozambique and Angola resemblances exist with the systems in Spain and Portugal, and in Ethiopia and Eritrea with the Italian system. Parents and teachers traditionally have had confidence in the maintenance of quality standards when using examinations that are perceived to reflect international standards.

Transforming the structure

While in much of the region progress towards a secondary education with expanded coverage and a curriculum adapted to the development demands of the 21st century has been slow, there are exceptions. New organizational structures and curricula have begun to emerge, mostly in recent years. JSE is, in an increasing number of countries, considered part of a "basic education" cycle of roughly 8-10 years, ideally –but rarely in practice, yet- with a unified curriculum and a school environment that takes into account that in junior secondary schools the basic knowledge and skills developed during primary education are further sharpened and extended. Consistent with this view, several countries have extended the duration of their primary cycle. Mali, for example, created two part basic education course "enseignement fondamental" in 1962 comprising a first cycle of 6 years and a second cycle of three years; but enrollments in the second cycle always remained low (2004 GER was 30%). Kenya has a primary cycle of 8 years, followed by a 4-year secondary cycle. Recently Madagascar decided to lengthen its primary cycle from 5 to 7 years starting in 2006-07. It is now sequentially restructuring

its junior and senior secondary cycles (Ramanantoanina, 2008). Zambia is integrating grade 7 and 8 into a 9 year basic education cycle. Nonetheless, most African countries still have a 3 or 4 year junior secondary cycle, followed by a senior secondary cycle of about 3 years. At the SSE level there is often more choice to follow specific "job-training", if the academic route is closed due to exam failure. The total secondary cycle in most African countries is about 6-7 years, resembling the general practice in OECD countries.

Change at the senior secondary schools is mainly linked to the creation of differentiated vocational and academic opportunities for education and training. This makes the landscape of SSE more varied and in many SSA countries dominated by a large number of providers and sponsors. Several countries -Mali, Zambia and Mozambique for example - are implementing important reforms of their traditional state dominated training systems. Yet, in many countries secondary education curricula still reflect the role of senior secondary schools as the preparation ground for university entry. This selection role produces almost always unsustainable inefficiencies in terms of reduced graduate numbers and high drop out rates. Alternative opportunities for education and training at SSE are often regarded as inferior, especially since there are few opportunities to transfer back into the academic mainstream or enter tertiary level TVET programs.

Renewing the curricula

Reform efforts are not limited to the way the delivery of secondary education is organized. Botswana, Mauritius, Namibia, and South Africa are examples of countries that have started significant reforms of their JSE and SSE curricula and examination systems. Other countries, Madagascar and Ghana for example, are revitalizing reform processes that had been stalled. Ethiopia, Kenya, Senegal, Tanzania and Uganda have implemented several rounds of secondary curriculum reform over the past two decades, although these did not fundamentally change their JSE curriculum structure. Notwithstanding these emerging reforms most countries in SSA are still searching for a model of secondary education and training that is more closely connected to African realities and development priorities. Questions that need to be reflected upon are related to what governments and society expects as the outcomes of their secondary education and training systems. Lessons can be drawn from the emerging economies in Asian countries (Korea, Malaysia, Singapore, and Vietnam) where curriculum reform was closely linked to nation building objectives and rapidly evolving

Box 6.5 Different concepts of curriculum

There are many varied definitions of curriculum lying on a continuum that encompasses a narrow and strict view of only what is stated in syllabi or program requirements to a broad definition of all curricular and co-curricular experiences. Another perspective is a focus on the implementation processes:

ideal curriculum	original vision underlying a curriculum,
formal curriculum	specified curriculum documents, including teacher guides and student materials;
perceived curriculum	curriculum as interpreted by its various users;
operational curriculum	actual instructional processes in classrooms,
experiential curriculum	actual learning experiences of students;
attained curriculum	resulting learning outcomes of students.

Source: Leyendecker et al., 2008

economic development priorities.

Curricula are designed to provide a framework for teaching and learning. They typically specify the skills, performances, attitudes, and values pupils are expected to learn from schooling and may include statements of desired pupil outcomes, descriptions of materials, and the planned sequence that will be used to help pupils attain the outcomes. In reality there is often a considerable variation between what the curriculum specifies that students should learn, what teachers teach and what students actually learn (Box 6.5). What students learn is not only influenced by the content specified in the curriculum but also by the time available to teach it. The intended annual instructional time for SSA at the junior secondary level is comparatively high: 965 hours (Benavot, 2004). The "time-on-task" is, however, reported to be much lower for several reasons: late-coming or absenteeism of students and teachers, discipline and learner-attention problems; and a multitude of extra-curricular activities; and shortages of classrooms. A report by Chisholm et al (2005) suggests that in South Africa of a 35 hour week teachers spend only 46% teaching much less than the expected percentage range of 64-79%. In many countries administration of exams leads to the suspension of classes and reductions in instructional time. Moreover the instructional time that is available is often used inefficiently in the absence of instructional materials and effective instructional strategies. In any case the usual concepts of time use and instruction apply only with great difficulty in overcrowded classrooms, with well over 100 students reported in some cases, especially at the JSE level. As a result many teachers are not able to cover the intended formal curriculum and only cover those parts that they expect to be examined.

Curriculum renewal to reflect the new educational, economic and social development context is an essential part of the transformation of secondary education into a system with broader coverage, strong relevance and higher learning standards. Central in the process of curriculum renewal and system restructuring is the clear definition of exit skills, which mark the minimum learning outcomes that students are expected to have acquired before proceeding from one educational level to the next or leave the system.

Table 6.1 Skills at exit point as commonly specified by curricula in SSA

	When?	Continuation into	Exit skills (competencies)
Exit point 1	After primary education	World of work (unskilled labor) and society Junior secondary education	Reading and writing Basic numeracy Language proficiency in the instructional language (for continuation into JSE) Basic problem solving
Exit point 2	After junior secondary (in countries with 9 or 10 years of basic education, this is the first exit point)	Secondary education, general streams Secondary education, technical streams Vocational education World of work (low-skilled labor) and society	Self- and social responsibilities Basics of learning to learn Problem solving English (French / Portuguese) Mathematics (including Geometry) Academic knowledge for continuation into general SSE
Exit point 3	After senior secondary education	General tertiary education Technical tertiary education (polytechnics) World of work and society	Advanced learning to learn Problem solving Skills and ICT Knowledge Specific subject and discipline knowledge

Source: Leyendecker et al., 2008

Without clearly defined exit skills, instructional objectives and strategies at the next level are difficult to define. The exit skills translate directly into "Graduate Profiles". England, Scotland, the Netherlands, and Singapore are examples of countries where these have been formally adopted and published. This allows the labor market to know better what the desired outcome is of each cycle, subject or subject-group and facilitates the work of the inspectorate. A well designed set of exit skills also reinforces the linkages between curricula in different parts of the education system. JSE needs to build on primary curricula and be designed as part of a seamless basic education program to ensure that they acquire the skills specified for level 2. SSE needs to build on JSE curricula and have explicit linkages to the entry requirements of tertiary institutions to help students obtain the level 3 skills. Depending on the curriculum structures, the exit points into the world-of-work in SSA can vary considerably. Table 6.1 gives exit points drawn from a sample of countries in SSA (Leyendecker et al., 2008)

As the system expands, schools will have to deal with a more diverse student body with much wider ability groups, including slow learners and students that have special needs. Dealing with this kind of diversity in the classroom is rarely being addressed effectively schools and curricula in SSA. Class teaching, in which all learners in the class do the same work at the same time, is a viable option only in a highly differentiated system where classes tend to be homogeneous in terms of ability and achievement. Where the system does not differentiate, either the schools must do so by systems of streaming or ability grouping[77] or teachers must teach mixed ability groups. Some countries – especially the HPAEs- have opted for multiple curricula and schools to address this issue. This imposes the least burden on teachers who do not have the skills necessary for mixed ability teaching, but it may perpetuate undesirable distinctions of class, wealth and ethnicity and may not be acceptable in countries where social cohesion remains a major issue. In most African schools there is little differentiation. Slow or poorly prepared learners simply fail and repeat but typically receive little additional help. This is an expensive solution which does not address the underlying learning difficulties. In an expanded secondary system this clearly is unsustainable both educationally and financially. Addressing underlying causes of education disadvantage and preparing teachers for mixed ability teaching will have to be a high priority in many countries.

Finally, and perhaps most importantly, reducing the gap between the formal and the attained curriculum (Box 6.5) is a critical challenge in much of SSA. Curriculum change in SSA will only be successful when curriculum designers take explicit account of the cost implications of particular curriculum choices in an environment of limited public resources and of the conditions under which the curricula will typically be implemented: large classes, inadequately trained teachers, limited availability of instructional materials and specialized facilities, poorly prepared students. Of particular significance is recognizing the constraints of curriculum implementation of small schools (see chapter 7 for a further discussion) and the need for remedial teaching –especially as regards mastery of the language of instruction- for many primary school leavers who do not have

[77] 'Streaming' is refers here to dividing a whole year group into classes differentiated by ability and such classes form a teaching unit in all subjects. 'Ability grouping' refers to differentiation for the purpose of teaching a particular subject only

Table 6.2 Junior secondary curriculum structures in five SSA countries				
Tanzania SEDP curriculum JS level core subjects	**Ghana JS Curriculum**	**Botswana JS Curriculum Core subjects**	**South Africa C2005 learning areas of revised curriculum JSE level**	**Senegal (curriculum from 1980, final year JSE, based on 28 periods / week)**
Kiswahili	Ghanaian language and culture (10%)	Setswana (10%)	Languages (25%)	French 21%
English	English language (15%)	English (12.5%)		Living language 1: English or German (14%)
Mathematics	Mathematics (15%)	Mathematics (12.5%)	Mathematics (18%)	Mathematics (18%)
Biology	Integrated Science (10%)	Integrated Science (12.5%)	Natural Sciences (13%)	Earth and Life Science (7%)
Physics with Chemistry				Physics or Technology (7%)
Civics	Social Studies (7.5%)	Social Studies (10%)	Social Sciences (12%); now two subjects of history and geography	Civic education (3.5%) History and Geography (7%)
	Pre-technical skills (7.5%)	Design and Technology (10%)	Technology (8%)	
	Agricultural Science (7.5%)	Agriculture (10%)		
			Economics and Management (8%)	
	Religious and Moral education (7.5%)	Moral education (5%)	Life Orientation (8%)	
			Arts and Culture (8%)	Music or Arts (3.5%)
	Pre-vocational skills (7.5%)			
	Life skills (5%)			
				Physical education (7%)
Plus: options where offered	Plus: French 7.5%, where teachers available; Music and Dance; Physical Education for morning shift schools	Plus: options of practical studies, plus options of general studies		Plus: options where teacher available: Living language 2 (e.g. Arabic, German, Spanish); Home economics
Source: Leyendecker et al., 2008				

the knowledge and the skills assumed by the formal JSE curriculum.

There is thus little doubt that secondary education in SSA faces the need for major changes as regards the knowledge, attitudes and skills that curricula, examinations and assessments prioritize. Four questions are of particular importance:

- What are the curricular implications of the integration of junior secondary education in a seamless basic education cycle?
- How to prepare students for further education and the world of work?
- How can students best be prepared for a society where knowledge of science and technology is at a premium and the ability to use ICT a critical skill?
- How can assessment and examination systems be strengthened?

Integrating junior secondary education into a seamless basic education cycle

Chapter 3 has argued that a sustained acceleration of economic and social development in SSA will require an ambitious effort to increase education attainment. Increasing productivity and attraction foreign direct investment demands a supply of workers who have completed at least junior secondary education. This makes the exit profile level 2 (Table 6.1) of particular importance for countries in SSA. The challenge is twofold: to increase the number of students that enter junior secondary education and ensure that they acquire the knowledge, attitudes and competencies specified. Addressing it successfully will require at least that:

- Students complete primary education with mastery of the knowledge and the skills specified in the primary curriculum;
- Junior secondary curricula are designed as an extension of primary curricula and allow for the review of competencies acquired in primary education and for remedial instruction whenever needed.
- Junior secondary education focuses on the development of those competencies that are particular critical for successful entry in the world of work and for further education and learning

In many countries these conditions are not in place. Students often complete primary school without adequate mastery of the knowledge, skills and attitudes specified in the primary curriculum. The groundwork for successful secondary education lies at the primary levels. Teaching opportunities and learning potential at the junior secondary level depend strongly on the exit skills at the end of the primary level, particularly with regard to elementary skills like e.g. reading, writing, and basic mathematics. A report on the monitoring of learning achievements in Botswana for example confirms common observations: primary students' achievements in numeracy and a second language (English) are particularly weak (Leyendecker et al., 2008). Junior secondary curricula are typically designed as a preparation for SSE, not as an extension of primary education. They are often overloaded with extensive subject options that are only explored superficially. Inadequate time is often allocated for math, science and language education. Rote learning dominates with little attention to the development of analytical skills, problem solving or communication and teamwork. They are often based on unrealistic assumptions on the level of mastery of core subjects acquired by primary graduates.

Reducing the overload of subjects allows for more interactive and hands-on pedagogy, enables a more focused, cost-effective and manageable structure of the curriculum, and allows for valuable extra-curricular activities that have a high potential for personal development and maintenance of cultural and social cohesion (Anamuah-Mensah et al, 2002). Table 6.2 provides an overview of the JSE curriculum structures in five SSA countries. For comparison, subjects and learning areas are grouped in related categories. Time allocations are in brackets. South Africa has organized its "Curriculum 2005 (C2005, grades 7 to 9)" in eight learning areas instead of subjects (Howie, 2002). Several other countries are also moving to integrate science the teaching of science subjects for reasons of quality and efficiency.

In many SSA countries, the JSE curriculum includes subjects titled "life skills", with the justification that for most African students the JSE level is the end-level of formal education. "Life skills" as a subject is defined in the JSE curriculum in a variety of different ways. Mostly, the subject is meant to provide students with practical skills to participate within their immediate economic and social environment. In Tanzania it includes skills such as needlework, tailoring, cooking, simple metalworking, or domestic wiring; in Ghana life skills is understood as pre-vocational options of local crafts like basketry, leatherwork, weaving, pottery, textiles, and sculpture, to name a few.

Increasing the vocational training opportunities in general secondary education is advocated by many African politicians and educators, and remains popular with some donor agencies. Yet international experience provides robust evidence of problems inherent in this approach (Chapter 2). Countries with vocational subjects as part of the JSE curriculum may wish to consider following:

- Eliminating vocational training subjects can relieve part of the pressure on an already over-loaded JSE curriculum; it frees up time and other resources that may be better used to increase language skills and numeracy; and it can provide space for curriculum reorganization and different teaching approaches to deliver a wider range of skills.
- Unit costs per student per subject for vocational subjects in Botswana, for example, are between 2.5 and 4 times as high as compared to other subjects in Kenyan secondary schools the ratios are between 5.6 and 14.5 times higher (Lauglo, 2004).
- Logistics for facilitation and teaching of vocational training subjects are complex and not easy maintained and sustained, particularly for an educational system that are expanding dramatically.
- Primary students will often lack the general education foundation for effective vocational training.
- The teaching of vocational training subjects requires sufficiently trained and competent trainers and teachers; this implies that trainers will have practical experience, which is often hard to get, expensive or simply not available.

A similar caution applies to the creation of separate vocational schools at the junior secondary level. Where they exist they are underfinanced with low quality programs

catering to small number of –mostly poor- students[78]. They are not a solution to either the challenge of expanding secondary education access or the problems of youth unemployment.

In sum. Curriculum reform at the junior secondary level must be an essential part of the reform agenda as countries move to include all or part of junior secondary education in a basic education program of 8 or 10 years. Curriculum designers will need to recognize that they no longer prepare a small group for further formal education, but that they will now have to prepare also a much larger group for work and lifelong education and training. This is not an argument for specific vocational training at this level. On the contrary, it is an argument for providing students with the generic skills necessary for future training for a wide range of occupations and for further learning, while postponing –as is the trend in OECD and middle income countries- specific vocational training until the senior secondary or even tertiary level. JSE curricula will need to build on primary education, recognizing that subject mastery for many students is uneven. They must emphasize instruction in core subjects such as mathematics, science and an international language; ensure that students acquire analytic and problem solving skills; and most important have the motivation and the competence for further learning and skill acquisition. Beyond academics, curricula will have to recognize the importance of preparing students for healthy living and active participation in rapidly changing increasingly democratic societies. SSA countries (for example Botswana and Senegal) recognize the need to also introduce more guidance and counseling and citizenship education as part of the secondary curriculum to positively influence societal developments, or to counter the vacuum created by the disintegration of traditional structures.

Beyond basic education: Preparing for work and further learning

In many SSA countries –especially those that currently have low secondary enrollments- access to formal general SSE will remain selective with curricula that emphasize preparation of students for further education and training in universities and other tertiary level institutions that offer technical, vocational and professional education programs. But these formal general SSE programs will need to be complemented by programs that offer opportunities to JSE graduates for further learning and skill acquisition in technical and vocational education and training (TVET) at senior secondary level. Some of this will be in formal institutions; but increasingly these programs will be in less formal settings often catering to students who already are employed and want to upgrade their skills or prepare for new job opportunities.

A key choice for the SSE curriculum is whether to prepare in the same institution students for both tertiary education and work, or whether technical and vocational education should be offered in separate institutions run in parallel to general SSE. Two curriculum structures for general SSE dominate in SSA, each subscribing to a different understanding of exit skills at the end of the secondary level. The first and wider-spread structure prescribes Language (either the local and the instructional language, or the

[78] See for example Lewin, K.M., 2006, "Financing Universal Post-Primary Education and Training in Uganda, *Ministry of Education and Sports*: Kampala for a discussion of the situation in Uganda/

instructional language only, e.g. Ghana and Senegal) and Mathematics as compulsory core subjects, or as part of a wider range of compulsory core subjects, with additional elective subjects optional for students to choose. The second structure, e.g. in Tanzania, offers specialized and highly selective combinations of core courses of usually three subjects, which the SSE schools may define, and which define in turn the secondary school. The Senegalese SSE curriculum can be located in-between the two structures. It

Table 6.3 Senior Secondary curriculum structure in five SSA countries

Country	Compulsory core subjects	Options / streams / biases / programs	Choice
Botswana	English; Setswana; Mathematics	Humanities and Social Sciences, Sciences (Single, Double, Pure) Creative, technical and vocational Enrichment	Minimum of 8 subjects: one subject minimum from humanities, sciences, and social sciences. In addition, two subjects from creative, technical and vocational. One subject from enrichment
Ghana	English, Mathematics, Integrated Science, Social Science, Religious and Moral Education, Physical Education	Agriculture, Business (Accounting & Secretarial), General (Science), General (Arts), Vocational (Home Economics& Visual Arts), Technical	3 or 4 choices elective subjects, a variety of different choices offered for each of the programs chosen. Elective M on higher difficulty level and with additional topics compulsory for General Science.
South Africa	Afrikaans and English compulsory; plus 4 more core subjects from the groups: A: compulsory language group; B: Mathematics; C: Additional language; D: Bible studies, economics, geography, history; E: TVET subjects	General education Science orientation Economical	Minimum of 6 core subjects, plus 4 subjects from steams.
Tanzania	Exemplary subject choices, depending on JSE results: HGL (history, geography, English); ECA (economics, commerce, accountancy, plus basic applied M); PGM (physics, geography, advanced M); PCM (physics, chemistry, M); CBN (chemistry, biology, nutrition); EGM (economics, geography, advanced M); CBG (chemistry, biology, geography); HKL (history, Kiswahili, language) More subject choices are offered.		Some of the subject combinations are greatly under subscribed.
Senegal	Core subjects, except for the technical stream, with different allocations of time: French; Mathematics; Physical Science; Science of Life and Earth; English, History & Geography.	2 language streams (~67% of students); 2 science and 1 technical stream (~28%); 1 economy stream (~5%)	

Source: Leyendecker et al., 2008

offers different streams in either areas of languages, sciences, technical education, or commerce that consists of core subjects, but with different emphasis and time allocations; plus additional compulsory subjects for each stream, e.g. philosophy for the languages In Ghana, schools in most cases modify the choice of subjects because of lack of teachers or to satisfy university entry requirements (Ampiah, Akyeampong and Leliveld, 2007).

Table 6.3 provides an overview of the variety in the SSE curriculum structure in five SSA countries. Technical and vocational education (TVET) is offered as a curriculum option or in separate schools. The arguments –backed up by a well documented body of international experience and research- against the integration of traditional vocational subjects in the program of general SSE are similar to those that were summarized above for junior secondary education. This would suggest that specialized institutions are the best location for job specific vocational and technical education programs, especially when they have close linkages with employers, can respond flexibly to changes in labor market demand and offer an array of training programs with for different occupations with different training objectives and varying durations. Often these institutions will not be organized as schools and will managed by the private providers, autonomous agencies or Ministries other than the Ministry of Education.

Many countries – Senegal for example- aim to increase the number of students in technical and vocational SSE institutions and actively limit the percentage of general SSE education. Yet, the per student cost of TVET programs is high; three or four times that of SSE (Chapter 5). To be successful these strategies need a well defined and feasible strategy for financing, well structured public-private partnerships and curricula that are closely connected to employer preferences and labor market demand. Box 6.5 summarizes the experience and policy options.

In sum. SSE will need to evolve towards a system that offers diverse opportunities to students graduating from junior secondary school. Access to general secondary education programs will remain selective in the foreseeable future. Maintaining the quality of the programs is critical to ensure a supply of well qualified candidates for universities and other tertiary institutions. This will often mean a concentration on a set of core subjects and a limitation of subject matter options. For many graduates of JSE opportunities for further education and training should be offered in TVET institutions some as full time students; many other times as part time students in combination with work. Curricula will need to be flexible and respond to demonstrated labor market demand and designed in consultation with employers. An important role of the government is to establish public-private partnerships to support such training opportunities ensure their quality and provide financial support in particular to poor students who may be excluded because of their inability to pay.

Improving student learning in mathematics and science

International economic and technology developments have increased the importance of mathematics and the exact sciences at the secondary level. Performance in these subjects on international tests has been linked to better economic growth performance in several studies (Chapter 4). Secondary schools are expected to provide students with the general

knowledge and skills in the sciences necessary to function in their local society; at the same time the desire to be competitive in a global market makes increasing the number of students in higher-level math and science related study areas a national development priority. Modernizing the mathematics and science curriculum in the JSE and SSE cycles and finding balancing between the expectations for local relevance and the demands of training a competitive labor force is almost everywhere on the education reform agenda.

Currently science programs often are too academic and too difficult for the majority of students. In addition there often is a large gap between the intended formal curriculum and what is actually taught in the classroom – the operational and experiential curriculum (Box 6.4). The reasons are well known: (i) lack of teaching materials and other resources; (ii) curriculum crowding and poor time-on-task management leaving little room for a learner-centered approach; (iii) poor curriculum sequence where many topics are taught too early; (iv) lack of teacher confidence with the subject content – mostly due

Box 6.5: Skill Development in Sub Saharan Africa

A recent World Bank study explores the question what African governments can do to ensure that skills required for growth and development are developed in a cost-effective way and that all young people have the opportunity to acquire new skills and improve the ones they posses. Getting the macro-economic context right is an essential first step. The best strategy for improving the quality and incidence of training is likely to be strong growth in the demand for skilled labor within firms. The incentives that this provides for financing and the provision of training are important to the successful supply of Technical and Vocational Training (TVET). Second, basic education is a prerequisite to the acquisition of new skills. Low levels of basic education handicap training. A solid basic education is the best preparation for a wide range of jobs and often will shorten the length of training required. Basic education enables people to become learners throughout their lives, to specialize and update themselves as economic opportunities and technology change recognizing that basic education provides the foundation of skills and flexibility needed in any work force. Third the report recommends a strategic framework that will help African governments to establish more efficient training markets, diversify training opportunities and work in partnership with private sector employers in the formal and informal sector to ensure equitable and efficient skill development. The main elements are:

- *Improving public training* by providing individual training institutions and managers with increased autonomy and accountability for results has improve the relevance and quality skill development and encouraging innovations in the delivery of new shortened competency-based program providing skills training on a schedule that accommodates the needs of clients has opened up new training market for public training systems.
- *Opening markets for private institutions* including non governmental organizations (NGOs), religious-based providers, and for-profit trainers; quality is often a major concern providing information to clients about the performance of individual institutions is an effective form of consumer protection and to enforce these standards.
- *Recognizing formal sector enterprises* as trainers since African enterprises also provide training, and they are an important component of supply in training markets
- *Building skills for the informal economy* where most of the non-farm poor work by supporting training of master crafts-persons and shifting financing to the demand side through training funds and vouchers for workers can elicit a new supply response from trainers for the informal
- *Focusing government financing on strategic priorities* in the provision and financing of TVET by shifting sector financing from an input-based to an outcomes-based model, removing barriers to skills development for the benefit of economic growth and poverty reduction while promoting social equity addressing issues that markets fail to address, and performing market functions that governments are uniquely equipped to perform.

Source: Johanson and Adams (2004)

to poor teacher qualification; and (v) large classes which inhibits practical lab-classes and learner-centered problem solving. Unsurprisingly student performance is often disappointing. In 2000, Namibia had only an 18% pass rate in JSE mathematics, and in 2001 Zimbabwe had a 28% pass rate in JSE core science. In senior secondary education, student performance in the combined or integrated sciences is generally lower than in the elective science programs.[79]

All ten countries included in the SEIA-SMICT study (Ottevanger et al, 2007) mention lack of relevance as a major area of concern related to the mathematics and science curricula. Throughout SSA the challenges of development are constant reminders of the need to make these curricula more responsive to local needs. Issues such as environmental degradation, narrow industry bases, low agricultural productivity, high infant mortality and morbidity, and the HIV/AIDS epidemic constantly place new demands on the science curriculum. In response many new topics have been included; but adding these without dropping less relevant ones has often led to major curriculum overload in. A striking example comes from Botswana where the time allocation for science classes was reduced by more than half without corresponding changes in the content in the syllabus[80].

SSA countries will thus need to pay particular attention to the quality, relevance, focus, and time available for teaching and learning of mathematics and science subjects in secondary schools. This is especially important with a student population that is increasingly heterogeneous in terms of ability levels and future aspirations in the math and science domains. This raises new questions about what content is most relevant for Africa's math and science curricula and how to balance subject matter depth and coverage. Addressing these questions will require that countries have a clear vision on what the society-related priorities are. These can then be reflected in a curriculum that strikes a balance between them, with more emphasis on skills to solve real-life problems and more life-related examples and applications in textbooks. The JSE syllabi in Botswana and Namibia (Life Science) and the mathematics syllabus in South Africa are promising examples in this respect.

Many SSA countries are moving towards more integrated science approaches, especially at lower secondary levels. This is in line with international trends, and can enhance the relevance of the science curricula and address the curriculum overload. The benefits of integrating the separate science disciplines into broader science learning areas are significant: provision of a more holistic picture of science, a focus on real-world problems that cut across areas, and the promotion of science reasoning skills across a range of learning contexts. This is especially vital at the junior secondary level where it is most important to provide a broad base for living in rapidly changing and complex societies which demand increasingly judgments and decisions informed by scientific understanding. Integrated science courses contain at least a combination of biology, chemistry and physics. New topics have been added to the curriculum, such as

[79] It is generally true that more capable students tend to pick elective courses.
[80] It should be noted that curriculum overload is not typical of countries in SSA. Worldwide, it appears to be easier to get things into the curriculum than to take them out.

HIV/AIDS education (in all Anglophone countries except Botswana), environmental education, and issues related to science and technology. Sometimes, as in Ghana and Namibia, they may include agricultural and environmental topics.

It is important to note however that in many instances implementation problems have thwarted the introduction of integrated science programs. Where learning areas or integrated subjects have been introduced in the junior secondary curriculum (e.g. Namibia, South Africa), students are reported to lack the content knowledge for continuation at the senior secondary level where education follows the traditional subject divisions. Tanzania, has integrated physics and chemistry into one subject. However, the combination is commonly perceived as formal only. In practice, schools will teach the subjects with two teachers, and divide the time allocated between the two subjects. Ghana offers integrated science at both the junior and the senior secondary level, but the subject is mainly divided into its components (Chemistry, Physics, Biology, Agricultural Science), and taught by more than one teacher. These difficulties arise from at least three factors:

- Teachers already struggle with new approaches to teaching that are commonly attached to new subject combinations, and are expected to "keep up" with new developments.
- Teachers lack the required combined knowledge of related subject contents to teach the integrated learning areas in a meaningful way since they have not been trained this way (although Ghana provides for integrated science studies in teacher education);
- The instructional materials (e.g. textbooks) for both learning areas and the new pedagogical approaches are lacking (at least for now);

Yet, promising examples of integrated science syllabi, structured around multidisciplinary themes, can be found in SSA: the JSE Science Syllabus in Botswana, the Life Science syllabus in Namibia, and the Science and Mathematics programs in South Africa. The GEEP[81] materials in Senegal also provide a good example of how family life education can be approached in a multi-disciplinary way, combining insights from the various science domains and relating to issues in everyday life. The Science Teacher Association of Nigeria developed an Integrated Science syllabus and produced many textbooks, teacher guides and pupils workbooks in integrated science, agricultural science and mathematics. It also helped organize training workshops for secondary teachers to familiarize them with new methods and techniques for successful and effective implementation of new curricula. Integrated science has clear educational and financial benefits. There is no good reason why implementation cannot be successful if the instructional materials are available and there is significant in-service support for existing teachers and integrated science is part of the pre-service curriculum.

Good science teaching especially at the SSE level requires specialized facilities, equipment and supplies for teaching practical science. The high cost makes it attractive to spread these over as many students as possible. Resource centers shared by several

[81] Groupe pour l'étude et l'enseignement de la population (www.geep.org)

schools are designed to achieve this. Senegal, Namibia, Botswana, and Ghana, for example, have introduced resource centers, separate from secondary schools, as hubs for professional development and for exposure to practical elements (for teachers and sometimes students). Ghana has over 100 Science Resource Centers attached to secondary schools. They have extensive inventory of science and mathematics equipment, including ICT facilities. They also allow local production of teacher support materials. Senegal established "blocs scientifiques" in urban areas in the early 1980s.

In conclusion. To address the math and science curriculum weaknesses policy-makers need to make science knowledge more accessible to more students without lowering standards for those who will become the scientists of tomorrow. An overhaul of the mathematics and science curricula is long overdue in most countries in SSA. This process can be facilitated by adopting a clear definition of scientific and mathematics "literacy". The consequence will be that a distinction needs to be made between mathematics and science courses that are aimed at all students (mainly at JSE level and as "core"-courses) and those that are selected by students who want to continue in these subjects at SSE level and in higher education. There is a temptation in mathematics and science curricula (as in all others subjects) to add and not to take out content. This results in overload, makes it difficult for teachers to strike a balance between divergent aims and objectives and often results in incomplete coverage of the curriculum.

Information and Communication Technology (ICT)

All SSA countries emphasize the need to include ICT and computing skills into the JSE and SSE curricula to prepare students for further learning in the technological society. In JSE the main objective is student computer literate, and is usually is restricted to the familiarization with basic computer skills (for example application of common software) and their function in personal and professional contexts. Most of the ten countries surveyed for the SEIA-SMICT study (Ottevanger et al, 2007) have introduced ICT as a separate subject with its own assessment. In several countries, ICT is mentioned as a cross-curricular issue. Integrating ICT into different subject matter syllabi, textbooks, and general classroom practice has been found difficult to achieve in practice. The Computer Awareness program in JSE schools in Botswana is an exception. The course is cross-curricular and non-examinable.

In most countries Computer Science[82] is taught at SSE level. Some countries have introduced it as a separate subject with (in most cases) its own assessment. Most of these courses focus on the computer as a tool for office functions, presentations, acquiring information on internet, and communication through e-mail. It is, however, not clear that the computer science content in SSA curricula is up to date and what exactly is covered. Teaching computer programming with higher level languages is probably not the task of secondary schools. As in industrialized countries labor markets demand general ICT skills from secondary graduates. However, what is asked is usually much more than

[82] There is in fact a good case for renaming the subject "information sciences. For a review of trends in Europe see Eurydice ICT website http://www.eurydice.org/portal/page/portal/Eurydice/ByTopicsResults?topicCode=aacp&subTopicCode=***

simple "computer skills", but a good understanding of how information and data is collected, organized, stored and analyzed. This invokes many more "technology skills" than currently are on offer in the African secondary education and training curricula.

ICT can also contribute to enhance teaching and learning at secondary level. It will not replace teachers but can be used by students in a variety of important applications raging from improving foreign language skills, studying history and geography and practicing key skills of research and analysis. They can also help teachers review subject matter and help identify appropriate instructional strategies and prepare lessons. But ICT in itself can only enhance learning when teachers know how to use ICT as a pedagogical and instructional tool.

ICT studies have found their way into the formal curriculum in much of SSA, but in most schools their existence is embryonic, mainly due to lack of computers, internet connections, and staff expertise. In most cases JSE and SSE students sit through ICT classes that still favor memorization and lower-level skills in ICT. These issues are exacerbated by hardware problems. In many African countries the purchase and installation of computers in primary and secondary schools is supported by donors. The subsequent maintenance of computers and their infrastructure –typically the responsibility of the schools- has become a substantial –an often insurmountable- challenge for schools and educational systems in SSA. ICT laboratories with many more broken down than functioning computers are common. Lack of infrastructure (e.g. telephone lines or other high-speed internet access) often limits the effectiveness of instruction. [83]The resources consumed by maintenance are a significant burden to the school budget and may crowd out resources for textbook purchase. Exceptions are mainly concentrated in resource centers, pilot schools, and teacher training institutes. Most successful are a few, often donor-funded, projects, such as SchoolNet Africa and WorldLinks. In other countries schools have found ways to address kind of problems in partnership with local private providers of computer services and training[84].

In sum. There is little doubt that ICT will need to be incorporated in the secondary curricula in SSA as a subject and as a tool to support learning across the curriculum. The cost are however not insignificant and will often be an obstacle. The practical problems of finding competent instructors, supporting software and keeping hardware operational often jeopardize the effectiveness of instruction. Non-traditional solutions often in collaboration with private providers of technical support and computer training may make it possible to overcome these challenges.

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[83] See SchoolNet Africa (http://www.schoolnetafrica.net/), and in particular SchoolNet Namibia (http://www.schoolnet.na/), which are tackling these problems by providing refurbished, disk-less networked computers to schools, with a server running on a Linux operating system. It provides online maintenance, carried out by trained school leavers, solar power, and wireless access to internet. The use of Linux software avoids the huge costs of software licensing.

[84] Andrew Clegg in a personal communication after the 3rd SEIA conference provides an interesting PPP example from Uganda and Tanzania and probably elsewhere. ICT providers are allocated a room in a school, equip it and provide tuition, and learners pay for the service USD10 per term in Uganda.

Towards effective assessment and examination systems

High stakes examinations are a defining feature of African education systems. Almost everywhere they determine access from primary into JSE, from JSE into SSE and then into Higher Education. Examinations are also "entry cards" into the world of work for most junior secondary graduates. Evidence of the effects of examinations on teaching and learning suggests that if the content of exam items is changed, the content to which students are exposed in class will change in response. When teachers "teach to the test" the learning experience becomes limited and many instructional objectives –especially those that aim for higher order skills- will not be achieved. Examinations should not be an obstacle to quality improvement, but should provide support for it; they should help extend curriculum coverage; reflect their certification function by including content that is appropriate for all levels of student achievement; and provide itemized performance feedback to schools. Box 6.6 summarizes the experience of Kenya in primary education, which could easily be adopted for secondary education.

Box 6.6 Examination reform in Kenya

In the 1970s, steps were taken to reform examinations at the end of primary school in Kenya. The content of the examinations was changed to

- include less items that measured the memorization of factual information, and more items designed to measure higher order skills (comprehension, application);
- focus on the measurement of skills that could be applied in a wide range of contexts, in and out of school.

The changes were designed to affect how teachers prepared students for the examinations and, in particular, to encourage the teaching and acquisition of competencies that would be useful to the majority of pupils who would leave school after the examinations. Two types of information were provided to support these changes:

- incentive information, comprising the publication of a district and school order merit list based on performance on the examination (league tables);
- guidance information based on an analysis of the performance of students nationally on individual questions, which was sent in a newsletter to all schools. The newsletter also explained changes in the content and skills covered in examinations, identified topics and skills causing problems, and suggested ways of teaching these topics and skills.

League tables are no longer published because schools and districts were manipulating the system by presenting only the best students for the examination. The Kenya National Examinations Council continues to produce a newsletter, but lack of financial resources precludes sending it to all schools. It can, however, be purchased from the Council.

Source: Kellaghan and Greaney, 2004

National assessment activity spread through Africa during the 1990s. The Southern Africa Consortium for Monitoring Educational Quality (SACMEQ) project, PASEC, and the Monitoring Learning Achievement (MLA) project have been highly instrumental in building national assessment capacity in more than 20 countries. The information obtained in a national assessment about strengths and weaknesses in the knowledge and skills students have acquired and about how achievement is distributed by gender and location can play an important role in informing policy and decision-making. International assessments provide comparative data on achievement in several countries allowing comparisons among participating countries while providing important opportunities for learning from countries facing comparable constraints and challenges.

PASCEC and SACMEQ assessments so far have focused only on primary education. Only a few African countries have participated in international assessment at the secondary level (Chapter 2). There is a strong case to be made to extend the coverage of PASEC and SAQMEC to include secondary education (see Chapter 8 for a further discussion). The results of such internationally comparable testing will often provide an incentive to review existing policy and practice and consider strategies for improvement. Although classroom formative assessment[85] has attracted the least attention in proposals to use assessment to improve the quality of education, it would seem to have the greatest potential to enhance students' achievements. In SSA, teacher's assessments are often of poor quality and do little to foster the development of higher-order and problem-solving competencies in students. Unfortunately, improving teachers' assessment practices is more difficult than improving or developing other forms of assessment.

Table 6. 5 Examination results JSE level in four SSA countries

Subject/Country	Botswana (2004)	Ghana (2003)	Senegal (2005)	Tanzania (2004)
First language	77.3%	n/a	Overall success rate (2005: 30.2%, 2004: 55.4%)	no subject detailed data available
Second language	74.6%	58.3%		
Mathematics	71.3%	59.6%		General pass rate (failures grade E) 88,1 %
Science	68.6%	57.1%		
Social Studies	71.1%	58.9%		
Source: Leyendecker et al., 2008				

Examination results are often disappointing. In Senegal and Ghana pass rates less than 60%. (Tables 6.5 and 6.6) In other countries (Botswana for example) the majority of students pass examinations in the lowest category only. Osaki and Ndjabili (2003) report on the motivational factor of national examination ranking which has the consequence that teachers focus mostly on examination success at the expense of general knowledge and understanding. "Teachers teach for examination success" is a commonly repeated phrase all over SSA. What is not assessed is often not included in secondary classroom teaching and learning, partly due to the "high stakes" nature of the examinations. Conversely, various commentators on the guaranteed and nearly 100% transition rate from primary to secondary education level in Botswana have noted that the lack of examination consequences reduces the motivation of students (Leyendecker, 2008).

Modern curricula in SSA formally aim at learning outcomes like comprehension, application of knowledge, methodological and social competencies, and problem solving. Some SSA countries claim that a wide range of techniques is used to assess and examine the knowledge and skills of secondary students. However, the reality looks remarkably

[85] Formative assessment takes place during a program, thus providing the opportunity for immediate evidence for student learning. Classroom assessment is one of the most common formative assessment techniques. The purpose is to improve quality of student learning and should not be evaluative or involve grading students. Summative assessment is comprehensive in nature, provides accountability and is used to check the level of learning at the end of the program.

Table 6.5 Examination results at the senior secondary level in five SSA countries					
Country Subject	**Botswana (2004):** BGCSE results graded on a 8point scale from A to G, below G are unclassified (U). Percentages approximated	**Ghana** (2001): Pass rates	**Senegal** (2005):	**South Africa** (2003): Year 2000 results in brackets	**Tanzania** (2004):
First language	Setswana: 76%		4 main streams: 2 language and humanities, 1 science, 1 business. Grading ABCD, E failed. Total pass rate: 45.5% (2002: 39.7%). Passed in grades ABC: 6%D: 94% Girls. Results in the 2 main streams 'Language & Humanities" slightly better than in Science streams	Candidates with six or more subjects. Total pass rate: 73.3% (58%) Passed with endorsement: 18.6 %, (14%) Passed without endorsement: 54.6%, (44%) Candidates failed: 26.7%, (42.1%)	No subject detailed data available. Overall pass rate: 93 %.
Second language	English: 77%	English: 61.3 %			
Maths	53.1% 3	48.8 %			
Science	Single Science, double Science, Physic, Chemistry, Biology: grades B,C, and D 80% or more, except Single Science 63%	50.7 %			
Social Science	90%				
Source: Leyendecker et al., 2008					

different. In many, if not all, SSA countries, current assessment and examination practices are largely limited to the recapitulation of memorized facts-even when curriculum statements emphasize higher skills and competencies. Examinations and classroom assessment which only require students to reproduce statements, facts and definitions will inevitably train students for rote learning and memorization, whatever the secondary curriculum has aimed at. Without changes in current classroom assessment and examination practices curricular changes have little or no chance to make it into the classroom. An effective collaboration between the agencies involved in curriculum development and examinations and a clear role definition is an essential element of curriculum reform: the former should clearly define the knowledge and skills that students are expected to acquire; the latter should ensure that these are tested as specified Another major factor affecting the effectiveness of examinations for certification and selection are questions about the extent to which cheating and corruption affects examination results; honesty in correction is an important quality criterion, and closely connected to questions of equity and quality. Although the Ghana junior secondary examinations of the year 2002 that were cancelled and repeated nationwide, are a rather extreme example, experiences of widespread examination leakages and other fraudulent examination are commonly reported all over SSA (Greaney and Kellaghan, 2006).

Reorganizing the assessment and examination system in SSA and implementing new instruments is a complex multifaceted task which may include:

- Defining appropriate standards of learning performance as part of a revised JSE

and SSE curriculum[86] and assigning clear responsibility for quality assurance, setting standards and monitoring performance

- Differentiating between minimal and acceptable standards and the need to cater to higher education entrance requirements.
- Including of new forms of assessment for skills not measured in current assessment practices and common examinations.
- Improving in the technical quality of items in examination papers: accuracy of correct response, clarity of language and expression, appropriate levels of cognitive demand[87]; important is setting items in such a way that they measure learning performance and not language proficiency.
- Strengthening and monitoring the process of setting the question papers, specifically the selection, training and monitoring of examiners and moderators.
- Gathering statistical data on trends in learning performance over time, as well as levels of curriculum implementation and learning as a basis for remedial interventions.
- Applying modern technology for assessments and examinations, including ICT.
- Differentiating between levels of cognitive skills for all subjects, based on a bank of test items.
- Using coursework assessments not only to provide feedback for teaching and learning but marks of end-of-year and examination grades, and for providing.
- Inclusion, as much as possible, of practical laboratory based testing for sciences,

The above list illustrates the complex nature of examination reform and the interdependence of various components. There is a need for a comprehensive approach that encompasses: professional development for secondary teachers including test- and examination setting, marking and classroom assessment; organization and management including, selection, training and supervision of examiners as well as developing the instruments and building the capacity to analyze examination results and use them for instructional improvements; an improved and conducive professional exam culture eliminating cheating and fraud; and strengthening linkages with priority learning objectives specified in the curriculum and measuring these in a valid and reliable way.

Conclusion

Curriculum reform must be an important part of the transition of secondary education in SSA from elite to a mass system. In many countries curricula and examination systems have changed remarkable little for decades; often the colonial legacy is still clearly visible in the structure and content of what is being taught. Fifty years after independence there is a strong case for what will often have to be far-reaching curriculum reform driven by concerns about local relevance in rapidly changing societies; the different priorities and aspirations of a much larger student body with a changing social

[86] Standards for the JSE subject curricula should be aligned within the "basic education" curriculum. Standards for the SSE subject curricula should be aligned with the objectives for the SSE "desired graduate profile", which takes into account that for some SSE subjects' content changes often (for example ICT).

[87] This is often problematic. In Botswana, the quality of assessment was described as "characterized by low-quality test items and inadequacy, i.e. the test items are poorly constructed and not enough tests are given" (Botswana Department of Secondary Education, 2003).

composition; and the need in growing economies to train the personnel required for effective participation in a technology driven global economy. This is leading countries to consider to:

- Include all or part of junior secondary education in a basic education program of 8 or 10 years;
- Strengthen the linkages with and preparation for the world of work through vocational preparation modules in senior secondary schools or occupation specific training in TVET institutions;
- Improving mathematics and science teaching by establishing a integrated core science curriculum at JSE, improving teacher qualifications and ensuring an adequate supply of instructional materials thus providing incentives for students to select math and science streams at senior secondary level;
- Incorporate ICT in the curriculum and improve the quality of instruction by establishing linkages with non-government and private providers of training and technical support;
- Ensure that schools prepare students for future learning ("learning to know") and effective participation in civil society ("learning to live together").
- Reforming examination and assessment systems in support of curriculum reform and implementation by moving towards curriculum referenced examinations, regular national assessments of student learning and participation in international or regional assessments for comparison purposes;
- Training teachers in classroom assessment techniques as probably one of the most effective ways to improve student learning.

This is an ambitious agenda, implementation of which will require systemic articulation and selectivity. This process of curriculum change will only be successful if it is explicitly designed to ensure the linkages between the different parts of the system. JSE needs to build on primary curricula and be designed as part of a seamless basic education program. SSE needs to build on JSE curricula and have explicit linkages to the entry requirements of tertiary institutions. Both JSE and SSE curricula will need to emphasize the skills for further learning and skill acquisition. Improvement in mathematics, science and technology teaching cannot be implemented as a nationwide program. Initially the efforts will inevitable need to be focus on selected schools. Priorities for public support in this regard should be given to those schools that serve disadvantaged clientele and that propose collaborative arrangements with non-government agencies and private operators.

Curricula should be closely linked to the desired exit profiles for graduates for both JSE and SSE. JSE curricula will need to recognize that they no longer can be designed to cater to a small group of students in search of further formal education, but that they will now have to prepare a much larger group also for work and lifelong education and training. They must emphasize instruction in subjects that are critical to attaining the desired exit profile of graduates including mathematics, science and an international language. They should also ensure that students acquire analytic and problem solving skills and most important have the motivation and the competence for further learning and skill acquisition. Beyond academics, curricula will have to recognize the importance of preparing students for healthy living and active participation in rapidly changing

increasingly democratic societies. Job-oriented vocational training is best postponed until the senior secondary level and offered in specialized institutions, not general secondary schools.

SSE will need to develop towards a system that offers a wide range of education and training opportunities to students graduating from junior secondary school. Access will have to remain selective for the foreseeable future, especially in general secondary schools and formal training institutions. To provide opportunities for further learning to those that do not gain admission in these, will be important to support the development of other training opportunities in non-formal institutions, through apprenticeships, or in training centers operated by private providers and enterprises. Some of these will be full time programs; many others will be offered part time possibly in combination with work. Curricula will need to be flexible and respond to demonstrated labor market demand and designed in consultation with employers.

There is robust research evidence that suggests that strong performance in math and science in international assessments is strongly associated with economic growth performance. Yet the performance of students from SSA in these subjects is often disappointing. The subject matter is perceived as difficult and many students avoid advanced studies in these areas when they can do so. A redesigned curriculum in science ad math should provide a solid understanding of the basic principles with practical applications linked to the local environment for all students, as well as opportunities for more advanced work for students who want to pursue careers that require a deeper understanding of science and math. Curricula that focus on the depth of understanding usually provide better results than those that emphasize coverage of a large number of topics. Teacher training and support, provision of an adequate supply of instructional materials and opportunities for practical application are essential for the successful implementation of science and math curricula.

A basic understanding of and competence in the use of ICT is an objective that has been introduced in secondary curricula in SSA. At the junior level the emphasis is typically on teaching computer literacy including the use of common software programs. At the senior level the focus is on the use of more advanced applications for research and problem solving. ICT related curricula will need to adapt to rapidly changing technologies and labor market demand. In most cases this requires regular review (every 3-4 years) of the content (and the related teacher training requirements). In practice many students have only limited access to computers, curricula are often designed without consideration of realities at the school level and few schools have teachers able to teach ICT effectively. The use of ICT is rarely integrated in the teaching of other subjects. Yet preparation for a world of work which is increasingly dependent on the use of ICT makes it imperative to offer students the opportunity to acquire basic ICT competencies. Investments that provide hardware and software support and include provision for teacher training can have promising results especially when implemented in partnership with private sector providers. Financial constraints, however, may make a selective implementation almost inevitable and care should be taken that allocations for ICT are not made at the expense of textbooks and other essential instructional materials.

High stakes examinations cast a large shadow over education systems in SSA. Their principal purpose is the selection of students for the next level. Many still derive standards from those prevailing in industrialized countries –typically the former colonial power. Many call for recall of memorized facts rather than understanding and demonstration of competence. The linkages with key curriculum objectives are often weak. The potential of examinations to improve instruction through systematic item analysis and feedback of results to schools has rarely been tapped. Few countries in SSA have participated in international assessments or regularly conduct national assessment of student learning; yet these are critically important instruments for the management of a secondary education system that focuses on student learning performance as its key priority. Classroom assessment are critical tools for teachers as they help students

Table 6.5: Options for reform Junior and Senior Secondary Education

Issue	Possible response at JSE	Possible response at SSE
High stakes examinations do not support curriculum change and learning	• Ensure that examinations are curriculum-referenced • Feed back item specific examinations results to schools	• Ensure that final examinations and university entrance examinations are curriculum-referenced • Feed back item specific examinations results to schools
Poorly designed curricula	• Take account of cost of curriculum decisions • Limit curriculum options	• Take account of financial and human resource constraints • Limit choice and options by specifying minimum enrollment requirements
Little knowledge about student learning	• Develop national assessments • Participate in international assessments	• Develop national assessments • Participate in international assessments
Weak system linkages	• Integrate JSE curricula with primary curricula • Provide remedial instruction to poorly prepared primary graduates	• Build on JSE curricula and establish linkages with tertiary institutions.
Weak links with world of work and labor market	• Link curriculum content closely to formal "graduate profiles" • Emphasize generic skills • Postpone pre-vocational and occupational training to senior secondary level	• Link curriculum content closely to formal "graduate profiles" • Develop a wide range of training opportunities to respond to labor market demand and student aspirations
Low levels of student leaning especially in math and science	• Increase time allocations for math and science and for language of instruction • Strengthen teacher training and support • Gradually move towards integrated science • Encourage school and classroom assessment	• Provide adequate facilities and equipment including resource centers • Emphasize curriculum depth rather than coverage • Encourage school and classroom assessment
Inadequate preparation for ICT use in work and further learning	• Provide introduction to ICT	• Offer ICT as a subject and as a tool to support instruction in other subjects

improve their learning performance, but they are often not or at best or poorly practiced as a way to identify student learning outcomes and target remedial instruction.

Table 6.5 summarizes the options for reform that governments may wish to consider.

> What greater gift can we offer the republic than to teach and instruct our youth?"
> Cicero

Chapter 7
Providing Effective and Equitable Opportunities to Learn[88]

Secondary education strategies that do not provide meaningful and equitable opportunities to learn are a waste of public and private resources and a threat to social cohesion. Improving the quality of instruction critically depends on the recruitment, training and retention of competent teachers, support for practicing teachers, effective school leadership and the availability of an adequate supply of instructional materials, in particular textbooks. Doing so equitably means providing schooling opportunities of acceptable quality that are accessible to students without incurring the high cost associated with boarding and the obstacles of very long travel distances. This chapter explores what policies countries can be considered to ensure an adequate supply of competent teachers, well prepared school leaders and counselors, regular provision of text books in the resource constrained environment discussed in chapter 5. It also explores how quality opportunities to learn can be made available equitably, to girls and poor students outside urban areas.

Competent Teachers: The Backbone of an Effective System

The rapid growth of secondary enrollment in Sub-Saharan Africa has outpaced the growth of the number of teachers (Chapter 1, Table 1.1). Recruiting the number of teachers necessary to meet the demand of rapidly growing secondary systems presents several difficulties. First, the supply of suitable teachers is constrained, both by the output of well educated secondary graduates, particularly in certain subjects such as mathematics and science and by the capacity of the teacher education systems. Second, these shortages are exacerbated by the fact that many secondary teachers are not career teachers. A strong demand for educated personnel often adversely affects teacher supply, especially in growing economies. Lewin and Stuart (2003) estimate that the length of time teachers teach after qualification before moving to another job is often under 10 years. For math and science teachers it is often much less. Third, the finances available to employ teachers are limited, and often insufficient to meet the demand, given current deployment policies and salary structures (Chapter 5).

The teacher supply challenge is not only quantitative, however. Teachers are also expected to engage with an array of new challenges. Improvements in the current levels low learning achievement (Chapter 1) will require more effective instructional strategies. Increased enrolment and limited public resources will mean larger classes for many teachers, filled students with different personal characteristics and often a more limited

[88] The sections in this chapter related to teachers, head teachers and supervision were first drafted by Aidan Mulkeen. The section on textbooks is based on a background paper by Tony Read and Amanda Buchan (2007).

grasp of the language of instruction, and lower levels of literacy, numeracy and analytical skills (Lewin, 2002). Managing more diverse classrooms will require improved classroom management techniques and different teaching methods (Condy, 1998). In addition, teachers may be expected, for example, to avoid physical punishments, create a collaborative classroom climate, promote analytical thinking, encourage good citizenship and gender-fair attitudes, and incorporate ICT into their work (Chapter 6). They are increasingly called upon to engage with parents and the local community, and to build collaborative relationships with them. Taken together, countries face an intimidating challenge: they need to increase the number of teachers, and improve quality of teaching, and equip teachers to deal with a more complex task, while reducing the cost per student.

The starting point must be the recognition that teacher capability is central to education quality. What makes a good teacher is, less clear, however. The level of education and teacher training has been shown to make a difference, but they do explain only part of the variation in teacher quality. There are other factors, less measurable by conventional means, which also play an important role (Box 7.1).

Box 7.1: Quality teaching is vital for improving student learning

Student learning is influenced by many factors, including: students' skills, expectations, motivation and behavior; family resources, attitudes and support; peer group skills, attitudes and behavior; school organization, resources and climate; curriculum structure and content; and teacher skills, knowledge, attitudes and practices. Schools and classrooms are complex, dynamic environments, and identifying the effects of these varied factors, and how they influence and relate with each other – for different types of students and different types of learning -- has been, and continues to be, a major focus of educational research.

Three broad conclusions emerge from research on student learning. The first finding is that the largest source of variation in student learning is attributable to differences in what students bring to school – their abilities and attitudes, and family and community background.

The second is that factors to do with teachers and teaching are the most important school level influences on student learning. In particular, the broad consensus is that "teacher quality" is the single most important school variable influencing student achievement.

The third conclusion from the research, concerns the correlates of teacher quality. Most research has examined the relationship between student performance and teacher characteristics such as qualifications, teaching experience, and indicators of academic ability or subject-matter knowledge. Such research generally finds a positive relationship between these teacher characteristics and student performance, but perhaps to a lesser extent than may have been expected. A point of agreement is that there are many important aspects of teacher quality that are not captured by the commonly used indicators. The teacher characteristics that are harder to measure, but which can be vital to student learning include the ability to convey ideas in clear and convincing ways; to create effective learning environments for different types of students; to foster productive teacher-student relationships; to be enthusiastic and creative; and to work effectively with colleagues and parents.

Source: OECD, 2004.

General education

The effectiveness of secondary teachers is strongly related to their level of mastery of the subject matter they teach. They should not only know the content they have to teach, but have a deep understanding of it. Studies in the US show that teachers' advanced content course work is especially important at the upper secondary level (Rice, 2003). But there

may be a principle of diminishing returns: it is important that teachers be educated to a higher level than the level at which they are teaching, each additional level of education above that also improves quality, but to a smaller extent.

General education requirements for teaching at lower secondary level vary, with some countries allowing teachers with the equivalent of upper secondary level to teach (Table 7.1). In many countries less than half of their teachers meet the required standard including Comoros (45%), Ghana (42%), Benin (33%), and Uganda (32%). Most countries require a graduate degree to teach at upper secondary level. Distinguishing between the requirements upper and lower secondary education allows some countries to have non-graduate teachers at lower secondary level, and a mostly graduate teaching force at upper secondary level. This pattern ensures that most students are taught by a teacher who has been educated to at least one level higher than the level at which they are teaching.

Table 7.1: Qualifications required for upper and lower secondary teachers (selected countries)

		Lower secondary		Upper secondary	
Country	**Reference year**	**Years of schooling required**	**Proportion meeting the standard**	**Years of schooling required**	**Proportion meeting the standard**
Burkina Faso	2002	16	100	16	100
Chad	2003	15	35	15	47
Mali	2003	12	x	16	…
Uganda	2004	13	44	15	32
Guinea	2003	16	…	16	…
Lesotho	2003	14	83	16	x
Niger	2003	15	90	16	92
Senegal	2003	15	100	15	100
Cuba	2003	17	84	17	85
Ecuador	2000	16	65	16	x
South Africa	2003	17	…	17	…
Zimbabwe	2004	16	59	16	x

… no data available x data included in other category or column
Source: UIS, 2006b

In summary, the evidence suggests that better educated teachers achieve better results. Ideally, it may be desirable to have an all-graduate secondary teaching force, but in the medium term most African countries will be unable to find and finance sufficient graduate teachers, especially in a context of increasing enrolments. Rapidly growing systems may end up with a few highly qualified, high cost teachers, many untrained teachers and increasing class sizes. The alternative of constrained enrolment growth is rarely feasible. Countries may therefore need to plan for use of teachers with lower formal qualifications, particularly at lower secondary level. Whatever qualifications are required, it is important that they be realistic and affordable and that the consequences of less than optimal staffing patterns is clearly recognized. Failure to take into account the

quality of teachers actually employed can lead to unrealistic expectations in curriculum, and tends to reduce the perceived need for in-service supports for teachers.

Professional training

Teacher education programs vary in their organisation, duration and scope, but here is a commonality in the content (Coolahan, 2002; Nwaboku, 1996) which typically includes:

a) academic studies, usually in the school subjects to be taught;
b) pedagogic preparation , comprised of
   (i) studies in educational sciences, such as psychology and sociology of education;
   (ii) study of methodologies, and teaching methods,
   (iii) teaching practice.

The major curriculum issues relate to the balance between the academic studies (the content to be taught), and the pedagogic training (Lewin, 2000). Two predominant models of secondary teacher preparation have evolved: the concurrent and the consecutive model. The concurrent model involves a course with academic subject knowledge, being combined with educational and professional studies throughout the course duration. In the consecutive model, students first get qualifications in the subjects they wish to teacher, and then have a shorter teacher training course (Coolahan, 2002).

In Africa a variety of systems are used (Table 7.2), and in many countries both are provided as parallel alternative routes into teaching. Each of the models has important financial implications. The consecutive model may transfer much of the cost of teacher training onto the student, depending on how higher education is financed. The concurrent model is more commonly provided free of charge to students, and may provide access to teaching for students who might otherwise be unable to afford it.

Table 7.2 : Secondary teachers: levels of recruitment and duration of training

Country	level of recruitment	Duration
Equatorial Guinea	Graduate professor or year pre-academic	3 years
Cameroon	High school diploma or CGE	3 years
Mali	Bachelor's degree	2 years
Cameroon ENSY	Bachelor's degree BA	2 years
Botswana (university)	BEd, BSc, BA	1 year
Angola	High school diploma (11th year)	4 years

Source: UNESCO, 2003b

Apart from small-scale project experiences, the literature provides little evidence of teacher education functioning as an effective agent for educational change in sub-Saharan Africa. For example, Ware (1992) cites researchers in South Africa, Nigeria and Kenya describing the difficulty of changing secondary teacher classroom practices. A number of structural difficulties have been reported with teacher education:

- *Overemphasis on education studies.* Lewin (2000) has argued that teacher education often concentrates on the history, psychology and sociology of education to the detriment of pedagogy. This leaves students ill prepared for

classroom teaching. Student teachers often find it difficult to see the practical implications of the educational sciences.

- *Methodology distant from classroom realities***.** Even the methodological component is often not highly valued. Teachers often complain about the discrepancies between what higher education offers them in the teacher training courses, and what is needed in the classroom teaching (Sun and de Jong, 2001).
- *Weak teaching practice.* Teaching is a practical skill. Teaching practice should be at the centre of the attempt to develop good pedagogical skills. However the value of teaching practice is dependent largely on the quality of supervision and guidance provided during the practice period and initial assignment. Too often, supervision visits are inadequate in number and quality, resulting in little added value.
- *Tendency to teach as they were taught*. The longest and most intensive in-service that all teachers undergo is their own experience learning as students, which often relied heavily on transcription of notes and memorisation of facts for examinations (Ampiah et al, 2000).

In order to be effective, teacher education needs to equip newly trained teachers with practical classroom skills that are so evidently useable that they displace the instinctive replication of the methods experienced personally. Unfortunately, teacher training institutions often have limited capacity to provide such skills. Most teacher trainers no longer practice in classrooms. They may have little recent classroom experience and so risk transmitting theories not personally validated in practice (Paniagua, 2002). Even when they were teaching, they may not have been the best teachers, as promotion is often on the basis of academic credentials or seniority. Appointment of appropriate teaching staff may be even more difficult in universities, where the requirement for academic distinction may outweigh the value of classroom excellence (Coolahan, 2002). University based teacher education may have little accountability to the secondary school system, and may even report to a different Ministry, as in Namibia, Tanzania and Zimbabwe (Gaynor, 1998). In Lesotho, the faculty of education delivers diplomas in sciences of education, in agricultural education and in home economics, and provides a BEd. in secondary education and in primary teaching but training programs do not take much into account the subjects taught in the secondary schools (UNESCO, 2003b).

Continuing Professional Development (CPD)

Teachers cannot be expected to work effectively upon completing pre-service training with no additional support or training for the remainder of their careers. CPD is necessary not only to help teachers deal with revised curricula and evolving methods, but also to re-energize and motivate them. Studies on the cost and benefits of different CPD methods are not readily available, and most tend to rely on anecdotal evidence (Christie et al. 2004).

Three main types of CPD model are popular. The cascade model is the most widely used, typically delivered through short-term workshops (Anderson, 2002). While this model is suitable for some kinds of material, the impact of short cascade courses on teaching practice has often been disappointing. There are a number of practical

difficulties with this model: the courses are usually short, teachers often do not see the need or do not have the skills to adopt new practice, the training is divorced from the context of the school, and trainers rarely have practical classroom experience with the new programs or methods (Monk, 1999: Higginson, 1996).

Distance education provides is an option that has attracted a lot of interest on the basis of cost savings (see Chapter 5) and the ability to reach a large number of geographically separated beneficiaries. Providing further education to teachers who continue to be present in school is more attractive than systems where teachers are required to leave and attend institutions full time, for reasons of both teacher availability and cost (Yates, 2000). In the distance education model student teachers spend more time teaching, and less time studying. This is an effective method for delivering experience of teaching, but less effective for academic training in the content knowledge. In Malawi, where this was used with primary teachers, evaluations identified weak performance in content knowledge as a difficulty.

Increasingly, the trend is the promotion of inter-school networks or clusters, wherein staff from a number of schools work together on new curricula or methodologies (Coolahan, 2002). This approach may be slower, but is more likely to have a long term impact on methodology and practices, for veteran and novice alike. Kenya is testing this approach (Box 7.2)

Box 7.2: Continuous Professional Development in Kenya

The SPRED 3 project in Kenya provides one mode of distributed teacher development. In each of 3 districts, each school was invited to select three lead teachers, one each in English, mathematics and science, to participate in the project. Over a 5 month program, these teachers will build subject-teams in their schools and begin to mentor their colleagues. It is expected that within 2 years, 50,000 teachers will have been through the first phase of the program, and there is some consideration of offering accreditation for participants.

Source: Christie et al (2004).

Quality is determined by more than formal qualifications

One of the most interesting findings from the research on teacher effectiveness is that a large part of the variation between teachers cannot be explained by teacher education or qualifications. In short, there are some other factors that contribute to the performance of teachers (VSO 2002):

- *Personal characteristics*. Selecting teachers who have the motivation to teach, display empathy to children and can communication effectively could improve the quality of teaching. Unfortunately, many of these characteristics are difficult to assess and too often teachers are selected purely on the basis of their academic performance.
- *Social recognition*. Where teaching is seen as an important social function, and a valuable contribution to society, teachers are more likely to perform well. There is increasing evidence that teachers' morale and status are falling. Teachers with low morale are less likely to invest energy into developing and improving their work,
- *Contribution to student learning.* Structures that reduce student performance, or leave teachers facing impossible situations, adversely affect motivation.

- *Opportunities for progression*. While pay and conditions are important contributors to motivation, there is evidence that non-remuneration –especially upward career mobility- and administrative issues are almost as important as the actual level of remuneration
- *Lack of stability of assignments*. Constant moving of teachers and reassigning of classes make it more difficult for teachers to build a relationship with students, or feel a responsibility for them. In one study (IEQ, 2000)., almost 50% of teachers were not teaching the same class at the start and end of the school year

Rethinking Teacher Training

Teacher training is increasingly conceived in terms of three stages (the three "I"s) Initial, Induction and In-career. Given the urgent need to produce more teachers, many African countries have emphasized initial teacher education, while the induction and in-career stages are under-developed. At the same time, the initial teacher education often is too theoretical, and too removed from the reality in schools. If these three stages are seen as part of a continuous process of professional development, there are opportunities to move some of the content to the later stages, when it may appear more relevant to teachers and have a greater impact on practice. Initial teacher education could then become shorter, and more concentrated on the practical skills necessary for the reality of the classroom. Improved selection procedures would enhance the effectiveness of these policies.

Box 7. 3: Improving Teacher Competence in Burkina Faso

Pre-service teacher training in Burkina Faso has been reduced from three years to a one-year program, totaling 30 weeks, including a one-week guided practice teaching session and four-weeks of unguided classroom teaching. During teaching practice student-teachers will receive support from school directors, and be visited at least once by in-service training centers staff, pedagogic advisers, or school inspectors. Student teachers will also participate in training sessions with experienced teachers who are undergoing in-service training. Moreover all teachers in public and private schools will benefit from continuous pedagogic support and advice following a three-pronged approach. The first level of support will be inside the school. Directors will, as one of their prime areas of responsibility, supervise the teaching methods used by all members of the staff and, from time to time, hold short half-day seminars to improve their quality. They will receive an initial 20 days of training in their pedagogic responsibilities. The second level of support involves deployment in the regions of 26 additional Pedagogic Advisers and Inspectors who would be responsible for visiting each school, and each teacher, at least once a year. On the basis of their reports, the inspectorate would elaborate subject-based in-service training programs The CP and inspectors are responsible for carrying out annual six-day, activity-based training for each of the 4,500 public and private teachers to improve their teaching methods and performance. The third level of support is teachers' study groups in networks of neighboring schools. The in-service training would take advantage of the half-day midweek break to organize activities for teachers each week, alternating among different schools belonging to the local network.

Source: World Bank, 2006c

Changing the structure

More effective initial teacher education could be achieved by developing a combination of the pre-service, induction and CPD models. Most often this will mean shifting a significant proportion of the training away from pre-service towards in-service support and training. By blending different types of training, students could be given, for example, short "essential toolkit" training before beginning teaching, and provided with further training through a combination of short courses and self study material as they

Box: 7.4 International trend: more teacher training in schools

In the UK, the school is seen as a partner in teacher training, and is given funding as well as responsibility (Coolahan, 2002). In Switzerland one of the key characteristics of new teacher training colleges is increased time on and importance attached to "hands-on" experience in real school classes. This has come in response to one of the major demands voiced by teachers' professional associations, for all the other duties of the profession – including relations with parents, projects and teamwork and working with the authorities (Kucera and Stauffer, 2003). In Norway student teachers typically work as salaried pre-certified teachers prior to and during their teaching course (Kyriacou et al, 1999).

teach. Box 7.3 illustrates how Burkina Faso is trying to move in this direction. Limiting the initial training time in this way would reduce the cost to the system if teachers leave the profession and also increase teacher supply by having teachers in the classroom as they learn. It has the advantage of getting teachers into the classroom quickly, and may reduce wastage by selecting more of those who are actually interested in teaching.[89] This is consistent with an international trend towards greater training of teachers in schools, driven by the desire to improve the relationship between the training and classroom practice (Box 7.4).

In any case it will often be desirable to adjust the teacher training curriculum to place more focus on developing practical skills that teachers can use in the classroom, and less of the theoretical core disciplines. A structure where courses are provided on a part time basis outside of school hours could facilitate using practicing secondary teachers to provide teacher training.

Critical to the success of this kind of model is the effectiveness of the induction support. The teacher's experience during the early years of teaching is critical to developing and applying the knowledge and skills acquired during initial training and to forming positive attitudes to teaching as a career. Yet, the beginning teacher is often "thrown in at the deep end", with a full-teaching load and associated responsibilities. There is a general acceptance of the value of good induction processes for the beginning teacher, but there is a lack of coherent policy on its implementation, despite

> "… the high probability that solid induction programs represent one of the most cost-efficient preventative strategies around" (Fullan, 1993, p 106).

Induction typically involves a structured provision of support for the newly qualified teacher. This support can be provided by a teacher training institution, but more realistically, the school principal, or senior teachers in the school. With continuous support by a skilled mentor new teachers are more likely to get beyond personal and class management concerns quickly and to focus on student learning sooner.

Continuous professional development is the third element of an effective teacher education strategy. As discussed above CPD has often been conceived as a series of short term of events rather than as an ongoing process of professional development. In

[89] In their conclusions on the MUSTER project (Lewin and Stuart, 2003) argues for these reasons that teacher education has to be restructured by reducing up front investments in three or four years pre-service training in favor of much shorter initial periods backed by a subsequent continuing professional development of those that actually are teaching and continue to teach.

fact every teacher should have the opportunities for professional development and be expected to participate in them. This imposes on the Ministry of Education the obligation to provide the training opportunities and on the teacher to take advantage of them. Given the large number of under qualified teachers in secondary education providing them with professional development opportunities to upgrade their skills must be a high priority especially in areas such as math and science (Box 7.5) where the shortages are often particularly severe and teacher subject mastery is often insufficient.

Box 7.5: Strengthening Mathematics and Science in Secondary Education

In Kenya a systems of in-service teacher training was developed to improve the quality of mathematics and science education at secondary schools. Selected teachers were trained as lead teachers in nine pilot districts. These teachers were given intensive training, and then given the task of training other teachers, particularly in using student activities, improvisation and experiments. The evaluation found positive effects in the pilot districts, but noted the difficulty of the cascade model, with quality and efficiency varying between districts.

Source: http://www.jica.go.jp/english/evaluation/project/term/af/archives/14-1-22.html

Structuring selection and conditions to attract those who want to teach, as opposed to those who want to use teacher training as a step towards other opportunities, could also help to increase quality and reduce wastage. Selection to teacher education entirely based on academic achievement does not allow for preferential selection of specific people including (i) those with personal characteristics particularly suited to teaching, (ii) those with a strong interest in teaching, and (iii) those from areas or communities where teachers are difficult to attract. As a result, teacher education often takes in significant numbers of people who have no interest in teaching as a career, and simply use teacher education as a form of subsidized higher education, or who would be unwilling to teach in the areas where they are needed. More flexible selection mechanisms allowing for assessment of personal characteristics could reduce wastage and increase the quality and usability of teachers.

Short term remedial action

Planning for teacher education needs to be based on forecast needs. Careful modeling of teacher requirements in each subject area can allow for adjustment of teacher training to meet the needs. But even so unexpected developments –budget shortfalls and unexpected enrolment growth will often make it necessary to consider short term actions –crash programs – to deal with teacher shortages that cannot be adequately addressed by regular teacher education programs. Labor market demand in growing economies will often pull the most qualified and experienced teachers away from the profession. Imaginative policies for the recruitment and professional development of teacher educators are critical both to enable expansion, and to improve the quality of classroom teaching. Possible actions to be considered include:

- *Tap outsiders with sufficient education.* There may be a body of people who have an adequate general education, but have not been trained as teachers. Providing them with an accelerated teacher training is one possible solution. A starting point for recruitment may be to consider "one level of education above that to be taught" as a minimum.

- *Provide accelerated pedagogy courses*. If there is a sufficient supply of teacher training candidates with the required mastery of the subject content, they can be trained quickly by eliminating the teaching of subject content and concentrating only on the practical classroom skills, leaving the educational studies and other theoretical material to be delivered in-service. It should be possible to equip such teachers with an emergency course providing the essential skills in as short a period as a month of pre-service training.
- *Provide accelerated content courses.* In many cases there are insufficient teachers with the academic training to be considered as secondary teachers. Shortage of teacher with adequate content knowledge presents a serious difficulty, because the training content can often not be compressed into a short period, particularly for crucial subjects such as mathematics, science and international languages. The best candidates for such programs may be teachers teaching at the next lower level who have the desire for additional certification, possibly through a combination of distance education and additional vacation courses. The training would focus heavily on the content mastery.

- *Restructure the teaching career*. Like other professionals, teachers are motivated by career progression, which often means moving out of the classroom or teaching at the next higher level of the system. Senior teachers can be motivated by career structures that give them additional responsibility. Ideal opportunities for this occur where new teachers are provided with some of their training in schools. Experienced teachers could be engaged to provide support and training for new colleagues, thus providing an on-site source of support, ad a source of rejuvenation and enhanced status for experienced teachers.
- *Arrange for Emergency recruitment.* In the short term, it may be necessary to take short-term emergency measures to increase the supply of teachers. These could include encouraging teachers who have passed retirement age to remain in service, allowing public servants with sufficient education to work as teachers for a limited period (a year or two) and then return to their jobs, asking existing teachers to teach larger classes or more hours.

An effective working environment

The classroom performance of teachers will also be affected by issues that cannot be addressed by professional development policies including:

- Teacher incentives as *a quality measure.* There has been much discussion of the possibility of using incentive schemes to improve teacher performance. Schemes which reward teachers who attend regularly and teach their classes effectively are likely to have an impact on student performance by increasing time on task. Schemes that are linked to administrator assessment student performance on exams and test are more problematic. Management reforms that increase local autonomy often provide incentives for better teacher performance (Chapter 8).
- *Helping teachers succeed*. A curriculum structure that helps teachers organize their teaching in a systematic and progressive way, presents content and terminology in a straightforward manner and is accompanied by good quality teaching materials which explain the content and help structure appropriate learning activities can increase motivation and the opportunity to succeed.

Building a competent teaching force in a rapidly growing system always is a complex task especially in a resource constrained environment. No single strategy will work. In practice there will have to be a package of measures that will need to be adopted and implemented simultaneously. Table 7.3 summarizes the options that may be considered.

Table 7.3: Summary options for teacher development

Possible action	Potential	Limitations
Restructure teacher education.	Make teacher education more effective by focusing on practical skills. Transferring as much as possible to school level. Provide induction support and CPD Shorten pre-service and increase induction and pre-service programs	Relies on support at school level, particularly if transport is poor. Will require investment in in-service and professional development programs
Reorganize selection to teacher education to enroll the students with the required profile (target specific groups and subjects).	Can help draw interested people in to teaching and reduce wastage	Medium term solution, will take some years to produce results.
Increase the number of places in teacher education to match needs.	Increases teacher supply. Matches supply to predicted needs in specific subject areas.	Medium term solution – takes some time to produce results.
Drawing well-educated people into teaching in with short pre-service training courses.	If sufficient people exist, they provide a rapid supply of new teachers.	Limited by availability. May not be willing to work in all areas.
Provide accelerated pedagogy courses for candidates with sufficient subject matter knowledge	Can provide a quick increase in teacher supply	Suitable candidates may not be available; need to be followed by targeted CPD
Provide accelerated courses in subject content	Could provide a relatively quick supply. For example, a one-year concentrated mathematics course could enable a school leaver to teach the secondary math. Distance/ vacation programs could be help primary and lower secondary teachers gain qualifications for higher level teaching.	Takes longer time to produce results. May involve some compromises in quality.
Restructure the teaching career	Make positions of responsibility for good teachers. This could involve mentoring young teachers, or delivering training in local centers. Provide opportunities for advancement to the next higher level.	Needs to be negotiated with teacher unions.
Emergency measures; allowing retired teachers, or other civil servants, to teach.	Can provide an immediate solution.	Short term solution only.
Incentive for quality teaching by increasing local autonomy and rewards for performance measures controlled by teachers	Can improve teacher motivation and accountability and student learning by providing more time on task and better organized instruction.	Financial rewards linked to student performance unlikely to be effective
Help teachers succeed	Policies that make appropriate curricula, good textbooks etc, that enable teachers to succeed.	

School Leadership and Support

The impact of teachers on student learning is greatly enhanced in schools with effective leadership buttressed by a well function of school supervision and support (see also Chapter 8). The role of school leaders is particularly important where inspection and support mechanisms are weak, as in many African countries. In many countries schools function in isolation, with only limited contact with other schools or with district and central level authorities. Moving to a system wide "culture of quality" (Verspoor, 2006) means moving away from a system of largely unconnected schools, to a *system* where all –teachers and administrators at all levels – take a joint responsibility for student learning.

School leaders

School leaders are central to the quality of schooling. Sadly, many school leaders see their role primarily as administrators. They may operate in relative isolation, and eschew perhaps the most important role, that of educational leader in the school. The need to improve school leadership has been widely acknowledged. Yet few head teachers have adequate preparation for their job. A 1990 study of 31 African countries concluded that only three had comprehensive training programs in educational planning, administration and management. Moreover, the frequent use of seniority and ideology as the basis for promotion, often results in principals being a rather conservative group with little motivation to innovate or support new school or classroom practices (Carron and de Grauwe, 1997).

School heads generally have responsibility in four key areas:

- ***School management:*** The routine duties of assigning teachers to classes, dealing with disciplinary issues, managing the school finances and supplies. As more public and private resources are managed at the school level managing their cost effective application is becoming a key management responsibility.
- ***School - Ministry liaison***: Typically a combination of reporting to ministry, and requesting ministry or local officials for staff and resources. Much of this work involves leaving the school premises.
- ***School - community relations:*** Working with the community is increasingly seen as part of the role of a school and usually involves encouraging support for the school (e.g. teacher salary subsidies, facilities construction, and maintenance) or of the schooling process (encouraging parents to make sure their children do their homework, and send their daughters to school).
- ***Instructional leadership***: Including monitoring the work of teachers, providing guidance, and arranging mentoring of new teachers.

Secondary school leaders, faced with continuous financial and managerial problems, typically focus on resource management issues. In a study in Kenya, school principals ranked school fees and money matters as their principal concerns (Kitavi & Westhuizen, 1997). Developing good community relations is an additional burden on school leaders, and one for which their training has not prepared them). Research in Uganda, Malawi, Botswana and South Africa found that, at school level, head teachers tend to lack the leadership training needed to operate as efficient managers (Gottelmann-Duret et al,

1998). Most school principals tend to see their role as managerial and undervalue their role as educational leaders. This tendency to focus on managerial issues has been increased by decentralization, which has enlarged the responsibilities of the school principal (Riley, 1999). A survey of 200 school leaders in Togo found that most preferred to see themselves as just administrators, while the teachers in the same schools looked to them to provide educational guidance (Kogoé, 1986).

The problems of school leadership are made more difficult by poor selection practices, and by the lack of specific training and support. It is not clear that the best people are selected as head teachers, as criteria for promotion are not always clearly articulated, and seniority often plays a major part in selection. New head teachers rarely have specific training for the new responsibilities they face, especially before taking up a post (Gottelmann-Duret et al, 1998). Once appointed, principals often receive little supervision or support from ministry officials such as inspectors and supervisors and school visits by ministry representatives are infrequent (Carron and de Grauwe, 1997). Among the consequences were uncertain standards of performance and little accountability.

Training for secondary school leadership

Increasingly, training is being provided for school leaders in Africa. However it is often unsystematic, providing incomplete coverage, and lacking the necessary follow-up. The duration and level of the courses varies widely, with some head teachers receiving 2 years training (Zanzibar), while others receive only a few days. Moreover, some of the training has been too theoretical, failing to develop the required skills, while in other cases it has been too operational, focused on details of administration and reporting rather than addressing the real needs of supervision (Carron and De Grauwe, 1997; Dadey and Harber, 1991) or the emerging financial management responsibilities. It is clear that courses aimed at school leaders need to be carefully targeted both in terms of the content and the level, to equip school leaders with practical skills that are relevant to their context.

There is a clear need to train and develop school leaders who are ready to adopt an educational leadership role. Many of the day-to-day teacher issues are very practical, such as monitoring teacher attendance to reduce absenteeism (Halliday, 1999) Gaynor, 1994; Condy, 1998). But head teachers should also be in a position to observe teaching, and make supportive interventions to guide weak teachers. Where training exists it is often brief and focused on the administrative tasks. Changing the behavior of school leaders will require richer and more extensive training. School principals will also need support in this role, both from senior teachers and from inspectors and district officials.

There are some promising examples of good practice. In West Africa, a number of countries have collaborated with RESAFAD (the African Network for Education at a Distance) to develop a multi-national program for francophone countries aimed at increasing the management capacity of head teachers. The program utilizes new information and communication technologies to help the process of course development but used print, coupled with meetings of head teachers, to reach its scattered audience.

Reports from school inspectors indicate increased efficiency of school management as a result of the program (Perraton et al, 2002).

Transparent and competency based selection processes are an important part of developing quality school leadership. Once appointed school leaders also need to be supervised, because of their relative isolation and relative power, and hence the opportunity for malpractice (absenteeism, corruption). In addition, school leaders need support systems, including opportunities for contact with other school leaders. In South Africa, transparency of the promotion system has been enhanced through the participation of the school board and teachers' union representatives in the process (Gottelmann-Duret et al, 1998).

Support and inspection

No profession can maintain high standards without some mechanisms for quality assurance. In the teaching profession, the need for supervision and support structures are enhanced by the unequal power relations, where students –or even many parents- are in a poor position to question professional practice. In response, most countries have inspection services which are intended to play this role. Where supervision occurs it can have positive impact on student learning: reducing teacher absences increases in student attendance, improvements in teaching and better flow of information to central authorities (Warwick et al, 1992; Verspoor 1989). But on the whole the evidence on its contribution to increased learning achievement is disappointing.

Most secondary school inspectors are subject matter specialists, who visit schools infrequently; check standards and procedures but rarely are involved in follow-up action. In many African countries, the inspection system lacks the capacity to provide effective quality assurance. Frequency of inspection is often low. One study in Tanzania reported that only 12% of schools were visited in a year. The inspectors are frequently drawn into other functions within the ministry. De Grauwe (2001) found that school visits sometimes occupied as little as 20% of inspectors' time, with the rest dominated by office work, meetings and report writing. The number of visits expected to be carried out by each inspector are rarely clearly or realistically defined. Finally, one of the most serious constraints on inspection frequency is transport. Inspectors may have limited access to transport, constrained by budget or by a need to share vehicles with other functions (De Grauwe, 2001).

When schools are visited, the inspection is often heavily focused on administrative, rather than pedagogical issues. In Botswana and Namibia, inspectors reported that only 38% of inspection time was devoted to pedagogical issues (de Grauwe, 2001).Even if the focus of inspection could be switched to pedagogical issues, it is not always clear that the inspectors are well equipped to provide the required support. In Tanzania, de Grauwe (2001) reported that the lack of clear criteria for selection of inspectors, could lead to appointment of less competent and less motivated candidates (De Grauwe, 2001). Inspectors may be chosen on the basis of seniority, or on examination results, neither of which guarantee the kind of teaching skill and insights into teacher that would be required to guide teachers in their work.

The ability of inspectors to support teachers can be further undermined by the relationship between the inspector and the head teacher. De Grauwe, 2001 observes:

> "Several countries do not expect an applicant for a post as inspector to have experience as a head teacher …… The result seems that, once (Senior Education Officers) are recruited from amongst senior teachers, they are often disrespected by school heads, who consider them their juniors. The fact that some supervisors are occupying a post with a lower grade than secondary principals aggravates the issue." (p.70).

These problems are further aggravated by the fact in many countries the inspectorate is a separate service in the Ministry of Education; this often results in coordination problems with other services of the Ministry such secondary school, teacher training and curriculum development units. Inspectors typically lack the authority to take action on the recommendations in their own reports. Inspection reports are written sent up the hierarchy but are rarely followed up with action by the supervising officers.

Strengthening supervision and support

School inspection systems could be strengthened by ensuring that inspectors have the required skills, that their work is focused on the core task of supervising schools, and that they have the transport and time to visit these schools in a planned manner. However, provision of school inspection systems of sufficient capacity to supervise all schools regularly will often be prohibitively expensive in personnel and transport. It is therefore not surprising that many countries are moving to reform the traditional system of school supervision in more profound ways. These reforms are typically designed to strengthen the pedagogical support role of the inspectorate and changing their relation with the schools. This often begins with a change in the name from "inspectorate" into something that emphasizes the pedagogical counseling and support functions, accompanied by a redefinition of roles and responsibilities which emphasizes working together with school principals and teachers as well as retraining of the inspectorate staff (Yeklef and Tazi, 2005). Box 7.6 summarizes the way a project in South Africa was designed to strengthen support to schools for quality improvement.

Key elements of these emerging reform strategies are:

- Strengthening the level of school level pedagogical monitoring and support by the principal and where feasible department heads;
- Developing the capacity at the district level to provide pedagogical support
- Decentralizing the responsibility for supervision and support and clustering schools to develop a long term relationship between counselors and schools
- Establishing an array of support mechanisms including school level support and supervision, facilitation of cluster meetings as well as opportunities for continuous professional development
- Targeting poorly performing schools for supervision and support

Progress towards improved school performance will require recognizing the school as the place where change is to happen and making sure that schools have the resources and the skills necessary to tackle the challenges of change and improvement.

Box 7.6: South Africa's District Development Support Program (DDSP) 1998-2003

DDSP was designed to improve the quality of educational delivery in targeted school districts in four provinces aiming at: (1) improved quality of curriculum practices; (2) better quality of district and school management; (3) enhanced school governance; and (4) development of theory and best practices for "whole school" and "whole district" development.

Finding that some schools were performing better than others, the DDSP sought out and scaled up practices that achieved sound results, as well as creating new ones. The fieldwork was performed by South African organizations through grants and subcontracts, thus reinforcing local "ownership" of results -- a crucial ingredient for genuine education reform. One common factor in high-performing schools was the strong classroom and school support they received from their local district offices. To replicate this in its targeted districts, DDSP appointed School Support Officers to help district officials raise the level of support they were providing to their schools, including the mentoring of teachers and school managers to improve their skills and performance.

A number of techniques were used throughout the provincial projects to improve the quality of learning, teaching, and management. For instance, in Limpopo, District Development Officers were employed and trained to co-facilitate training workshops, support educators in classrooms, and help School Management Teams (composed of principals, deputy principals, and heads of department) to implement what the project had taught them.

A strong indicator of the success of the DDSP is the results of a series of literacy and numeracy tests administered to grade 3 learners in 449 DDSP schools between 2000 and 2002. The results of these yearly tests show that, in 2002, the numeracy score increased by 12 percent and the literacy score by 5 percent, indicating an improved level of math and language understanding. In addition, 90 percent of the DDSP schools have systematic record keeping in place as a result of the development of an Education and Management Information System (EMIS) linked to the national EMIS.

Source: RTI website (undated):
http://www.rti.org/page.cfm?objectid=5DC160AD-F5BE-44DD-A98F0EFF2BAB6361

Textbooks: Essential Resources for Learning

International research has consistently demonstrated the positive impact of textbooks on student learning (see Verspoor, 2006 for a summary of findings from SSA). While much of this research has focused on primary education, it is likely that the conclusions apply also and perhaps even more forcefully to secondary education. Without an adequate supply of textbooks students are unlikely to achieve the expected levels of learning achievement. Similarly there is a body of research –mainly from developed countries- that highlights the importance of school libraries for increased student learning achievement at the primary but also at the secondary level[90]. School libraries are particularly important in the SSA context where they not only play the traditional role of providing access to supplementary reading material but can also organize collections of multiple copies of textbooks for loan, when purchase is not possible.

[90] The key outputs that can be expected are from effective school libraries are (a) the development of improved reading and comprehension skills, which also underpin performance in all other curriculum subjects; and (b) the ability to access required information and to research and read around curriculum subjects. The website of the International Association of School Librarians http://www.iasl-slo.org/make-a-difference.html provides ample references. See also Dorothy Williams, Caroline Wavell and Louisa Coles "Impact of School Library services on achievement and learning" (2001) available at http://www.rgu.ac.uk/files/Impact%20of%20School%20Library%20Services1.pdf

Box 7.7 Book availability in Uganda – Three schools

A large (1100 students), long-established, prestigious, grant-aided religious foundation secondary school in Kampala with a good and rapidly increasing reputation for sound management and good exam results. Fees are USh300,000 (US$170) + per term for boarders and around USh130,000 (US$75) per term for day students. Approximately 3.0% of the annual school budget (USh3,000,000 – US$1,700) is spent on textbooks and library stock every year. The school maintains 1:1 textbook sets in Mathematics and English Language for S1 to S6 but this needs some qualification. For example, there are 200 students in S1 but the school only has 60 English and Mathematics textbooks for S1. However, the working day is carefully timetabled so that the 4 different streams of S1 students never have Mathematics and English at the same time. The textbooks are issued at the beginning of each class and collected at the end and then passed on to the next class for re-use. In this way an effective 1:1 book:pupil ratio can be maintained during class time even though the actual ratio is really closer to 1:3.5. Approximately five copies of each textbook are maintained in the school library for homework use and homework is set at least one week in advance to give every student some chance to use the textbooks for reference. The current English and Mathematics textbooks are 6 years old.. Some of the textbooks have been rebound twice and are still in poor condition but all the pages are present (although the edges of many pages are sellotaped to prevent damage). Loss and write-off rates are about 1-2% per year and the school purchases just a few replacement copies or top-up copies each year as books come to the end of their life or are lost or terminally damaged. In almost all other subjects book:pupil ratios are between 1:10 and 1:20 for S1 to S4 and around 1:20 for S5 and S6. The Chemistry textbook set has original books that are over 20 years old, once again rebound many times and in pretty bad condition, but with most pages present and correct. Single copies or small multiple sets are purchased for the school library so that students can take turns to use them. Because of the need for fast turnover, all library book loans are overnight only..

A small privately owned (entrepreneurial) day secondary school in Masindi District with an enrolment of 200. Annual fees of Ush150,000 (US$85.00). There is no library and there are no textbook sets. The school has bought one copy of each basic textbook for the use of teachers. There are no other books in the school at all. The school issues a book list but students never buy. Many students cannot even afford the fees and a number of students perform laboring work in lieu of fees. There is no local bookshop, which stocks the textbooks on the list and nowhere for parents to go, except Kampala, if they wanted to buy. The books on the school book list are largely those used by the teachers when they were at school.

A rural, government-aided (religious foundation) girls boarding, school operating up to S4 with an enrolment of 200. Fees are USh90,000 (US$50.00) per term. The school has sets of Mathematics books for S1 to S4 at a ratio of 1:2. For English Language there is 1 teachers' copy per class. There are 1 or 2 science textbooks per class. There are no textbooks, even for teachers, in any other subject and teachers have to rely on their own school notes.

Source: Read et al. 2007

The importance of textbooks and school libraries for effective secondary education is widely recognized, but unrealistic requirements and high unit cost often result in extremely low availability in the classroom. Some schools have found creative solutions; many others have not (Box 7.7). There are wide variations between countries and even between schools within countries in the number of officially prescribed textbooks and in the cost per book. Considerable progress has been made in recent years in improving the availability of textbooks in primary schools through more efficient publishing, procurement and distribution arrangements. At the secondary level a similar effort of analysis, experimentation and reform is urgently required.

Most importantly there is a strong case for rethinking the appropriateness of the traditional high cost textbook provision strategy modeled on practices in industrialized

countries. SSA countries may wish to consider turning textbooks into books of core content by shifting material into teachers' guides (supplied at 1 book per class rather than 1 book per 1/2/3 students) or into library books (supplied in small multiples to school libraries rather than in class sets). This strategy will depend for its effectiveness on consistent library funding but it is clear that good small libraries and core content textbooks are potentially cheaper and more effective in terms of learning outputs than no school libraries and long textbooks that provide unnecessary detail. In conjunction with cost reduction -to about $4-6 as discussed in chapter 5- and institutional reforms policies discussed below this will provide an environment where al all students have access to printed textbooks and other printed materials.

Cost-effective textbook specifications

Cost considerations should be an important element in curriculum design with regard to the number of subjects that require separate textbooks, choices on instructional methods that call for more or less content coverage in the textbook and physical production specifications. A realistic curriculum and syllabus design is the first step towards improvements in textbook availability. This means costing the learning and teaching materials needed to deliver the curriculum so that annual funding implications are clearly understood and accepted and are within the affordability parameters. A second step is stability of curricula syllabi so that books and learning materials can be used for several years. Thirdly, curriculum design and instructional methods should recognize that few students –or government budgets- will be able to afford the individual purchase of reference and reading materials. Instead arrangements should be made to ensure that these are available for consultation by students in school libraries.

In many countries physical production specifications, -text paper and cover card/board, cover finish, binding style and sometimes book format - and presentational specifications - type font and size, number of colors, number and type of illustrations- reflect the requirements of the industrialized country markets. Low student numbers in particularly at senior secondary level, combined with widespread low parental purchasing power and a lack of sustainable government and donor funding for secondary textbooks most often result in to a market, which is too small to attract investment in new title development. Because there is a scarcity of local titles, particularly at senior secondary, which have been conceived and originated in the context of local conditions and local purchasing power, there is little alternative except to recommend imported textbooks. In some cases, where there are particularly popular imported textbooks the overseas publisher may create a special "tropical" edition, which is made available at lower, but still good production specifications, and at significantly lower prices.

Approved book lists.

Approved textbook lists are typical of countries where there is school-based choice of the textbook to be used. Of the 19 countries reviewed by Read et al. (2007) 12 have national approved secondary textbook lists (Botswana, Cameroon, Cote d'Ivoire, Ghana, Kenya, Lesotho, Malawi, Nigeria[91], Tanzania, Togo and Zambia). Of these only three (Kenya,

[91] Nigeria has a mixed system with some states having state approved textbook lists. There is no federal approved secondary textbook list

Malawi and Tanzania have price as a significant factor in the evaluation and award of approved status. Of these three, only Malawi has price monitoring to ensure that supply is at agreed prices, although the approved textbook list and prices are circulated so widely in Kenya that most schools know the approved prices and are in a position to insist. Price mark-ups over and above list price are reported to be common in Tanzania. Cameroon, Cote d'Ivoire, and Togo have national recommended book lists, but the scope is usually so wide that they do not help schools choose a relevant title, or to help the secondary system as a whole lower its purchasing costs for secondary textbooks. Where there are no approved books lists and schools set textbook requirements these are often unrealistic as regards price and local availability. Very often teachers do not expect students to have the books and resort to instructional methods based on copying from the blackboard and pamphlets prepared by the teacher.

Experience in Kenya, with approved book lists suggests that low textbook prices are linked to the fact that price was marked as a key factor in a competitive evaluation. Where there is no price factor there is no incentive for publishers to consider offering their keenest prices. Where there is an open-ended list with no limit on the number of approved titles there is no competition to achieve approved status. In addition, limited lists of approved titles lead to bigger sales for approved titles and thus longer print runs and lower prices. Approved textbook lists that are price sensitive and limited can be used to encourage good textbook quality and lower prices if the evaluation criteria are carefully developed and if publishers are provided with good lead times to develop their submissions.

Public Private Partnerships

State publishing and distribution has not been able to ensure a reliable supply of textbooks at the school level most often because of a combination of underfunding of budgets for purchase and distribution, unreliable data on school level needs, poor management of facilities, staff and inventories and inequitable service delivery (Read et al, 2001). Unsurprisingly, it has declined rapidly in the past decade. In 2006 18 out of 19 countries surveyed by Read et al. (2007) secondary textbooks were published by private sector publishers and junior secondary textbooks are increasingly published for specific markets. In only four countries the government negotiates with publishers for a single title that is to be provided to schools. In 13 out of the 19 countries secondary textbook supply is fully served by the private sector book trade and in 14 policies have been adopted that allow schools to take the selection decisions on the textbooks that they wish to use, often from a pre-selected approved or recommended

A vibrant local publishing industry and booksellers networks are key elements of effective textbook supply strategies. Anglophone countries in general have stronger local publishing industries than Francophone countries: their markets are larger; governments have provided some support for textbook purchases, subsidiaries of UK publishers provided training opportunities for local staff until the end of the 1960s and the market liberalization got underway more than a decade ago. On the other hand regional cooperation has been much stronger in Francophone countries where smaller markets, more uniformly organized systems and curricula provided incentives and opportunities to

realize economies of scale of in joint ventures with French and Belgian publishers. Regional textbook publishing has significant cost benefits in terms of longer print runs and lower unit costs. Specific national publishing takes place largely for the social science subjects; local adaptations of regional texts by local authors can help overcome the problems of local relevance.

Progress towards strong local publishing will require stable and predictable funding, open competition across borders and regional cooperation on curriculum and textbook design and content coverage. It can be supported by the exemption of the import of paper and other printing supplies of import duties and taxes. Tapping the experience and backlists of international publishers through joint ventures and 'tropical" editions of textbooks can hold considerable promise, especially for upper secondary education. Where is a market that is perceived to be big and reliable enough to justify the initial investment approved textbook lists can be used to stimulate the local publication of secondary school textbooks

Efficient distribution

Since much of the purchase of secondary textbooks is done by parents an efficient local distribution network is essential. There has been a significant shift back to secondary textbook supply via private sector booksellers in the past ten years. There have been a number of determined efforts in Uganda, Kenya, Malawi, Zambia and Tanzania to re-develop primary and secondary textbook distribution strategies that consciously seek to support private sector educational bookselling on a national basis. In most countries this process is still only partial and most countries suffer from geographic gaps in private sector textbook distribution. Only South Africa, Botswana, Lesotho, Kenya, Cote d'Ivoire and perhaps Nigeria among the countries studied by Read et al (2007) have bookselling capacity capable of providing genuinely national coverage. The re-development of national bookselling networks is hindered by continued state intervention in some countries and by under-financing with associated credit and stockholding problems in others.

In several countries markets in used books are an important element in the secondary textbook supply. Sometimes these are organized at the school level but in many other instances this market is dominated by "pavement" book sellers. While they may slow down the development of a national network of book sellers they play an important role where book sellers are not present. Outside urban areas schools may have to play a key role in organizing used book sales and processing parental purchase orders.

Supportive school library policies

Textbook policies which aim to reduce the financial burden on parents will need to include libraries as an integral part of the package. The overwhelming characteristic of most secondary school library provision throughout Africa is under-funding, which in most countries amounts to little or no funding at all. Government funding for secondary school libraries has all but disappeared on the continent. Donor funding tends focus on a limited number of schools and short term. When improvements occur they are often temporary (Box 7.8). Collections are old and comprised to a large extent of donated books unrelated to the curriculum. Many libraries have been converted into class rooms.

As a result libraries are of limited value and interest to both students and teachers and under-used. Students read very little and do not acquire basic library skills. When they progress to higher education they have no skills or previous background in research or information access.

Box 7.8 Support for school libraries in Malawi

In Malawi, most secondary school libraries are reported to be in bad shape, despite the work of the Danida supported textbook project, which included the rapid development of secondary school libraries. The project provided schools with matching funds for textbooks and school library purchases to schools that were able to demonstrate that they had an operational school library with sufficient shelving, basic student study spaces and adequate security to keep books safe, accessible and well-used. Schools were provided with basic specifications and standards for school libraries and were given grants to construct or improve a room into a basic school library. A teacher had to operate as a school librarian and was provided with basic training and a school library management handbook, which provided guidance in the operation of simple library management systems. Unfortunately, with the withdrawal of donor and Government financial support in 2002 there is now insufficient funding even for textbooks so that reading books and curriculum support materials are no longer ordered, existing stocks are not being replenished and the library rooms are not being maintained.
Source: Read et al. 2007

Effective school libraries also can play a key role in textbook provision systems that aim to limit individual purchase and encourage sharing of expensive reference materials and infrequently used textbooks. At the same time they can provide additional reading opportunities for students, which improve reading skills, comprehension, writing and clarity of expression, which in turn supports performance in all other curriculum subjects. Effective school libraries should also provide training and experience in research and information access skills, which are both essential skills for quality performance in higher education and lifelong learning.

Unlike most other countries in SSA Botswana has an effective secondary school library system. All Government secondary schools in Botswana have libraries as part of the school infrastructure. Every secondary school has a designated librarian who is either a trained teacher or a full-time trained librarian. Botswana also provides a dedicated school library budget of about $5 per student per year. The library stock in most schools is primarily made up of fiction (about 70%); the rest are reference and supplementary books to support the curriculum. Few countries are likely to be able to allocate this level of resources to school libraries. But almost all secondary schools in SSA will be able to establish functioning libraries with well targeted smaller amounts and careful library management of sticks. A careful analysis of the trade-offs between policies that rely on individual book purchases and systems that allocate part of the book resources to the strengthening of school libraries may help build support for sustainable library funding. Box 7.9 summarizes the different policy options that government may wish to consider as they aim to ensure that all students have access to textbooks.

Box 7.9: Towards affordable textbooks

There are no good reasons why textbooks should cost more than $4-$6 per copy (only SSE textbooks in small markets may be an exception). With a curriculum that specifies 6 textbooks and an average life expectancy of 4 years a budget of $10 per student per year (or $5 where two students can share) would suffice. Policies that would allow progress towards this goal include:

- Curricula with fewer subjects and thus fewer textbooks.
- Textbooks hat focus on core content and reduce coverage of enrichment detail that is not essential
- Shifting material into teachers' guides (supplied at 1 book per class rather than 1 book per 1/2/3 students) or into library books (supplied in small multiples to school libraries).
- Book sharing and thus reduced book:pupil ratios through careful timetabling
- Effective school libraries where students can consult reference materials, borrow textbooks
- School managed second hand markets and possibly loan/rental schemes.
- Short term rather than long term loans of books to students in order to reduce loss and damage
- Approved limited list of titles based on evaluations that include price as a factor in the evaluation.
- Physical production and presentation specifications that are designed to extend book life but avoid unnecessary cost such as thee use of 4 color printing
- Reduce wastage in manufacturing, warehousing, distribution, school storage and school usage
- Reduce page formats that use more paper and are frequently less durable
- Greater control over input costs from publishers and printers through review evaluation and approval mechanisms and conditions to ensure that price is a factor in evaluation and approval and that pricing is monitored in parent purchase situations)
- Tax exemptions for book manufacturing raw materials

Source: Read et al, 2007

Quality and Equity

A framework for the provision of secondary education of acceptable quality is important but needs to be complemented – for economic and social reasons (Chapter 3) - by policies that ensure equitable access. The principle must be that no qualified student will be unable to attend secondary school because of inability to pay and that steps are taken to ensure that socio-cultural obstacle are adequately addressed. The supply and demand constraints faced by girls as they aspire to enter secondary school have been discussed in chapter 2 (box 5). The important potential contribution of targeted financial support to poor students has been discussed in chapter 5. The most direct and fast-acting way for governments to boost school enrolment for the poor is to reduce the direct, indirect, and opportunity costs to parents of education (Herz and Sperling, 2004) is by cutting school fees, providing incentives and bursaries or stipends to help cover direct, indirect and opportunity costs Chapter 9 (Box 9.2) provides an example of the way conditional cash transfers have been used to encourage poor students to continue their education at the secondary level.

But to be successful financial support needs to be complemented with policies that address the difficulties associated with poverty; girls especially are often disadvantaged by policies that sometimes discriminate –as in the case of expulsion and prohibited re-entry of pregnant girls- or otherwise do not recognize the importance of instructional strategies and instructional materials that are not avoid gender stereotyping but that also recognize girl's learning needs and positively encourage girls' participation in class room and school activities.

Such a policy framework is of particular importance for poor girls to ensure that they have equal opportunities to learn; it will need to ensure the creation of a supportive institutional and pedagogical environment; it will also need to ensure that schools are accessible and safe – in many settings this will mean the creation of small locally managed schools.

Helping girls succeed

Girls often face formidable obstacles to enter and succeed in secondary school. Some of the challenges have their roots at the primary level; others are related to their educational experiences in secondary school. Girls pass through puberty and become adolescents most often during their years in junior secondary school. Lloyd et al (2000) points out that they may become particularly vulnerable at that point within the school system because of widely held negative attitudes about adolescent girls. At this age, a supportive learning environment for girls could make a critical difference in school retention. Many girls will experience the same school environment will differently than boys because of differences in curricular opportunities within the school; differences in treatment by individual teachers; and differences in rules, regulations, and administrative practice.

Table 7.4 Helping girls succeed in secondary school

Issues	Intervention Objective	Action
Gender gap at entry	Ensure equity in access, age appropriate entry and opportunity to learn in primary education Target resources at the poorest girls	Working with communities to address social demand constraints Reduce distance to school by establishing day schools Bursaries and financial support to poor girls Equitable allocation of teaching and learning resources
Disproportionally high drop out in secondary education	Eliminate financial obstacles for poor girls Ensure a girl friendly instructional environment in secondary schools	Financial support to the poor Academic and peer support Gender neutral textbooks Training teachers in gender responsiveness Re-entry policies for pregnant girls Appropriate sanitary facilities
Low girls' participation and performance in math science and TVE	Increase number of girls that are successful in non traditional fields, in particular math and science.	Provide role models Improve gender sensitive instructional strategies Provide extra curricular support
Source: culled from Sutherland-Addy (2008)		

Improving girls' education experiences in secondary school will require first and foremost policies that support improvement in education quality and student learning achievement; make education opportunities available close to the parental home; and do so with a special emphasis on the needs of poor students, especially girls. Girls will often disproportionally benefit from such interventions. But they will rarely be enough to improve access, reduce drop-out, and improve girls learning achievement especially in mathematics and science. This will often require in addition interventions that address cross-sectoral issues most importantly HIV/AIDS; institutional policies such as ECD programs, policies on pregnancy, female teachers who can provide role models, single

sex schools; instructional strategies that encourage girls participation and use instructional material free of gender bias. Interventions that combine several reinforcing actions with strong community support are likely to be the most effective (Sutherland-Addy, 2008; Kane, 2004). Table 7.4 summarizes possible strategies for action.

Box 7.10: The return of the small high school in the US

In second half of the 20th century numerous small schools were shut down and new large "comprehensive" high schools were built to take their place. In 1920, there were 271,000 public schools in the United States; by the late 1980s, there were only 83,000. In his 1959 book "*The American High School Today"*, James Conant, singled out "the elimination of the small high school" as a "top priority." Today about 60 percent of American high school students attend schools with enrollments of over 1,000.

But the justification for large schools is being questioned. A robust body of research has established the positive effects of small schools on student learning. Students in small schools perform better academically, graduate at higher levels, are more likely to attend college, and earn higher salaries later on in life. They participate more in extracurricular activities, have better rates of attendance, report greater positive attitudes towards learning, and are less likely to face school-related crime and violence. Teachers report greater job satisfaction, and are more likely to feel as if they are succeeding in their work. Administrators and teachers are often more able to identify problems, respond innovatively and effectively, and adapt to change. Parents and relatives are more likely to become involved in the school. Small schools are often characterized by personalized attention, curriculum integration and specialization, relational trust and respect, a student sense of belonging, a strong positive ethos, greater accountability, and a sense of communal mission. The towns and neighborhoods in which small schools are found also benefit, by providing a central meeting place and source of activity, building community ties and relationships, enhancing the democratic process through mutual goal-setting and decision-making, providing added economic activity, and acting as a source for community pride and identity. These findings have drawn the attention and support of influential educators and foundations, most notably the Bill and Melinda Gates Foundation, which in 2000 committed $350 million towards the transformation of large, comprehensive high schools into smaller, more effective learning communities.

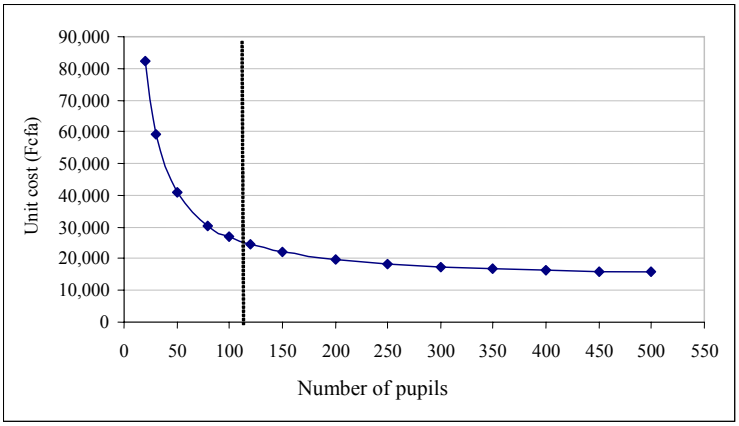
Small size of course is not a panacea for improving school quality. But it does provide an optimal setting for high-quality schooling by facilitating organizational arrangements and instructional methods that lead to a more positive school climate and higher student learning.
Source: Hylden, 2005

Small Schools

Expanding access to secondary education to students in rural areas is a particular challenge. Populations usually are dispersed, the number of primary school completers is most often low and their preparation for further education poor. Unsurprisingly rural secondary schools are often small. In Zambia upper basic schools (grade 8 and 9) in rural areas enrolled on average only a 100 pupils in rural areas and 200 in urban areas. Day high schools (grade 10-12) in rural areas enrolled on average 371 students compared with 617 in urban areas (Bennell et al, 2007). In Ghana 16% of the senior secondary schools (grade 10-12) enroll less than 100 pupils (Akyeampong, 2006). In Mali about 20% of the lower secondary schools (grade 7-9) representing at that level 5.5% of total enrollments, enroll less than 150 students (CSR, 2006). In Mauritania two thirds of the junior secondary schools (grade 7-10) have less than 250 students (CSR, 2006) .In Madagascar a third of the junior secondary schools have less than 100 students, although only half of these offer all four grades. Evidence from Madagascar suggests a similar minimum size (225 students) for senior secondary education. (Ramanantoanina, 2008).

Large schools are often thought to be more efficient (Box 7.10). This led in the USA to what became known as the high school consolidation movement leading an increase in the size of the average high school. However the promises of efficiency and effectiveness of education reformers are now being questioned and a small school movement has become a prominent feature of the education landscape

Figure 7.1: Salary Cost per Student and enrollment



Source: CSR Mali

Evidence on economies of scale related to school size in SSA suggest that beyond a size of 150 students for a three year course or 200 for a four year course the economies of scale are limited and would almost certainly be outweighed by some of the benefits of smallness that have been found in the US. Figure 7.1 shows that beyond 120 pupils the impact of increases in school size on the salary cost per student for lower secondary schools in Mali is small. Other CSRs have similar findings. This suggests that small school sizes may be economical especially when measures are implanted to eliminate inefficiencies in resource utilization. The scope for this is often considerable. In Madagascar for example about half of JSE schools have small classes (less than 30 students). Twenty percent of JSE classes and 15 percent of SSE classes of have fewer than 20 students per class, while 50 percent of JSE schools and 70 percent of SSE schools have fewer than 20 students per teacher. Furthermore, the number of teachers and administrative staff are almost equal at many secondary schools with little relation to enrollment, leading to very high unit costs (almost triple the primary school unit cost in JSE and six times in SSE).

Multi-grade instruction – where one teacher teaches students of two or more grades levels in one class- has been found to be a cost-effective solution for providing primary

Box 7. 11 Multi-grade in Finnish Secondary Schools

For demographic reasons, combined-grade secondary schools were common in Finland. Common practice was for combined grades to be taught as a single class, which often resulted in a reversal of the intended order of exposure to the curriculum for some of the students in the class. A "year course" project experimented a spiral curriculum approach that allows the same general topic to be covered at the same time in up to four combined year groups, with each group studying the topic at its own appropriate level. The production of suitable instructional materials is seen as the key to success in this project. In Finland combined-grade schools are not only seen as a fundamental part of the system rather than as an anomaly, they are also accepted as a fertile ground for the development of new ideas for use in other schools, rather than merely as the recipients of modified practices devised elsewhere.

Source: Laukkanen, Reijo & Selventoinen, Pekka (1978) *Small Schools and Combined Grades in Finland*, Paris, OECD, Centre for Educational Research and Innovation as summarized in Little (1995)

education in areas that are sparsely populated. It provides access at reasonable cost to children who otherwise would no be able to enroll; students develop self study skills and learn to cooperate with each other; positive effects on learning achievement, student self esteem and civic behavior have been found in most studies of multi-grade instruction. Most of multi-grade instruction occurs in primary schools. There however examples of multi-grade instruction at the secondary level in Colombia, Sri Lanka (Little, 2004) and Finland (Box 7.11). With more mature students who should increasingly be able of self directed learning and analysis, there are no reasons why multi-grade should not be applied more widely.

Another way to deal with the diseconomies of scale of smallness is broadening the grade span[92] of school. Instead of aiming to establish junior secondary schools with several parallel streams to attain an economically feasible size, junior secondary classes or all secondary classes are integrated with the primary school offering grade 1-8 or grade 1-12. In several countries kindergarten classes are also integrated in these schools (K-8 or K12 in the US). Recent research suggest that models that there are good reasons to reconsider the dominant view that a narrower grade span better responds to the developmental needs of students. Schools with broader grade span reduce transitions between schools and can take advantage of the positive effects of the smaller schools (Howley, n.d.) In SSA Kenya and Zambia are moving in this direction.

Policy options

Several countries in Sub Saharan Africa have recognized the importance of providing local opportunities for secondary schooling to students outside the urban areas. Reducing the distance to school is particularly important encourage the attendance of girls by addressing parental concerns about the safety of girls that may need to travel long distances or attend boarding schools far away from home. Senegal and Guinea are

Box 7.12: Senegal: Equitable Access to Junior Secondary Education

Only one in five children of lower secondary school age in Senegal is enrolled junior secondary school ("collège"). Most are located in urban areas effectively excluding many rural children. Demand is accelerating rapidly and it is important to provide access to secondary education to children outside the urban areas. With the support of the World Bank and USAID local schools "collège de proximité" are being established. These have four characteristics:

- Located in a rural area at a reasonable distance from children's home (between 4 et 5 kilometers at most)
- Child-friendly: trees, playing grounds, colored environment. The school is not only a learning space but also a living space
- Community-friendly. Community members participate from the planning to the management phase. The process of community ownership is to be strengthened through capacity building and awareness campaigns all along the project.
- Affordable: operating costs are low compared to traditional schools.
- Only core courses are given in this school: Language, Math, Science, History, Geography, English and Physical training. Teachers are teaching at least two subjects and it takes at most 4 teachers to cover the whole curriculum.

Source: Pape Sow USAID Senegal, personal communication

[92] Grade span configuration refers to the range of grade levels in a school (ERIC Thesaurus)

implementing a model of "écoles de proximité" for junior secondary schooling (Box 7.12). A recent report (CIDT, 2005) in Zambia recommends establishing small local high schools to avoid the cost and social problems of large boarding schools. A key policy challenge is that these schools –mostly located in rural areas and attended by disadvantaged groups - have at least access to financial and human resources that are equivalent to those in the larger school in urban areas. In fact there usually is a strong case on equity grounds for targeting public expenditures disproportionally on these schools (see chapters 5 and 9). Available evidence suggests that there are no reasons why small rural schools cannot deliver good quality education provided they are adequately resourced and that these resources are efficiently and creatively utilized (Box 7.13).

Given a flexible policy environment, many of the current inefficiencies in the utilization of resources can be addressed with some careful planning. Possible options include:

- Employing polyvalent teachers, i.e. teachers who can teach several subjects; this has been and still is common practice in many secondary schools in industrialized countries, especially at the junior level. In US high schools early in the 20th century two or three teachers taught all subjects. In Germany the "Staatsexamen" for Gymnasium teachers is equivalent to two MAs.
- Employing part time teachers: schools should not be obliged to employ full time teachers if there are only a limited number of classes to be taught; they should be allowed to recruit local people with an appropriate background even if they do not
- Adapting curriculum to fit local conditions and resources; this may mean reordering sequences, limiting choice and options and not offering classes with very few students.

Box 7.13: Beating the Odds

A research project of the Rural School and Community Trust in the US studied five small high schools in rural areas and small towns. They were smaller than median size; have higher than average poverty and scored above the state mean on all mandatory state tests. Researchers found that these schools:

- Focused on a mission and goals that have been explicitly identified in a cohesive plan produced collaboratively by leaders, teachers, and parents or community members.
- Adopted diverse practices widely recognized as effective pedagogy, blended together to suit local needs; team teaching is common, interdisciplinary courses are not exceptional, and the use of technology is embraced; the small size of these schools makes this easier—they are able to be flexible in scheduling and sharing resources.
- Demonstrated leadership that is positive, flexible, creative, and collegial; the sense of shared responsibility for the success or the failure of the school is very apparent; teachers are empowered to make important decisions and work together; they are given planning time that reflects those values.
- Connected closely to the communities they serve.
- Expected staff to play multiple roles; teachers also serve as mentors to less experienced teachers, as well as tutors, advisors, and counselors of students.

The report concludes that the schools are "structurally simple but organically complex." Throughout the schools, there is a sense of mutual respect and shared expectations. Doing well is less about pedagogy, programs, and professionalism and more about how people treat each other—the human relationships are what make them successful.

Source: Rural School and Community Trust, 2004

- Adopting innovative pedagogical practices such as multi-grade classes, team teaching and multiple shift classes that may help intensify the use of available resources.
- Sharing resources with the local primary school by increasing the "grade span" to 8 or even 10 or 12 years of schooling.
- Sharing administrative and pedagogical services between two or more neighboring schools.
- Using ICT and distance education can help overcome the disadvantages of smallness.

Conclusion

Few countries in SSA have established policies that accompany the expansion of access to secondary education in such a way that opportunities for effective learning are established and accessible to all students. This chapter has reviewed several policy options that countries may consider as they formulate their national strategies for secondary education development. It is important to underscore that effectively addressing quality issues will require defining a policy package that incorporates several measures in such a way that they can be accepted by the stakeholders concerned. For example generalization of day schooling will only be accepted if is accompanied by a set of policies that provide these schools with the human and financial resources that will make it possible for them to offer opportunities to learn of acceptable quality.

Recruiting and retaining sufficient competent teachers is a top priority. With rapidly increasing enrollments it will often inevitable to consider for the medium term a range of second best choices without which it would be impossible to expand the supply of trained teachers and enhance instructional effectiveness. But teachers do not work in a vacuum. There is strong evidence that strong school leadership is a key determinant of teacher performance. Yet many school leaders are ill prepared for their jobs which have become increasingly complex and include responsibilities for traditional school administration as well as for pedagogical leadership, financial management and community outreach. Moreover schools are part of a larger system that are expected to support and supervise the schools efforts to improve instructional effectiveness. Combining principal leadership with well targeted support of district and central offices will often be an important element of quality improvement strategies.

The impact of these efforts on student learning will however be limited where students do not have access to textbooks and other instructional materials. In many secondary schools students have little access to written materials; the consequences for leaning achievement are probably more severe than the limited access to good ICT instruction. Effectiveness in secondary education development implies providing equitable opportunities to learn. This means targeting the disadvantaged students –i.e. those that are poor and live in rural areas and especially the girls- for special attention and targeted interventions. Helping girls succeed must be a key element of such strategies and include addressing family concerns about safety and cost. Finally, countries will need to develop a set of polices that allow students in rural areas access to local secondary schools. This will require the development of a strategy for small schools that can provide quality

instruction. Table 7.5 summarizes the policy options for providing effective and equitable opportunities to learn discussed in this chapter.

Table 7.5 Improving quality for all: objectives and policy options

Policy objective	Options to consider
Expanding the supply of qualified teachers	• Shortening the length of traditional pre-service training programs, expanding pre service output, provide intensive induction support to new teachers and continuous professional development opportunities for all teachers. • Exploring options for non-traditional recruitment including people with academic qualifications and retired teachers • Creating opportunities for professional advancement through increased responsibility in the current position or through opportunities to advance to teaching at the next higher level • Increasing teacher productivity through deployment policies that ensure that all teachers have a workload commensurate with their salary.
Helping teachers improve their instructional effectiveness	• Ensure teachers have adequate subject matter knowledge • Emphasizing pedagogical practice in pre-service and in-service training • Provide a working environment that enables and supports good teaching • Enhance teacher motivation with incentives for good performance
Strengthen school leadership	• Transparent and competency based selection processes instead of seniority based promotion • Pre appointment and in-service training reinforced by regular opportunities to exchange experience with other head teachers
Improving supervision and support	• Developing the capacity at the district level to provide pedagogical support • Decentralizing the responsibility for supervision and support • Targeting poorly performing schools for support and supervision
Ensuring and adequate supply of textbooks	• Limiting the number and the content coverage of required textbooks • Reducing the cost of textbooks through more efficient institutional arrangements for publishing and distribution • Strengthening school libraries to ensure access to reference and supplementary reading materials and opportunities for accessing information.
Enhancing enrollment and retention of girls	• Providing targeted financial support through bursaries of conditional cash transfers • Mobilizing communities to support girls' schooling • Ensuring a girl friendly school environment • Interventions to address areas of special concern such as successful participation in math and science courses
Expanding opportunities to enroll for poor rural children	• Progressively extending the primary cycle to eight or nine years • Introducing multi-grade instruction in lower secondary education • Adapting the curriculum to take account of the constraints and opportunities of smallness, including the use of ICT and distance education • Training polyvalent teachers who are qualified to teach several subjects. • Flexibility in the deployment of resources to take account of local conditions that may require the use of part time teachers and the sharing of administrative resources with other schools

> The signs of outstanding leadership appear primarily among the followers. Are the followers reaching their potential? Are they learning? Serving? Do they achieve the required results? Do they change with grace?
>
> Max de Pree

Chapter 8
Strengthening Governance and Management[93]

There is little doubt that changes in the way resources are mobilized and deployed, as well as changes in what is taught and how instruction is provided, are key elements of the secondary education reform agenda. But it is equally evident that without an improved institutional environment, better governance, and more effective management the desired outcomes will not materialize. Transforming the way secondary education is managed and provided is thus essential to ensure broad access to secondary education of acceptable quality.

Decentralization is perhaps the most ubiquitous reform currently taking place in African education today. This is supported by international evidence which suggests that a judicious combination of central direction and local autonomy can create an environment where resources are most effectively deployed to support student learning (Box 8.1). Changes in the responsibility for the organization of instruction and the allocation of resources, more transparent decision making processes, models of school based

Box 8.1: Managing to improve student performance: International evidence

Improving the institutional environment of education to ensure an effective and efficient use of resources may be the central challenge of education management. At a given level of resource availability, student performance is influenced by the productivity of resource use in schools, which in turn is determined by the behavior of the people who participate in the educational service delivery. They respond to incentives. And their incentives are set by the institutional structure – the "rules of the game" – of the system. Thus by establishing appropriate rules, education managers and policy makers can favorably affect student performance. Spending more money within an institutional system that sets adverse incentives will not improve student learning. Positive effects result when all the people involved have an incentive to improve student performance. An econometric analysis of data of the 1994/95 TIMMS for 39 industrialized and middle income countries identifies the specific institutional features of the schooling system which will have a positive impact on student performance:

- central examinations;
- centralized control mechanisms in curricular and budgetary affairs;
- school autonomy in process and personnel decisions;
- an intermediate level of administration performing administrative tasks and educational funding;
- competition from private educational institutions;
- individual teachers having both incentives and powers to select appropriate teaching methods,
- limited influence of teacher unions;
- scrutiny of students' educational performance;
- encouragement of parents to take interest in teaching matters.

Source: Woessmann, 2000

[93] This chapter draws on the SEIA thematic study #3 (Glassman, 2008)

management, and new forms of public-private partnerships (PPPs)[94] are emerging in almost every country in Sub Saharan Africa, and contributing to notable changes in the governance and management of secondary education. It affects the nature of planning and the instruments of policy implementation. Top-down planning systems and command and control implementation instruments are giving way to bottom-up and participatory planning systems and incentive based implementation strategies. The trend towards decentralization does, however, not mean a diminished role for the central government. On the contrary, its role becomes more crucial as it evolves to setting policy, establishing and monitoring performance standards and supporting capacity building and policy implementation at all levels of the system. Most important in this emerging management environment is that a tradition of almost exclusive accountability towards central authorities is giving way to processes of reciprocal accountability (Elmore, 2004) between all stakeholders.

There is a large research literature on the management of education systems. Some of it analyzes the specific problems and context of sub-Saharan Africa, but much of it is heavily focused on primary and higher education, with little attention to secondary education. Yet, management approaches that have been successful in primary education are often important to consider for secondary education. Conversely, much of the developed country literature covers the challenges of secondary education management. Even though the context is very different, many of the lessons of experiences are relevant for Sub-Saharan Africa.

For the discussion in this chapter the following definitions are used. **Decentralization** is defined as the transfer of authority to plan, make decisions and manage public functions from a higher level of government to any individual, organization or agency at a lower level, involving delegation of power or authority from the central government to the periphery (Rondinelli, 1981). It affects the governance, management and accountability arrangements of education systems. **Governance** concerns the way political authority is exercised, decisions are made and institutional resources used to manage the challenges of secondary education for the common good[95]. **Management** denotes the process of leading the secondary education system towards the achievement of results, through the deployment of financial, human and intangible resources[96]. **Accountability** refers to holding providers of education services answerable to hierarchical supervisors, beneficiaries and other stakeholders regarding the process and outcomes of a program[97].

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[94] PPPs refer to modes of service delivery where public and private resources –provided by private school operators, parents, communities or individuals- work in a complementary way towards shared education objectives. Partners may share responsibility for a wide array of tasks including financial provision, pedagogical development, human resources development, service delivery, infrastructure, facilities management, among others. Typically, education development is supported by multiple partnerships partnership working in specific locations and/or targeting specific groups of students..

[95] Based on definitions found at *http://www.worldbank.org/wbi/governance/.html) and http://en.wikipedia.org/wiki/Governance*

[96] See *http://en.wikipedia.org/wiki/Management*

[97] Slightly adapted from a definition provided by Ahmed, 2000, p. 225. A similar definition can be found in World Bank, 1994.

This chapter first discusses how decentralization, governance and management of the education sector are organized in Sub Saharan Africa and how secondary education is affected by these changes in the overall management of the sector. It then discusses four main policy priorities for the strengthening of the management of secondary education: (i) developing effective schools; (ii) moving towards increased local autonomy and central steering at a distance; (iii) strengthening management information systems; and (iv) extending public-private partnerships. The chapter ends with some concluding thoughts on the governance and management of secondary education.

Decentralizing Governance and Management of Education

In the last decade, decentralization has become the dominant strategy for attempts to improve the delivery of public services in SSA. Central governments are decentralizing fiscal, political, and administrative responsibilities to lower-levels of government, local institutions, and the private sector in pursuit of more efficient service delivery and greater accountability. Education decentralization and reforms of education governance and management in SSA are usually embedded in these larger endeavors and have revolved around attempts to restructure centralized education bureaucracies and create devolved systems with different administrative levels, multiple providers, varying degrees of institutional autonomy and forms of school-based management. In Tanzania, for example, education service delivery is the responsibility of the Ministry of Local Government; in many countries municipalities play an important role in the provision of schooling in urban areas; faith based organizations remain in many countries important partners for the supply of education, especially at the secondary level.

The decentralization process typically involves a transfer of some form and degree of authority from central governments to provincial, state or regional entities, municipal, county or district governments and to schools. Devolution, and the distribution of authority to make decisions and to take action by local governments or local communities independently of central administrative oversight, is occurring less frequently than deconcentration, where local entities act largely as the local agents of central governments, manage personnel, and expend resources allocated to them by central authorities[98]. There is greater deconcentration in Ghana, Nigeria, Niger, Tanzania, and Zimbabwe and more devolution in South Africa, Uganda, Senegal, and Mali for example (Naidoo, 2006). While the motives are numerous and often, contradictory, most education decentralization efforts, have been motivated by political, administrative, and fiscal considerations: democratization and community participation; becoming more responsive to local needs; increasing efficiency and accountability; mobilizing resources; and devolving financial responsibility (McGinn and Welsh, 1999).

[98] Rondinelli's conceptualization of decentralization distinguishes deconcentration, delegation and devolution. Deconcentration refers to the transfer of planning, decision-making or administrative authority from the central government to its field organizations and local units, local government or to non-governmental organizations; delegation refers to the transfer of some powers of decision-making and management authority for specific functions to units or organizations that are not under direct control of central government ministries; and devolution refers to the transfer of authority for decision-making, finance, and management to quasi-autonomous units of local government such as municipalities that elect their own mayors and councils, raise their own revenues, and have independent authority to make investment decisions (Cheema and Rondinelli, 1983; Rondinelli, 1981).

Education decentralization experience

Gershberg and Winkler (2004) assess the decentralization experience in Africa; their findings are summarized in table 8.1. They conclude that:

> "… Africa does relatively well in terms of informal or formal parental participation, does reasonably well in terms of the design of financial transfers to schools and local governments, and does quite poorly in terms of clearly assigning roles and responsibilities to local governments and in providing the mechanisms and information required for accountability" (p. 29).

Table 8.1: Assessing African Education Decentralization Experience

International Lessons Learned	African Experience [Graded 1-5, 1 best]	Comments
Accountability is critical for results.	[5]Weak formal accountability mechanisms	Informal accountability mechanisms work well in community schools.
Assignment of functions and responsibilities must be clear and not overlapping.	[5]Role of local governments poorly defined and/or overlapping.	Significant divergence between legal statements of roles and reality.
Parental *participation* and empowerment are essential to good governance.	[2] Parental participation in school councils often encouraged.	Tradition of community schools contributes to parental involvement.
Well-trained *principals* are crucial for well-managed schools.	[4] Role and capacity of principals not well-developed.	Very little evidence of serious attention to the issue.
Design of *financial transfers* determines equity and efficiency.	[3]Very mixed experience — some good, some bad.	Increasing use of capitation grants to sub-national governments and/or schools.
Ministries of education must be restructured to support the decentralization process.	[4]Few examples of restructuring to provide information, technical assistance, etc.	Failure to restructure and reorient ministries is causing them to fight to retain their traditional role.

Source: Gershberg and Winkler, 2004

These sector wide findings broadly apply to secondary education. Many countries have a strong tradition of parental involvement as in the examples cited earlier of Zimbabwe (Box 4.5) and Kenya (Chapter 4 and Box 9.4). In many Anglophone countries churches and Boards of Governors have considerable responsibility for the running of secondary schools, although they are often subject to rigid government regulations, operate with severely constrained public funding and are increasingly dependent on formal and informal fees. The historically highly centralized management of secondary schools in Francophone Africa is slowly changing as institutions, legal and regulatory environment and management culture gradually adjust to deconcentration policies. On the other hand, the role and responsibilities of the different stakeholders are often poorly defined or not respected in practice. In many countries governments will fund teacher salaries but not much else. Even government schools are increasingly dependent on parental contributions (see Chapter 5). But where communities and principals work effectively together schools can perform well even under adverse conditions. The decentralization processes are highly country specific and differentiated but almost everywhere in SSA

various functions are being decentralized to different levels, providing the context for changes in governance, management and accountability systems.

Governance

Experience in many countries suggests that weak governance and slow economic development go hand in hand, while improved governance fosters development success (Kaufman, et al. 2000). These findings hold across a large number of countries; and they certainly apply to countries facing the challenge of secondary education development. A World Bank publication summarizes the main features as follows:

> "Good governance is epitomized by predictable, open and enlightened policy-making, a bureaucracy imbued with a professional ethos, acting in furtherance of the public good, the rule of law, transparent processes, and a strong civil society participating in public affairs" (World Bank, 1994, p. vii).

Four typical approaches to governance and decision making can be identified:

- Hierarchical methods that place decision making power primarily in the hands of central governments and the national central bureaucracy,
- Decentralized models where a significant part of available resources and authority are deconcentrated to local authorities – regional and district education officers and head teachers
- Networks involving public-private partnerships often including collaboration with community organizations.
- (Quasi) market mechanisms where resources are allocated on a competitive basis to different providers

In much of Sub Saharan Africa the first approach has been dominant for many decades, even though secondary schools usually have had somewhat more autonomy than primary schools to manage their affairs. In recent years there are attempts in many countries to move away from the hierarchical models towards deconcentrated models. At the same time networks are developing in many countries, while some have introduced an element of competition on a limited scale as a mechanism for decisions regarding the allocation of resources.

Yet, governance systems in education continue to vary widely across countries. Different views about the relative priority of the political legitimacy of decision making processes, technical evidence, professional opinion and economic efficiency have resulted in countries taking very different views about how decisions are to be made and who will be allowed to make them. There clearly

> "… is no single model of effective governance in secondary education [but there are] four common basic elements in countries that have a long tradition of state provision of … good secondary education: transparent, well-known regulations; a sharp definition of responsibilities … of different levels of government; strong public management; precise definition of outcomes and measurement of results" (Ahmed, 2000, p. 5).

In addition, the development of more democratic societies in SSA, the increasingly important role of NGOs in policy consultations and implementation and the rapid flow of information between stakeholders spurred by the increasing ICT penetration in SSA are further changing the dynamics of education governance especially at the post primary level. In more and more countries voters are holding elected officials and governments accountable for the performance of pubic services. An increasingly free press frequently raises education issues. Consultations with a wide range of stakeholders are a common feature of sector planning and program implementation. Student movements and protests spread rapidly as the news is communicated on mobile phones and reported in the media.

In part in response to these societal movements the governance of education is in many countries being deconcentrated by distributing responsibilities differently across levels. Many countries are strengthening the capacity for strategic planning and policy formulation at the central level and moving management functions to regional levels (e.g., Botswana and Senegal). Local officials are being asked to take on the responsibility for the preparation of local plans for service delivery within the framework of national education planning priorities. Yet, personnel decisions are rarely decentralized and local levels often have limited autonomy and remain largely dependent on provincial or district education offices.

Almost everywhere concepts and expectations of accountability are broadening in parallel to these changes in the locus of decision making authority. Many of these ideas are also beginning to penetrate policy making in SSA. Not only are ministry staff at all levels expected to meet the requirements of their jobs, but they are also accountable to parents and the community for the performance of education institutions and to students for providing meaningful opportunities to learn. In this environment accountability has three dimensions. First, education staff is accountable to those in the educational hierarchy above them. School principals must demonstrate to district or provincial education office staff that they are doing their jobs, and they must also show their local board of governors and parent-teacher association that the school is meeting requirements. Similarly, teachers must demonstrate their competence to their principals. Second, educators and education managers are accountable to students who come to the institution with a desire to learn. Educators are obliged to deliver a program of studies that meets students' needs. Third, the education system is accountable to parents and the community. These adults pay fees for children to be educated, and they should be presented with evidence that learning has occurred, as advertised. These three forms of accountability may be described as: 'upward accountability' referring to the process of reporting to those above school management in the education hierarchy; 'downward accountability' to an obligation that the school hierarchy has to learners, and 'outward accountability' to the responsibility the school system has to community members. So, all education providers are accountable to the public for the education service that they provide. But this accountability is reciprocal: Governments, political leaders, communities and parents are accountable for making sure that the education system has the wherewithal to deliver the service expected from it.

Transparency in resource allocation is a central element of good governance. The

negative impact of corruption the economic, social and political development of countries, due to increased transaction cost, reduced efficiency of service delivery, distortion of decision making processes and undermining of social values is well documented. In education examples of unethical and fraudulent behavior of administrators that undermines the efficiency and equity of service abound (Hallak and Poisson, 2002): delivery corrupt practices in the public tendering of contracts; favoritism in the allocation of scholarships, allowances, recruitment and posting of teachers; and bribes and pay-offs for admission, promotion or preferential treatment to well connected students for admission in high prestige elite schools; Similarly unethical behavior of teachers undermines the moral purposes of public education. Teachers may teach more and better in private schools; be absent from their classes to attend to their private business or teach in private schools; and curtail instruction during school hours while offering fee paying supplementary classes often on school premises. Principals may refuse to admit fee exempted children (e.g. orphans and HIV/AIDS victim) who generate cost but do not bring in revenue for the school. Considerable benefits for education development can be realized in countries that take action to heed the call for action from the World Education Forum in Dakar 2000: "Corruption is a major drain on the effective use of resources for education and should be drastically curbed" (UNESCO, 2000b, par.46). Unless and until issues of corruption and ethics are addressed policies intended to benefit the poor – for example targeted scholarships, conditional cash transfers, and equitable opportunities to learn and proceed to secondary school- are unlikely to have the intended impact.

Management

Ineffective organizational structures and institutions, underdeveloped managerial skill and inadequate information systems all constrain the ability of many education systems in SSA to manage the delivery of secondary education. Management arrangements are affected by the organization of instruction in secondary schools (Box 8.2) and by the system of governance. While the objectives of access, quality and efficiency are perennial, the strategies for achieving them have changed dramatically in many countries in the region. First there has been the shift from an emphasis on the efficient distribution of inputs to the delivery of results in terms of student learning. The old assumption that an adequate supply of inputs automatically produces the desired learning results is no longer accepted. Second, the school is now almost universally recognized as the place where the desired learning results are produced and is becoming the focus of change and improvement efforts. Third, the industrial production model – known as scientific

Box 8.2: Instruction in secondary schools

- Teaching is organized around subjects, taught by specialist teachers who often work in isolation.
- Students can choose among different subjects especially in the upper grades.
- To accommodate subject matter teaching and choice, schools are large.
- With a large number of students and staff, management structures are often complex.
- Catchment areas are often large requiring formal or informal boarding arrangements.
- The socialization of young people, especially of at risk groups, is an important objective of secondary education.
- Adolescents often are "activist" participants in the education process.

Box 8.3: Kenya: Board of Governors (BOGs)

BOGs were created by the Kenyan Education Act (KEA) in 1966 to establish a more direct link between the central ministry and secondary schools. They have the main administrative and financial management authority for the school. They set school fees using government guidelines, ensure sound financial management, mobilize resources, set priorities for spending and see that all expenditures are authorized. In addition, they oversee school facilities and monitor school performance. BOGs report to District Education Offices. BOG members are appointed by the central ministry. They do not always possess the required management skills or education expertise.

Each secondary school also has a PTA, which monitors school performance, raises funds to supplement the school budgets and participates in decisions on the use of these funds. An elected PTA executive committee is liaises with the BOG. In practice, however, the two bodies are often in conflict.

The school head is directly accountable to the DEO and the BOG and reports to the PTA, especially on the use of its resources Lack of documentation limits the ability of PTAs to monitor finances, understand how money is spent and approach the education authorities.

Source: Glassman, 2008

management, Taylorism or Fordism – has been widely discredited as an effective approach to managing the education sector. Standardization and uniformity of instruction is giving way to diversity, flexibility and responsiveness to different student needs and contexts. Fourth command and control models are being replaced by management and planning models that emphasize incentives, local autonomy and accountability for results. Fifth marked improvements in the timely availability of educational statistics make it possible to move towards data based management strategies.

In this context local management structures are increasingly important. In particular in Anglophone countries, secondary schools often operate with considerable autonomy run by Boards of Governors (BOGs) or similar appointed trustees. In addition Parent Teacher Associations (PTAs) contribute resources and are involved in the allocation of resources. (Box 8.3). Many secondary schools have religious affiliations, and the role of church authorities in the local management structures remains important. Each of these bodies can have a significant impact on the quality of schooling offered if their respective roles are effectively aligned with those of higher level administrators and professionals such as inspectors and counselors, well defined and understood by all parties concerned. In most countries BOG members are appointed, but often they are not selected based on credentials in education. Many PTAs are recognized as entities that can supply funds to schools but are not given the voice they need to make a difference on education issues. Francophone countries have a legacy of centralized management systems that are changing, but most often only slowly. Resource allocation decisions typically remain centralized, although parental and community contributions are becoming more and more significant and increasingly managed at the school level. An interesting development is the creation of funds that support the preparation and implementation of school development plans (projets d'établissement). Where a national level control has been replaced by provincial or district level controls the impact has often limited; where principals and communities are provided with adequate resources and are held accountable for there effective and transparent deployment schools performance has often improved significantly as for example in Tanzania and Uganda.

Towards Effective Schools

The deconcentration of management responsibility for secondary education and the diversification of the sources of funding of schools (Chapter 5) are transforming the way the way public schools operate, making them more accountable to students, parents and communities. These reforms go by different names – school based management, school autonomy reform, school improvement programs – but in fact they are different forms of administrative decentralization or deconcentration. The evolving approaches to governance and management of secondary education are resulting in (i) recognition of the school as the focal point for quality improvement and the unit of change in the drive towards the development of more "effective schools" (ii) increased autonomy and decision making power at the school level; (iii) a new context for central direction and support.

School improvement

There is a well established body of research, largely from industrialized countries that has identified the features of high performing – effective – schools. Table 8.2 summarizes the principal findings. There is little doubt that these apply also to schools in the developing world including SSA. But it is important to note that the fact that key factors –competent teachers, textbooks and a well designed curriculum - are often not in place (as discussed in chapters 6 and 7). This jeopardizes students' opportunity to learn, constrains the principal's ability to create a positive school climate and the teacher's capacity to use classroom time effectively. Ensuring that these preconditions for learning are addressed and schools are ready to provide effective opportunities to learn is a first step towards school improvement Chapter 6 discussed in detail curriculum issues and chapter 7 issues related to school leadership, teacher competence and textbook provision

Table 8.2: Key Factors of School Effectiveness

Factors	Components
Educational leadership	▪ School leader as information provider ▪ Initiator and facilitator of staff professionalization
Curriculum quality	▪ Setting curricular priorities ▪ Opportunity to learn
School climate	**(a) Orderly atmosphere** ▪ The importance given to an orderly climate ▪ Good conduct and behavior of pupils **(b) Climate in terms of effectiveness orientation and good internal relationships** ▪ Perceptions of effectiveness-enhancing school climate ▪ Pupils' engagement ▪ Appraisal of roles and tasks
Evaluative potential	▪ Monitoring pupils' progress ▪ School process evaluation ▪ Use of evaluation results ▪ Keeping records on pupils' performance
Effective learning time	▪ Time ▪ Monitoring absenteeism ▪ Time at classroom level

Source: Scheerens, 2000

But even where the basic inputs necessary for effective schooling are available, they are often not sufficient to bring about the desired improvements that put poorly performing schools on the path towards effectiveness and move good schools towards continued improvement. Understanding these processes has been the focus of the school

improvement research which aims to identify the processes that allow schools to improve and progress to higher levels of performance. It initially focused on primary schools (Edmonds, 1979), but soon included secondary schools beginning with the work of Rutter et al (1979) in the UK. The research documented the considerable difficulty of implementing on what is known about good education practice on a sufficiently large scale to affect system performance. Especially reforms that affect the way teaching and learning is practiced, rarely are adopted in more that a small fraction of the schools (Elmore, 2004). The consistent conclusion of this research is that national policy cannot mandate what matters and that the quality of local implementation determines outcomes (McLaughlin, 1990). This research has had considerable impact on school improvement policies in particular in its emphasis on (Murphy, 1992):

- the educability of learners: given the right conditions and appropriate instructional strategies it is possible for all children to learn;
- student learning outcomes as the indicator of quality: examining indices of learning to identify value added;
- taking responsibility for students: do not blame the victim (the student) for the shortcomings of the school; schools should take a fair share of the responsibility for students' learning performance;
- consistency throughout the school community: treat the school as an organic whole- more than the sum of its parts – and do not focus on only the parts.

Box 8.4: How schools improve: Evidence from developing countries

- Education reform is a local learning process.
- Commitment at all levels is essential.
- Both central and local initiatives can work.
- Central support and effective system linkages are vital.
- Concrete, locally available, continuous in-service training, with a focus on classroom practice and reinforced through peer collaboration and timely and support from local and district educators is central to the process.
- An environment of high expectations will help produce results and share successes.
- Active community roles in funding and management of schools.

Source: Dalin, 1994

Research on effective schooling and school improvement in developing countries is limited and almost all of it has focused on basic education. The work of Dalin (1994) –one of the few comprehensive studies of school improvement in developing countries (Box 8.4) – suggests that there are significant commonalities and that the lessons of the school improvement research are, as Dalin concludes, "generic and quite fundamental" (p.253) with implications that should be considered in all education systems.

The implications of these findings for the design and management of secondary education reforms that will be necessary to meet the challenges are important, especially for those reforms that aim to change the curriculum content, methods of instruction and assessment, and increase levels of student learning and do so on a large scale. Elmore (2004) identifies, based mainly on a review of North American research, some key elements that need to be in place to move towards improvements in student learning on a large scale:

- Leaders with knowledge and skills to master the practice of instructional improvement;
- Distributive leadership drawing on the skills and experience of people in the school;
- Clear expectations and focus on standards of learning that apply to all; and
- Differential treatment of high and low performing schools, where discretion in decision making is a function of demonstrated capacity to provide effective instruction.

Research and experience in Sub-Saharan Africa confirms that with effective leadership and a supportive policy environment schools can become more effective. A study in four Francophone countries (Pelletier, 2005) found the following characteristics of leadership in high performing schools in a sample of schools including five junior secondary institutions:

- Well structured, visible and transparent school management involving all staff;
- Regular monitoring of student performance and teaching practices combined with support for professional development and training of staff;
- Student learning as the central concern of school management;
- Effective management of the involvement of external partners.

Several countries are explicitly targeting central support on low-performing schools. South Africa for example targeted interventions at "dysfunctional" schools –those with final exam pass rates of less than 20%- to students and school personnel deal with the legacy of the apartheid era (Rault-Smith, 2006). Such strategies are likely to be most effective in schools with a high level of agreement among members of the organization on the norms, values and expectations that shape their work. Elmore (2004) calls this internal accountability and argues that there is strong evidence such schools function more effectively under external accountability pressure. Building such an environment may be the first step on the path towards the improvements in school effectiveness that are needed in many Sub-Saharan African countries. When combined with the provision of essential instructional resources and external professional support, significant and sustainable improvements in student learning are likely.

More Local Autonomy

Effective schools and school improvement research has consistently identified the school as the locus of change. Secondary schools need to be able to respond to the local context and the demands of the communities they are serving. At the same time they are expected to contribute to national performance objectives of quality and relevance of leaning outcomes and efficiency in resource use.

Umansky (2005) finds in a literature review of teacher quality and incentives that the most powerful predictors of student achievement are school management characteristics rather than observable teacher characteristics. There is an increasingly robust body of evidence that suggests that school-based management reforms strengthen the accountability relationship between teachers (and schools) and communities. Such reforms can result in, among others, (See Vegas and Umansky, 2005 for experiences in Central America)

Experience from Latin America further suggests that management reforms, that strengthen local authority for the management of schools, have the potential to create significant incentives affecting teacher performance. Community management of schools can improve teacher effort and student achievement presumably as local control over the school budget allows community members to exert meaningful pressure on teachers and to design compensation systems that serve as an incentive for greater teacher effort. This in turn, results in less teacher absenteeism, more teacher work hours, more homework assigned and closer parent-teacher relationships. This is the base for higher student academic outcomes in community managed schools as compared with traditional schools (Umansky, 2005). Woessmann (2000) comes to analogous conclusions for a large sample of middle income countries (Box 8.1). These are promising changes; especially in contexts of low educational quality where teacher absenteeism is high and schools are often not functioning at all. Experience in Sub-Saharan Africa confirms these findings. Glassman and Millogo (2003) report significant improvements in student learning in community managed village schools in Mali. Niane (2003) reports comparable findings for Senegal and Madagascar where communities design school improvement programs and implement them with central government financial and technical support.

Nevertheless, other studies of decentralized school systems do not demonstrate such straightforward positive associations with teaching quality. Umansky (2005) also reports a study that looked at school-based management in 12 Latin American countries, which found a positive and significant association between school-based management and test scores but where a more detailed analysis suggests that in particular schools in which principals, staff members, or communities have the capacity and will to manage their schools will, in fact, benefit from decentralization. Where this condition is not met, however, students actually do worse in decentralized systems. The authors conclude that decentralization does not seem to work well when coming from a central mandate; on the other hand when emerging from local capacity and interest it often has positive results. It is important to note that studies in Sub-Saharan Africa find that capacity constraints of local actors, weak institutions and cumbersome procedures have often precluded the effective implementation of centrally designed innovations (Solaux and Suchaut, 2006; Niane, 2006). While virtually all of this research has focused on primary schools, it is likely that the findings do also apply to secondary institutions – as is the case in the industrialized country research.

Increasing the autonomy of schools and local stakeholders to act thus is an important element of the secondary education management reforms, but one that needs to be implemented with care. This would imply specifically:

- Strengthening the local and in particular the school level capacity to manage change and improvement programs;
- Designing school level interventions that build on but do not surpass by a large margin the professional knowledge and skills and of the teachers concerned;
- Allowing for local adaptation of improvement strategies while maintaining a clear focus on the overall objectives;

- Establishing institutions which can provide supervision and technical support to school level action;
- Ensuring the availability of the resources necessary for the implementation of improvement programs.

Central in this process of school level action is the principal. There is a well established body of research (Mulkeen et al, 2007; Glassman, 2008) that emphasizes the critical importance of the principal in high performing schools. Effective school leaders (i) focus their efforts in school on student learning, (ii) mobilize stakeholder support to the school and (iii) ensure the effective allocation of resources. But relatively few countries have acted by providing clear job descriptions for principals and linking selection policies and training programs to them (Chapter 7). Moreover, the tradition in Francophone countries has been that school principals focus on administration[99] while inspectors focus on pedagogical issues. This model is now being questioned as inappropriate especially for schools located in rural areas and in situations where school based management models are being introduced.

Evolving central direction and support

The changes in the way secondary education is managed imply changes in the role of central administrative authorities – away from the direct management of provision towards policy formulation, quality assurance, monitoring of performance, supervision and support for school improvement programs. At the same time they will need to maintain responsibility for ensuring that disadvantaged children -especially girls and those that are poor – are not precluded from attending secondary school because of their inability to pay. Decentralization has many promising aspects but it should not lead to the exclusion of the poor and disadvantaged. Resource allocation criteria disproportionately favoring the poor are an essential part of education decentralization policies.[100]

Box 8.5: Policy challenges in secondary education

- Specifying objectives of secondary education: structure, content, and duration of programs.
- Establishing a policy for transitions from primary to secondary education, between junior and senior, and general and technical secondary education as well as for movements between tracks.
- Clarifying the relationship of secondary education and the labor market: to what degree and how is schooling meant to prepare students for the world of work?
- Providing for equitable access and selection by targeting public resources towards disadvantaged students
- Defining roles and responsibilities of staff and stakeholders at all levels and governing bodies.
- Creating standards for student learning and an assessment mechanism to measure it.
- Setting up a framework for private-public partnerships.

Source: adapted from Glassman, 2008

Although patterns of allocation of decision making authority vary considerably across countries (McGinn and Welsh, 1999), in this emerging management environment the government should be committed to ensuring that adequate resources are

[99] In several Francophone countries regulations do not allow principals to enter classrooms for pedagogical supervision of teachers.

[100] South Africa for example has as an official policy objective that 60% of education spending should benefit the poor.

available to schools, while schools are accountable for using their resources in such a way that the expected learning outcomes are achieved. These role changes are demanding for administrations that have been pre-occupied with input delivery, organizing examinations and administering teacher assignments without much of a strategic vision. More of the same is not enough, clear policies for reform are mandatory. Meeting the challenges of secondary education development requires complex and most often politically controversial policy decisions (Box 8.5).

But deciding the policy reforms will not suffice. Implementing them will often be even more demanding, especially where changes in the nature and outcomes of teaching and learning processes are intended. It will involve shifting the focus of action from inputs to outputs, allowing for flexibility in program delivery, insisting on accountability for results, managing through incentives instead of directives, strengthening local capacity to take over central responsibilities and creating an environment that promotes the participation of different financiers and providers.

School based management and decentralization are creating opportunities for local implementation management. But success will only happen with leadership and support of district and central services. What is involved for the staff of many Ministries of Education is a culture change – adopting a different set of values and beliefs about what is important and how things are done – that will need to be led from the top and accompanied by training of all staff and stakeholders concerned and changes in incentive systems and work processes.

Box 8.6: Task specifications in Senegal

In 1997 task specifications were established for administrators and teachers in the Senegalese education system at the defining with precision what each of the participants- inspectors, school principals and teachers – had to do to ensure an acceptable level of school effectiveness and learning. These specifications were developed in a participatory process and maintained in annual seminars with school directors, reminders at the beginning of each school year, and integration in official manuals. Implementation has had a positive effect on the management of schools in Senegal. It has created a more participatory management environment and one in which each has a clear understanding of how s/he can help improve the school performance and student learning. It provides a basis for a more professional and better structured approach to management and teaching in the Senegalese education system. Unlike past practice when often nobody felt accountable for anything, the use of the task descriptions has made it possible to assign task responsibilities to individuals and at the same time emphasize the collective responsibility for school and system performance.

Source: Gueye et al., 2003

Whatever the specifics of the reform agenda several enabling conditions need to be in place:

- Clear definition of roles and responsibilities at every level (Box 8.6);
- Transparent procedures for hiring competent staff;
- Training programs that provide staff with the skills to do their job;
- A governance structure that avoids overlaps or gaps of responsibility and authority
- Systems for creating, collecting, and transmitting data and management tools efficiently through the decentralized offices; and
- Mechanisms that promote evidence based and transparent decision making.

Data Based Management Systems

Steering an education system that aims at the same time to provide central direction in pursuit of national policy goals and encourage local autonomy and decision making, requires that reliable performance indicators are available to managers at different levels. But in only in a few countries in SSA are the units responsible for education statistics able to respond to these rapidly growing information demands. Education data are often of poor quality – incomplete, poorly specified, not comparable year to year, or inconsistent between different data sources. Moreover, they are usually available too late to affect current action or policy; difficult to access; or poorly presented. In fact, most education statistics remain oriented to reporting historical data for publication in a voluminous statistical yearbook often providing considerable detail, which if used, serve mainly the national administrators or researchers. Even where these systems provide reliable data, policy-makers often do not use them to guide education policies, in part because of problems of unfocused presentation and paucity of the analysis that accompanies them.

Several countries have attempted to address these issues by introducing an Education Management Information System (EMIS): a comprehensive system that brings together people, process, and technology to provide timely, cost effective, and user appropriate information to support educational management at whatever level needed (Moses, 2001). Although progress has been realized in several countries – often with significant international support[101] – few EMISs actually operate at the multiple levels necessary for effective management of education in most countries. While data on enrollments and inputs are generally collected regularly, data on outcomes and finance are often incomplete and unreliable. A set of indicators that should be available for planning and monitoring of progress is suggested in table 8.3. Indicators and performance benchmarks should be determined separately for both JSE and SSE. In addition to the information on the traditional input and process metrics such as enrollments, teachers, facilities, equipment, drop-out, performance and repetition, education systems should collect information on outputs mainly from data on student performance on examinations and national assessments.

Most countries have an examination at the entrance of secondary school, at the end of secondary and at the end of senior secondary education. While well designed examinations can provide useful information and can help improve school performance especially when results are fed back to the schools (Box 6.6), they are not effective instruments for monitoring student learning performance and managing quality improvement. They are typically designed for selection of students or further education, rather than for certification of curriculum mastery, they are often not standardized and do not allow reliable comparison of performance over time; and they do not provide information on student home background or school characteristics necessary to interpret the results in a meaningful way (Kellaghan, 2004).

[101] The UNESCO Institute of Statistics, the Working group on Education Statistics of the Association for the Development of Education in Africa, the World Bank and USAID have actively supported efforts to introduce EMIS.

Table 8.3: Selected Secondary Education Development Indicators	
Participation	Enrollments: Male/Female (number, % of age group) Public/private Rural/urban Boarding/ day schools Key options and subjects Transition rates: Primary/junior secondary Junior/senior secondary Graduates as a proportion of age group Rural/urban by gender
Learning outcomes	Performance on international assessments Examination results (by key subjects) Repetition and drop out
Inputs	student/ teacher ratio teachers per class non-teaching staff ratio per class class size hours of instruction per student (planned and delivered) proportion of qualified teachers in-service training days/ teacher student textbook ratio student class room ratio student specialized rooms ratio
Finance	Total public expenditure on secondary education: Recurrent Capital Scholarships Total private expenditure on secondary education Recurrent cost per student (day/boarding): Teachers Non teaching staff Textbooks Supplies School operation cost Boarding cost System overhead Fees per student in government school Fees per student in public schools Students with scholarships Cost per classroom Cost of specialized facilities
Equity	All key indicators should be broken down by gender, geographic location and wealth

Effective results focused management strategies need reliable assessments of student learning designed to describe the level of achievements, not necessarily of individual students, but of the whole education system, or a clearly defined part of it (e.g., fourth grade pupils, 11-year olds or a school). Most assessments in Sub-Saharan Africa are based on national samples and cannot be used to monitor school performance. In South Africa the *National Education Policy Act* of 1996 stipulates monitoring and evaluation of the education system and in 2001 a sample of grade 3 learners were tested in numeracy, literacy and life skills and in 2004 a sample of grade 6 learners were tested in math, science and literacy.

Few assessments of education achievement in Sub-Saharan Africa include secondary schools. This constrains the ability of countries to move towards results based management strategies and focus national efforts on the improvement of learning achievement. Several countries are moving towards the monitoring of school level performance by districts and regional managers using process indicators repetition and drop-out rates and examination results. In addition, decentralization of school management responsibilities, efforts to increase increased transparency of resource allocations and attempts to strengthen the "voice" of parents and communities in school management have led to the

development of "school report cards" which provide school level information to local stakeholders[102]. The nature of these report cards can vary considerably.

Box 8.7 Nigeria: Kano State School Report Card and Data Management System

In Kano state in Nigeria, schools receive data from the districts. Multidimensional reports are targeting different issues and different users, as designed by the end-users themselves. Together with school-specific information these reports are used to strengthen local school management. The report cards show basic information about the local school in easily assimilated graphic format that shows school indicators with comparisons to the local government areas and the state. Not only are reports provided in paper format, but education information is provided to the general public via radio shows that not only discuss the measures and implications of various indicators, but also inform stakeholders about the availability of information from the EMIS.

These school report cards have been an effective tool for rationing scarce resources by providing information at the district and school level of resources across all schools in the local government areas and the state. Information is now being used by stakeholders to insure transparency in system management and create accountability between the school and the community and between the central and local governments. The school report card provides a baseline measure upon which system goals and standards can be developed.

Source: Cameron et al. 2006

The Uganda school profiles focus mainly on inputs using disaggregated national statistics; Fundamental Quality Reports in Kano State, Nigeria (Box 8.7) provide information on inputs and processes and comparators with other schools; Namibia's school self assessment system focuses on inputs, processes and outputs and includes comparators with other schools; in Ghana the School Performance Assessment meetings use national math and English assessment data to identify strategies and set targets for improving school performance; in Guinea school assessment worksheets provide the basis for meetings of an assessment of school performance by teachers principals and parents. In Parana state in Brazil the report cards even included a summary of parent satisfaction surveys.

Some countries followed a bottom-up approach where local actors collaborate to develop a report card, in others the process is top-down where the existing statistical systems and standardized assessment systems can provide the necessary data. Where the report card emanates from a bottom-up strategy, data tends to be simplistic, with little opportunity for comparison with other schools, either in terms of resources or performance. In several countries aggregated school level data are being used by district administrators to identify poorly performing schools and target them for special support and supervision and improve equity in the distribution of teachers and discretionary resources across schools. In the US report cards are being used to monitor "adequate yearly progress" of schools, enforce learning performance standards and promote the public accountability of schools under the "No Child Left Behind Act".

The AGEPA[103] project has helped several Francophone countries develop and implement instruments for this kind of outcome based management for primary education using

[102] This discussion draws heavily on the review of the experience with school report cards by Laurie Cameron et al. (2006)

[103] Ameliorer la Gestion de l'Education en Afrique supported by the World Bank, France and several other bilateral donors.

commonly available statistical performance indicators. Perhaps most important is the political will to sustain the effort, this is especially important when high stakes consequences are associated with the report results or when considerable capacity building is required to ensure sustainability.

The review by Cameron et al. (2006) concludes that performance data and cross-school comparisons are strong motivators to mobilize communities and school management committees for participation in the work and management of their schools. At the same time, there are constraints on the feasibility and sustainability of school report cards as regards the capacity of education information system to produce accurate and timely information that is understood by its audience and provides useful comparative information and the capacity of audiences to effectively use the information.

The quality and timeliness of educational statistics has improved markedly in recent years, but much of the effort to improve statistics, develop performance indicators and measure results and outcomes has been focused on primary education. Effective management of secondary education development will require a similar effort for secondary education. Expanding the coverage of programs such as SACMEQ[104], PASEC[105] and AGEPA to include secondary education and strengthening the capacity of countries to conduct quantitative and qualitative research to provide data necessary for policy reform must be a high priority in many countries.

Public-Private Partnerships

In many countries the Ministry of Education has traditionally interpreted its task of managing secondary education largely as one of managing the government secondary schools. This is increasingly inappropriate as new ways of service delivery – distance education for secondary education equivalency, short vocational courses and informal training programs – emerge; and alternative providers – including municipalities and local governments, but also importantly private for profit and non-profit organizations, NGOs, faith based organizations and communities – proliferate. In fact, even the provision of public schooling is increasingly organized through public-private partnerships involving a formal or informal collaboration of government agencies with faith based organizations, communities and parents. Chapter 5 described how the financing of secondary education is becoming more and more a joint effort of governments and parents, as parents pay fees in government schools and government subsidize private providers (see table 5.9 for different models).

There is an international trend towards strengthened public-private partnerships (see for example Box 3.2 for OECD countries), in particular in post primary-education. While conditions in Sub-Saharan Africa are different than in other regions –private sector

[104] The Southern Africa Consortium for the Measurement of Education Quality is assisting education planners and researchers in 15 countries to monitor and evaluate the quality of education by supporting surveys of learning achievement in member countries. Testing of grade 9 students is being considered for the next round in 2007.

[105] The Programme d'analyse des systèmes éducatif du CONFEMEN has realized studies and analyses of learning achievement in 11 Francophone countries in Africa. Work has so far focused on primary education.

operators are often fragile, the regulatory framework work ineffective and the capacity for oversight inadequate- PPPs are becoming increasingly common, nevertheless. They take several different forms: private or NGO funding for and management of public schools, government sponsorship of students in private schools and partnerships for infrastructure, administrative or curriculum services NGOs in Mali and Guinée for example help communities operate private (community) schools and government schools in disadvantaged locations. Private providers of training are ubiquitous – some operate with public support from national training funds, many others do not. Cote d'Ivoire provides public scholarships for students to attend private schools. Burkina Faso has supported the construction of classrooms by private operators. The government of Chad subsidizes the salaries of teachers in community schools. Communities commonly build classrooms for secondary schools – sometimes with government subsidies often without. Textbooks are typically produced by private publishers. Parents contribute formal and informal fees for the operation of schools. Where well designed, such public-private partnerships (PPPs) have the potential to combine the benefits of private operation and public funding. Woessman (2005) summarizes the positive aspects of public and private sector involvement as shown in table 8.4.

Table 8.4: Benefits associate with public and private sector involvement

	Public sector	Private sector
Provision	Inculcation of beliefs and cultural values	Incentives for cost containment and qualitative innovation
Funding	Enabling choice for credit-constrained families	Increased accountability

Source: Woessman, 2005

In the same paper he analyzes the impact on student learning of different combinations of public funding and private operation for 29 mostly industrialized countries that participated in the PISA survey. He concludes that:

> "…across countries, public operation of schools is negatively associated with student performance in math, reading and science, while public funding of schools is positively associated with student performance in the three subjects. This suggests that school systems based on PPPs in the sense that the state finances schools but contracts their operation out to the private sector are the most effective school systems. By contrast, school systems based on PPPs in the sense that they require a lot of private funding but keep the operation of schools in the public sector fare even worse than systems where operation and funding is either both public or both private. Thus, the results favor the particular form of educational PPPs where the state does the funding and the private sector runs the schools" (p. 20).

Many of the benefits of private operation identified by Woessmann are related not so much to ownership but rather to the mode of operation. Government schools can potentially realize many of the performance outcomes associated with private operation,

Box 8.8: Registering a private school in Kenya

- Application for registration of a school is made in a prescribed form and is submitted to the Registrar through the District/Municipal/City Education Officer.
- Application form is accompanied by the following documents:
  - Inspection report from the Public Health Officer indicating whether the institution complies with the set of health standards.
  - Inspection report from the inspector of schools
  - Minutes of the District Education Board in which the application was discussed.
  - Certification of registration of business name from the Registrar General.
  - An application for the approval of the district manager.
  - Names of school managers and copies of their education certificates.
  - School size in terms of land (rules differ depending on locality).
  - Proof of ownership of the land on which the proposed school is or is to be built.
- Once the Registrar receives the application, it is presented to the Ministerial Committee on Registration of schools for evaluation in accordance with the relevant provisions.
- If approved the application is forwarded to the Ministry of Education for authorization.
- The Minister issues two letters to the manager of the school approving and authorizing the operation of the school.
- The Registrar issues a certificate to the institution after the final inspection.

Source: Glassman, 2008

especially where increased local autonomy allows them to adopt the management models and ways of operation that are similar to those found in the private sector. The key issues is therefore how a productive arrangements for public private partnerships can be created, i.e. one where each partners takes responsibility for what it does best and where good practice is adopted across all schools. But often the potential contribution of the private sector is not effectively mobilized. In some countries the private sector is simply neglected, in others bureaucratic process creates obstacles to the start-up and operation of schools (Box 8.8). There is little doubt that there is an important role for the government in the management of secondary education, but it is equally obvious that when the government fails to recognize, encourage and support the potential of non-government actors and non-traditional modes of service delivery it constrains education opportunities, particularly for the poorest people.

A legal and institutional framework for such partnership arrangements is an essential first step towards effective partnerships. Box 8.9 highlights some of the key elements that such a framework would ideally provide for. In most countries adopting the essential elements this kind of regulatory framework is only meaningful when the government's capacity to implement is strengthened and tangible benefits are available to private

Box 8.9: Elements of Framework for Partnerships with Private Providers

- Effective legislation for private schools that establishes an enabling policy and regulatory environment and a strong legal framework, by
  - establishing entry requirements for new providers that are clear, and not unduly onerous;
  - ensuring that education and other relevant legislation do not unduly restrict schools' ability to operate effectively and efficiently;
  - ascertaining that all schools provide reliable information to parents on school performance Provisions to support access of academically eligible students from poor background.
- Arrangements for consultative mechanisms to discuss policy and operational issues.

LaRoque, 2005

operators. Departments responsible for registering private schools are typically so understaffed that they cannot visit school to check for compliance with accreditation criteria. Private schools are rarely visited by MOE inspectors. At the same time many private operators see little benefit in registration that subjects them to taxation and health and safety regulations. Yet accreditation can help them attract more fee-paying students and make them eligible for public subsidies. Effective partnerships will only happen where private and public funding complement each other in a mutually beneficial framework.

Effectively addressing issues of equity is central to the success of PPPs. Fees in private and public institutions often make it impossible for poor children to enroll in secondary institutions (Chapter 5). Scholarships, fee waivers and subsidies are the most common ways to address this. South Africa has established PPPs that capture the potential contribution of private institutions and at the same time incorporates concerns for equity (Box 8.10)[106].

Governments thus have established partnerships with private providers in several

Box 8.10: South Africa: Integrating a fragmented system

The education system the democratically elected government inherited in 1994 was highly fragmented and unequal. There were 17 different public systems, and a wide array of private and semi-private schools. Funding inequities were extreme, with severe underfunding of schools in the homelands and townships serving impoverished black communities. To redress these inequities and accommodate a large influx of new students an education policy was established that capitalized on the potential of both private and public providers while targeting public spending on the poorest students. The 1996 South African Schools Act recognizes only public and independent schools. The latter category includes community schools, religious schools and non-religious for profit and not for profit schools. Many of these deliver valuable educational services but others deliver services of low quality. Almost 10 percent of the schools (enrolling less than 4% of the students) providing secondary education are independent.

Independent schools can receive a subsidy based on the *National Norms and Standards for the Funding of Public Schools*. Each school requesting funding is subject to a checklist including indicators of sound management, such as whether it keeps proper admissions and attendance registers, maintains fee payment and other financial records and must allow unannounced inspections by the provincial education department. Refusal results in forfeiture of the subsidy.

Subsidies reflect the socioeconomic circumstances of a school's clientele. The level of school fees charged by an independent school is taken as an objective, publicly-available indicator. Schools charging the lowest fees qualify for the highest level of subsidy. Subsidy levels are related to fee levels on a progressive scale. Schools charging the highest fees, in excess of 2.5 times the provincial average cost per learner in an ordinary public school, are considered to serve a highly affluent clientele, and no subsidy will be paid to them. Schools that charge up to 0.5 times of the provincial average public cost per learner are entitled to a subsidy equal to 60% of average public cost per learner.

Source: South Africa, Department of Education, 1996

different ways and for different purposes (i) direct subsidies for operating and/or capital expenditures; (ii) demand side financing, i.e. the provision of scholarships to help

[106] It is worth noting that in the South African context its effects are marginal (independent schools account for only 4% of enrollments and not growing), mainly because of the wide availability of low-cost public education. Yet the basic policy idea of subsidizing low-fee schools and encouraging them to enroll poor students is an attractive one that could be considered by other countries.

students pay the fees of private schools (as in the case of Ivory Coast described in box 5.5); (iii) partnerships with communities to help schools respond better to local needs, strengthen local ownership and support for school operations (Box 8.11).

Box 8.11: Partnering with communities

Two of the thematic studies commissioned for SEIA emphasize the important role communities can play in the development of secondary education. The HESI study examines promising practices in health and life skills education and finds that especially where resources are limited, community engagement becomes critically important in addressing health and civic education issues by linking 'within school' and 'beyond school' activities. The TRANSE study argues a similar point in support of equitable transitions from primary to secondary and from junior secondary to senior secondary. It recommends that projects and policies aiming at efficient and equitable transitions in secondary education as far as possible connect local, small-scale, community oriented measures with national policies and strategies. Strong school-community links have a range of positive effects including the strengthening the involvement of parents or others from the community in the steering of schools and the mobilization of local resources for the improvement of schools. The studies provide examples of the community taking part not only by paying fees or building and maintaining of class rooms but also, and perhaps most importantly, by participating in extra-curricular activities. Examples are HIV/AIDS prevention programs and programs that help youngsters in difficulty persist in school and transit into secondary education. Such programs strengthen school-community links and contribute to the responsiveness of teachers and school leaders for the needs and the problems of the community, including factors causing trouble for the children in their attendance and school-work.

Source: TRANSE 2008; Smith et al, 2007

Conclusion

The trend towards decentralization of the delivery of government services combined with the changing configuration of the organization and delivery mechanisms of secondary schooling has important implications for the management and governance of the system. As the number of primary school graduates and secondary students mushrooms it will become increasingly important to diversify modes of delivery and offer a range of programs that responds to their different preferences, skills and interests. Most countries are likely to extend the duration of basic education. Sometimes schools will offer some or all of junior secondary education by adding classes to primary schools; in other cases junior secondary will be offered in separate institutions or in combination with senior secondary education; there may even be instances where a primary and all of secondary is offered in a single institution. Junior secondary programs will often have a large common core to be taught to all students; at the senior level there will often be a large number of different programs and institutions, offered by a multiplicity of providers and delivery mechanisms.

Management of secondary education will need to be organized in such way as to support – rather than hinder – this differentiation and diversity. The key is creating flexibility and diversity of structural arrangements and delivery modes to respond efficiently to different local contexts. Uniform centrally managed systems with rigidly standardized programs and delivery mechanisms are unlikely to be able to respond efficiently to the demands of secondary education development in Sub Saharan Africa. Where school principals are accountable for results and work together with communities to ensure local relevance

support much can be achieved provided central financial and technical support is available to complement and enhance local efforts.

The demands of secondary education development will often exceed the government's capacity to provide public schooling. This will make it imperative to develop public-private partnerships that ensure the expanded provision of secondary schooling. The consequence is an increasing number of participants in the management of secondary education caused by the rise in the number of schools and the deconcentration of administrative responsibilities, but also because parents are increasingly expected to contribute financially to the cost not only of private, but also of public secondary education. Secondary education governance and management will therefore need organizational arrangements and institutions that create an environment that is conducive to a range of providers and financiers other than governments. In such an environment the operation of schools would be either the responsibility of private sector operators or of public institutions applying management principles that mirror those of privately operated schools. Funding will be in the main a public responsibility with a significant proportion explicitly targeted at the poorest and most disadvantaged students.

In an increasingly decentralized and diverse system, arrangements for accountability towards different stakeholders are of critical importance. The traditional hierarchical upward accountability mechanisms will need to be complemented by external accountability mechanisms where schools and the education system as a whole share the results they have achieved and the challenges they face with parents communities and society at large. As schools have greater freedom to allocate resources and organize teaching and become directly accountable for performance and outcomes, they need good data to as a basis for discussions with stakeholders about instructional priorities and strategies for improvement. Data based policy formulation is not limited to the national level; it applies to managers and decision makers throughout the system. Planning and policy implementation will need to recognize these new realities. Much of the planning will be done at the school and district level; central plans will provide a framework for local policy formulation. Instead of centrally managed activities and directives, incentives will be used to bring about local action. Contingent allocations of national resources – usually designed to counteract the effect of economic and social disadvantage- will complement local resource mobilization efforts.

Managing such a diverse system cannot be done without a well functioning education management information system. The educational and financial challenges of secondary education developed can only be managed effectively where policy formulation is data driven and accountability is based on reliable performance indicators. An important management task is effective communication of achievements and challenges with all interested parties, including the press. The South African Department of Education for example prepares every year an annual report on the progress achieved towards the realization of national education development objectives. It is available free on the Departments website[107] .

[107] http://www.education.gov.za/

In sum. Secondary education will need to become less uniform in structure, more diverse in financing and provision and more flexible in the way instruction is delivered. This in conjunction with a judicious combination of local and school level autonomy and central direction and support can go a long way to ensure that quality opportunities are available to all students in an expanding system.

> … we have (…) a duty of equity and development, which requires that we provide all young Africans with the minimum education needed for a decent and useful existence in the 21st century, and (…) do much more with the same resources than is done elsewhere …
>
> Mamadou Ndoye, Executive Secretary ADEA at the opening of the first SEIA conference

Chapter 9
The Way Forward

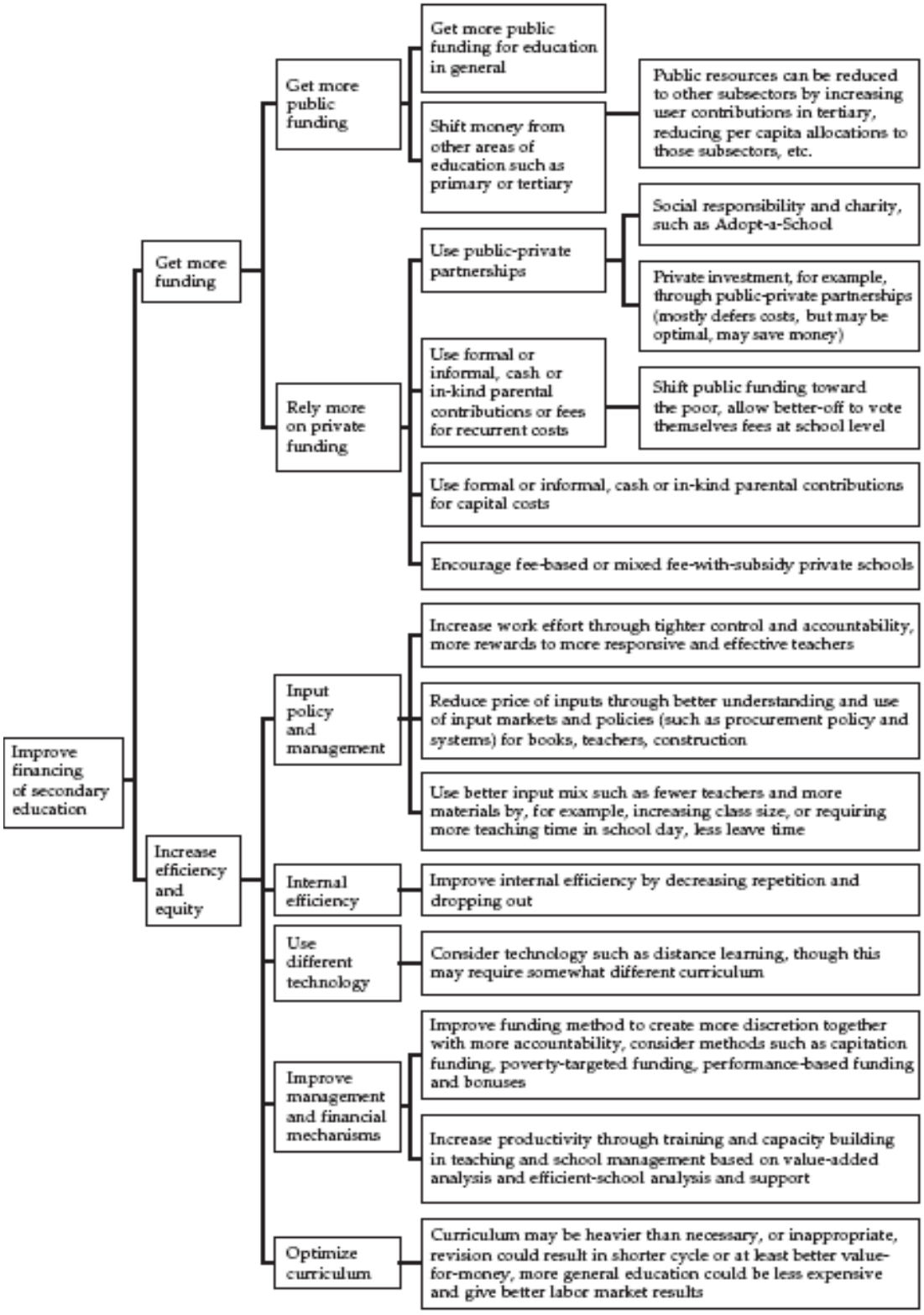
The magnitude and the urgency of the challenge involved in development of secondary education in Sub Saharan Africa has already been highlighted several times in this report. The demands of economic and social development at the beginning of the 21st century (Chapter 3) –reinforced by the pressure of social demand- make it imperative to expand access to secondary education and increase education attainment of the labor force. More of the same will not do. Changes in cost and financing (Chapter 5) and in the organization and content of secondary education (Chapter 6) will be inevitable; but perhaps even more important is the need to change the mental models (Senge, 2000) of schooling (Chapter 7) and education governance (Chapter 8) that continue to dominate policy and practice in African secondary education. Often ideology rather than pragmatism dominates policy making; evidence based policy processes remain rare. Resistance to change is often deeply rooted in the education community. In many countries education policy is detached from a longer term vision for national development, and remains the concern of professionals in the Ministry of Education and captive of the pursuit of short term problem resolution. Firefighting and politics rather than development and capacity building typifies too often the practice of education policy.

Undoubtedly, the lessons of international experience (Chapter 4) are important for African policy makers, facing the often intractable challenge of secondary education development. But there is a limit to the relevance of international lessons of experience: the economic and education environment in Sub- Saharan Africa is very different than the one that prevailed in other regions when they were making the transition from a selective elite secondary education system to a mass system that aims to:

- provide a basic education cycle of 8 to 10 years that incorporates all or part of junior secondary education to all young people;
- create opportunities for further formal and informal learning for all students interested in and capable of doing so; and
- prepare students for work in an economy that participates in a technology driven global economy.

The evidence presented in this report clearly shows the extent to which country situations in Sub-Saharan Africa vary dramatically. Differences in history, geography, demography and policy choices have resulted in secondary education systems that diverge a great deal

Figure 9.1: Decision Pathways for Secondary Education



Source: World Bank, 2005b

with regard to structure, coverage, governance and management, and instructional objectives (see Chapter 2). Yet virtually all countries are faced with the triple challenge of expanding access, improving quality and ensuring equity. Reforms in the content of the programs and in the way secondary education is organized, managed and financed are essential if this challenge is to be met. Decision trees (Figure 9.1) and lists of policy options to address the financial and management challenges have been developed by various authors (World Bank, 2005b, Lewin and Caillods, 2001). Most are based on logical analysis or international experience –mainly from industrialized countries, transitional economies or developing countries in Asia and Latin America. Relatively few are based on analyses of African experience.

This chapter will pull together the main findings of the discussion in this report so far. It will argue that (i) the conditions that historically have accompanied the expansion of access to secondary education of acceptable quality are not in place today in most of Sub-Saharan Africa and (ii) national strategies must recognize the unique nature of the African context for secondary education development. The most important options for policy reform are well-known: they have been discussed in the preceding chapters and illustrated with experience from African countries (Table 9.1). Drawing on these regional and international experiences, the main elements of a strategic framework for secondary education development in SSA will be explored, including some indicative benchmarks for resource mobilization and deployment. Countries may want to consider these potential policy choices as they plan their own national strategy. Finally the chapter discusses the nature and the pace of successful change processes.

Initial Conditions

Compared to the experience of many countries in other regions (Chapter 4) the pace of development of secondary education in SSA will be strongly affected by three factors. First, it will depend on continued progress towards the goal of universal primary completion and improvement in learning achievement. Second, sustained economic growth will be essential if the public and private resources required for a broad based secondary education system are to be mobilized. Finally, increases in secondary enrollment ratios may be jeopardized by the high fertility rate in many countries in the region which will result a rapidly growing school age population and a high dependency ratio through at least the middle of the century (United Nations, 2006).

Progress towards EFA and the education MDGs

Currently, only about one third of each age cohort in SSA can demonstrate that they have achieved a satisfactory mastery of the knowledge, skills and attitudes specified in the primary curriculum (Chapter 2). This is a weak foundation for an accelerated expansion of access to secondary education. Progress towards the MDG education goals of universal enrollment, completion and especially acceptable quality is essential if secondary education in the region is to develop in a meaningful way. Admitting more and more students, who are poorly prepared academically, will almost inevitably result in a large scale waste of resources. Students who do not master the primary curriculum are unlikely to be successful in their secondary school especially when increasing class sizes, underqualified teachers, limited availability of instructional materials and insufficient

Table 9.1. : Summary of Policy Options for Secondary Education Development		
Issue	Possible Response	Options for specific actions
Cost poorly aligned with domestic resources	Reduce per student cost	• Increase teaching load to 25 hours/week • Adjust teachers salaries in line with national resources • Double shift use of infrastructure • Boarding only for students from remote areas • Improve internal efficiency, reduce repetition
	Integrate part or all of lower secondary with primary education	• Extend duration of basic education to 8 or 9 years • Simplify curriculum • Upgrade primary teachers to subject matter specialist for upper primary/junior secondary grades
Curriculum not relevant to demands of labor market and modernizing society	Provide common core of general subjects in junior secondary schools	• Simplify curricula • Avoid specific vocational training • Emphasize capacity for further learning and life skills
	Provide broad range of opportunities for further education and training beyond junior secondary	• Maintain selective access to senior secondary education • Provide non-formal opportunities for further education and learning • Establish TVET systems with a wide range of programs and providers
Learning achievement is unacceptably low	Protect basic conditions for teaching and learning	• Ensure primary graduates master primary curriculum content • Align enrollment growth with resources and policy reforms
	Ensure instructional effectiveness	• Ensure adequate supply of textbooks and other learning materials • Provide opportunities for in-service teacher support and development • Use ICT to provide teachers with additional subject matter knowledge and assist teachers with lesson preparation • Prepare head teachers for managerial and educational leadership responsibilities
Access and opportunities to learn are inequitably distributed	Remove obstacles to girls attendance	• Provide a safe environment and girl friendly school policies • Provide attractive role models • Reduce distance to school
	Provide opportunities for poor children	• Ensure equitable access to primary schools of acceptable quality • Provide means tested scholarships • Reduce/waive fees for poor children • Increase density of day school network
Centralized decision making adversely affects resource use and learning outcomes	Increase school level responsibility for service delivery	• Decentralize resources and decision making authority • Strengthen local institutions • Tap readiness of parents and communities to support local secondary school
	Redefine role of national authorities	• Strengthen central level capacity to set standards, monitor quality, provide core financing, support schools in difficulty and ensure equity
Encourage multiple delivery mechanisms	Vary service delivery in response to local conditions	• Create different organizational arrangements • Allow variations in curriculum choice and delivery methods • Encourage private training providers
	Exploit potential of ICT and distance education	• Establish teacher in service support and development systems • Provide opportunities for secondary education equivalence • Life long learning
Promote Public Private Partnerships	Establish clear legal framework	• Ensure transparency in resource allocation, • Create explicit accountability indicators • Encourage demand side financing schemes
	Set up participatory processes.	• Open and participatory procedures for consultation on policy and implementation

time-on-task makes it virtually impossible to address the needs of learners with different learning needs. Worldwide experience demonstrates that education development is a sequential process where large scale expansion of a particular level of education builds on the qualitative and quantitative achievements at the preceding level (see Chapter 4). The expansion of access to secondary education in Sub-Saharan Africa is thus predicated upon the success of EFA not only as regards access but most importantly in terms of learning achievement.

This does, however, not suggest a rigid "first primary and later secondary" strategy for education development. Mobilizing the resources for primary education will require human and financial resources that depend on the availability of people with higher levels of education and training. Education policy in much of SSA will need to strike a balance between expanding coverage and improving quality at primary, junior and senior secondary and at tertiary levels (De Ferranti et al., 2003, World Bank, 2005b). The experience with "big bang" EFA strategies in some countries suggests that unplanned large increases in access may have a high price in terms of quality which cannot be easily recovered from. It will be important not to repeat this experience for secondary education.

A successful secondary education development policy will involve trade-offs and hard choices. These can only be made within a longer term –typically 10 year- comprehensive sector framework. Many countries have made considerable progress with the development of detailed financial and action plans for primary education. Often this has been done without considering the implications for secondary education or the trade-offs in public expenditure allocations that will be necessary to reach sub-sector education development objectives in a balanced way. Funding and resource allocation issues a critical component of education policy making and it will almost always be necessary to involve the Ministry of Finance in the planning process and incorporate realistic resource allocations for the totality of the education sector in the medium term expenditure framework and in the national poverty reduction strategy plans.

Sustained economic growth and close links with economic development

The development of education has followed or accompanied economic growth in most countries (Chapter 4). Unless the recent higher level of economic growth in SSA (see Chapter 1) is sustained and accelerates further, the resources for the expansion of secondary education will not be available and the economy will not be able to absorb the graduates. Where economic growth has been stagnating, unemployment of secondary school level graduates often is a major social and economic problem (Chapter 3). This is in part an education problem. Countries that have responded to social demand and expanded secondary education without implementing reforms to enhance relevance and efficiency, are –with few exceptions- facing severe problems with regard to the quality of student learning achievement, as well as high drop-out and repetition. Moreover with curricula that are often poorly related to national social and economic development needs, students are inadequately prepared for entry in the labor market.

But the more important issues, perhaps, concern the uneven economic growth in SSA, the small size of the modern manufacturing and service sectors and the dependence on natural resources as the main source of economic growth. Economic growth stagnated during much of the 1980s and the 1990s and real income per capita increased only by 25% between 1960 and 2005. In recent years high commodity prices have helped accelerate economic growth in several countries. Debt relief accorded to 25 countries is helping to improve public finances. Yet, about half of sub-Saharan Africa's 750m-plus people still live on less than a dollar a day, while prospects for sustained growth remain uncertain. High oil prices are a major medium terms risk for oil importing countries in the continent. Most foreign investment in Africa still goes to oilfields or mines, rather than factories, services or farming. Mineral exploitation provides governments with cash but does not create many jobs. The business climate is often unattractive for foreign investors. Private business, especially job-creating small and medium size enterprises are developing only very slowly. Even South Africa, with its diverse economy, has failed to create jobs fast enough: at least a quarter of its people have no work. Without a robust economic growth performance the desirable investments in secondary education will for most countries be unaffordable and difficult to justify economically as a priority for public expenditure.

Demographic transition

In East Asia the rapid expansion of enrollments in secondary education was facilitated by declining fertility rates resulting in smaller numbers of children of primary school age. The same is true today for countries such as Vietnam for example, where the number of primary school age children is expected to decline by about 20% over the next decade; this will free up resources for quality improvement and expansion of secondary education. Sub Sahara Africa faces a very different situation. Despite a projected increase in mortality due to AIDS, its population will continue to increase, since fertility is still so high that it offsets the effect of rising mortality[108]. With an increase of 734 million over the next 30 years Africa's population will double (United Nations, 2006). This will limit the opportunity to shift resources to away from primary education and increase the share of secondary education in the budget as happened in many East Asian countries (Chapter 4).

The imperative of reform

Providing a place in schools of acceptable quality for larger cohorts of children every year, keeping these children in school longer, in an environment where prospects of sustainable economic growth remain uncertain, while external assistance is confronted with many competing priorities, is a daunting challenge for most SSA countries. Increasing public funding for education –with an increasing share for secondary education is almost always the preferred solution of education planners and policy makers. In practice this will often be difficult to realize given competing priorities within the education system itself and in other sectors of the economy (Chapter 2). In most countries, any reordering of priorities between sectors or with the education budget will

[108] The exceptions are Botswana, Lesotho, South Africa, and Swaziland

only have a marginal effect on the availability of resources for secondary education[109] compared to the requirements of a large scale expansion of coverage with acceptable quality. Therefore economic growth and increases in the share of GDP available for public expenditures will have to be the main source of additional public resources for education; most importantly policies designed to using resources more efficiently can contribute significantly to the expansion of access and the improvement of quality of secondary education (Chapter 4).

At the same time secondary education development is seen in much of SSA as a pull factor for economic and social development whose development can not be postponed, whereas in most other parts of the world it has accompanied or followed economic growth. All of this makes it abundantly clear that, rather than adopting secondary education development strategies that have been successful elsewhere, it will be imperative for SSA countries to develop a model of provision that recognizes the specificity of their context – one that is sustainable in the constrained resource environment of most countries, but that also is equitable and delivers a service of acceptable quality. While external resources can help to some extent, it would be unwise to build a national policy on the expectation of large increases in external financing for secondary education. Mamadou Ndoye the executive secretary of the Association for the Development of Education in Africa (ADEA) put the challenge as follows:

> The necessity of redefining secondary education in Africa clearly is urgent when one observes the enormous gap between the social demand and the available supply; or even more so between the challenges faced by young Africans of school age and knowledge and skills acquired at school. Promoting an African model is a priority issue. … (I)t is imperative to understand that it is not possible to develop an education system counting first and foremost on external assistance. Our education models … have to respond to our essential current and future needs and match our resources[110].

This report has discussed a large array of policy options that governments may wish to consider as they define their secondary education development strategy (Table 9.1). Quite clearly there is no single best way for the development of secondary education and training; initial conditions in each country will determine what the priorities are and what is feasible over what time frame in different countries. Mapping the status and challenges of secondary education, identifying financial and political constraints and opportunities are essential pre-conditions for effective action. The table 9.1 should thus be considered as a checklist of choices that have produced results in other contexts which may or may not be replicable in other situations. But the key challenge will remain to design a coherent strategy that responds to the national development demands and constraints.

Towards an African strategy for secondary education development

Lewin (2008) suggest a typology of 5 different country situations (Chapter 5), but argues that most countries are likely to face the challenge of a high (or at least rapidly

[109] There are some countries whether the share of education is far below the regional average and some others where current allocations are skewed often in favor of higher education; in those cases some reallocation may be possible. But these are the exception in the region.

[110] Remarks at the opening ceremony of the second ADEA conference, Dakar 6-9 June 2004.

increasing) coverage in their primary system and a low or at best medium coverage of secondary education. In most countries the latter will, however, be considered socially unacceptable and inconsistent with national development objectives (Chapter 4). But at the same time few countries have put in place a strategy that reconciles the constraints on public funds with the resource requirements of the expansion of opportunities for quality learning opportunities beyond primary education. The lessons of experience in other regions can help with this process and inform policy formulation; but as discussed above today's educational, economic and demographic conditions in Sub-Saharan Africa are so different that their models cannot be easily applied in SSA. Thus, the need to develop a framework of strategic options for secondary education development, including TVET, which explicitly recognizes the nature of what may be called "the African exception". Such a framework can provide guidance and policy options that countries would do well to consider as they formulate national strategies that would allow significant progress towards their medium term objectives. The elements of the framework by themselves may not be specific to SSA, but the strategic response will have to be. Hence, sustainable national strategies for the development of secondary education will have to include specific policies and plans that aim to ensure:

- Resource requirements consistent with the available means;
- Content relevant to national development opportunities;
- Emphasis on leaning: no quality-quantity trade-offs:
- Equitable access for the disadvantaged;
- Multiple delivery mechanisms;
- Locally managed schools;
- Broadly conceived public private partnerships.

Resource requirements consistent with national means

All projections of the cost of secondary education development make it abundantly clear: enrollments in secondary education cannot be expanded at present per student cost levels (Chapter 5). This makes it imperative to use available resources as intensively and as efficiently as possible. For example teachers might be expected to teach a full load of 25 hours or more; buildings could be used in double shift, six days a week and possibly year round; curriculum options and choice in small schools may have to be limited; boarding would be the exception not the rule; the potential of public-private partnerships should exploited in the most cost-effective way possible.

The cost variables that will need to be managed with particular care are the deployment of teachers and the level of teacher salaries. In several countries in SSA the cost of teachers effectively precludes significant enrollment expansion (Chapter 5), because of salary levels that are a high multiple of GNI per capita. In other countries salaries are so low that teachers will only provide a minimal effort, with adverse consequences for quality. But the most critical challenge –almost everywhere- may be may be inefficiencies in teacher deployment. An efficient use of the teaching force may require considering policies designed to ensure that each teacher teaches a full load –even if it means teaching in more than one school; grant preferential increases to teacher who can teach several subjects; and pays teachers who teach only a limited number of hours in proportion to the number of hours they teach. It may also mean that not all curriculum

options can be offered in every school; smaller schools will often be forced to offer less choice. Efficiency gains associated with such policies should result in changes in the cost structure of secondary education with a significant increase in spending on non-salary items, especially textbooks and other instructional materials.

Bruns et al (2003) have proposed indicative benchmarks to guide the development of primary education with the support of the Fast Track Initiative (FTI). Accepting their resource mobilization parameters and assuming a share of higher education of 15-20% (Chapter 5, footnote 4) would suggest a share of the budget for secondary education of 25-30% for secondary education (including TVET at the senior level). The benchmark for the share of private financing of secondary education reflects the current reality of significant private funding of publicly and privately provided secondary education (Chapter 5, figure 5.6) as well as the fact that in countries where the share is currently very high it will be next to impossible to enroll a larger share of the age group without increasing public funding. The benchmark for the pupil teacher ratio recognizes the inevitability of large classes as in many East Asian countries-45 in junior and 40 in senior secondary education. With appropriate investments in teacher development and instructional materials (Chapter 7) this should not preclude instruction of acceptable

Table 9.2: Towards Indicative Benchmarks for Secondary education Development

Domestic resource mobilization	***2015 Indicative benchmarks***	***Comments and explanations***
Government revenues as percent of GDP	14–18	As suggested in Bruns et al (2003)
Education spending as percent of recurrent	20-25%	As access to secondary education expands this ration may have to increase from the 20% suggested by in Bruns et al , 2003. (see Lewin 2006)
Primary percent of recurrent education budget	42–64	As suggested in Bruns et al, 2003. ; I n countries at the high end of this range , the share will have to decline as primary enrollments stabilize and secondary increase.
Secondary percent of recurrent education s budget % Junior secondary of secondary budget % Senior secondary of secondary budget	25-30 55 45	Assuming a higher education share of 15-20% See estimates Lewin 2006 under reform scenarios with 60% JSE and 305 SSE GER
Share of total secondary cost privately funded (%)	35	Where share is currently low it should increase where it is high it will decrease as more poor student gain access and affordability calculations (Lewin, 2006)
Cost of classrooms	$10,000	Assuming simple structures and decentralized management of construction (see Theunynck, 2006)
Service delivery indicators		
Average teacher salary (x average GDP) Primary Junior secondary Senior secondary	 3.8 4.75 6.25	 Based on WEI primary/ secondary multiple and Bruns et al (2003) primary multiple. See chapter 5
Pupil-teacher ratio Junior secondary Senior secondary	 40 35	 Based on East Asian multiples and assuming efficient deployment of teachers. See chapter 5
Non-teacher salary share of recurrent spending (%) Junior secondary Senior secondary	 35 40	 See Lewin (2006) and the discussion on textbook provision in chapter 7
Repeaters (%) Junior secondary Senior secondary	 10 5	Some decrease from current levels and assuming that senior level will remain more selective

quality and a reduction in repetition (Chapter 8).

These benchmarks would result in a cost of 25% of GDP per capita for junior secondary education and 40% for senior secondary education, considerable below current average levels in most countries. Assuming sustained progress towards the EFA goals and a cost of primary education of 12% of GDP the benchmarks in Table 9.2 would allow the transition rate from primary into junior secondary to increase gradually as the number of primary completers tops-out towards 2015. Secondary enrollments could be targeted to increase at a rate of 5-10% (or as Lewin has suggested the rate of GDP growth plus 5%), resulting in a 60% lower secondary and a 30% senior secondary GER by 2015 and continuing to increase further thereafter. Special efforts –including equitable quality improvement policies at the primary level- would be required to ensure that 50% of the students admitted are girls and that students from the poorest 20% of the income distribution are not excluded because of inability to pay. The extent to which countries can reach these goals and move towards these service delivery conditions will of course vary considerably depending on national conditions.

The cost of construction classrooms and specialized facilities is another important cost item that needs careful consideration. New schools are often 4 times or more as expensive per square foot as additional classrooms. A good low cost design of basic secondary schools can yield significant cost savings. Old style secondary schools are prohibitively expensive to build on scale. The typical specifications generally result in levels of infrastructure provision that are only 10% or so of what may be needed in low enrolment countries.

At the junior secondary level facilities can resemble primary school facilities, which can often be constructed at reasonable cost by communities without expensive specialized rooms (as is the case for example in Kenya where the government has only constructed classrooms in the most disadvantaged areas). School infrastructure often stands unused for long periods of time. Double-shift use of facilities -even in rural areas-is often an attractive option for generating cost savings. Singapore only discontinued it in 2003. Year round use –implying fewer hours of instruction each day, but more school days combined with double shift instruction or staggering of holidays is an option that has been used in some school districts in the US that face severe shortages of classrooms[111].

Expansion of secondary education will have to take place largely through day schooling, in many cases by extending the duration of basic education and adding classes to existing primary schools. This will result in a network of small schools (Chapter 7). Boarding facilities are expensive to build and operate. Access should be sharply limited to students who do not have access to day schools within a reasonable distance from their home. Scholarships should be available for poor, academically qualified students who live to far from a day school.

[111] There even is a National Association for Year Round Learning (NAYRL) with a website that provides many past and present examples: http://www.nayre.org/

None of the above options are easy to implement. They deviate from the way things have always been done and they require different ways of thinking about schooling is organized and how the available infrastructure is used; they also require different ways of employing and deploying teachers and structuring their contracts. Innovations in the way schooling is delivered that target resources on those inputs that most cost-effectively produce student learning and use them intensively, can result in reductions in the cost per students while improving achievement.

Relevant to African development opportunities

Education development will need to be part and parcel of national development strategies. Where it develops on a separate path it will become very rapidly become irrelevant and be considered an item of privately or publicly funded consumption, rather than an essential investment in economic and social progress. The experience of East Asian countries (Chapter 4) suggest the importance of an education development strategy that evolves with the national economy and helps young people adopt values and attitudes that help them function as responsible citizens and productive workers. Changes in economy and society can take place rapidly – as was the case in East Asia. Education policy priorities and curricula will need to evolve accordingly

Investments in secondary education are particularly important in African countries, many of which are starting the transition from factor driven economies[112] to investment driven economies[113] (World Bank, 2005b; Chapter 3). But this transition will only be successful where it is supported by a well-organized infrastructure, a welcoming government administration, a stable political environment and an appropriately educated labor force. Investments in secondary education by itself do not create jobs but they will often enhance the results of good economic policies. Absent such policies, investment in secondary education will be wasted.

Vocational training is often considered as trigger for economic growth and a way to reduce youth unemployment. In fact there is scant evidence that it has done so. But in countries with strong economic growth it has played an important role in preparing a workforce that has supported a rapidly growing modern industrial sector. And where it has done so, students had strong basic education skills (most often 9 years). The development of vocational training should thus accompany rather than precede the development of a modern industrial sector. Some short often non-formal training programs may target primary graduates who do not gain access to secondary education or drop out of junior secondary schools, but most job specific training programs would take place in specialized institutions at the senior secondary level which admit junior secondary education graduates. Specialized institutions at the tertiary level for advanced technical and engineering training are important sources of technically trained personnel in many middle and high income level countries. In most African countries at this point the demand for personnel with this kind of training is limited; and predicting specific skill requirements a long time in the future is very hazardous, especially when done by

[112] Economies that derive their competitive advantage from low cost labor or access to national resources
[113] Economies where efficiency in the production of standards products and services is the source of competitive advantage

government agencies. In any case, close cooperation with private sector employers to assess the demand and design the content of technical and vocational program will be essential.

On the other hand preparing junior secondary students for further learning and technical training is important. It implies that curriculum change is an essential element of the transition from an elite system to a system that is inclusive and provides broad access. It will involve adaptation of content to the requirements of further education and training, work and society in the 21st century. Communication skills in one or two international languages, problem solving skills, experience with teamwork and basic competence in math, science and ICT are at a premium in the labor markets of growing economies in SSA (Chapter 4) as is the case in the OECD economies (Chapter 4, Box 4.2). But it will also involve redefining the concept of quality to reflect the needs and the capacity of the majority of students of a system with an increasingly broad coverage, instead of the requirements of a small elite who is preparing to pursue upper secondary and tertiary education.

Education logic and the demands of economic development impose a sequence that can be observed in the experience of most economically successful countries (Chapter 4) in East Asia (for example in Thailand, see Box 9.1) and the in the industrialized world and that would apply today to most countries in SSA:

- Establishing a primary education system of wide coverage and acceptable quality;
- Broadening access to junior secondary education –by extending the duration of the basic education cycle- as the foundation for further education and training for a rapidly increasing proportion of the age group as part of the drive towards the an investment driven economy;
- Providing selective access to senior secondary for advanced skills training in preparation for labor market entry and further learning for a select group of students.

Managing this sequence implies policy decisions about transition processes and the rate of expansion of junior and secondary education that is financially and educationally feasible, that will critically determine the nature of secondary education development and its contribution to social progress and economic development.

Emphasis on learning: No quality-quantity trade-offs

Without ensuring the quality of opportunities for learning, expansion of access to secondary education is a meaningless waste of resources. This makes it imperative to invest scarce resources in those inputs that most cost-effectively affect student learning achievement. This means:

- *Capable and motivated teachers*, i.e. teachers with the necessary subject matter knowledge expertise in teaching and classroom management skills; they should be paid reasonable salaries, work under conditions where effective instruction can take place; conversely they will have to accept take on a full teaching load and teach large classes (Chapter 7).

- *Curricula* that reflect the changing composition of the student body as well as the demands of African development (Chapter 6)
- *Instructional materials* in particular textbooks, basic equipment and supplies in particular for teaching math, science and ICT (Chapter 7), For textbooks in particular, this will require reforms in the way curricula are designed, requirements are determined, production and presentation standards are set and books are published, procured and distributed.
- *School leaders* who create an environment focused on learning, where all school personal accept accountability for results, i.e. student learning (Chapter 7).
- *Instructional time* that is optimally used to promote learning, implying well organized schools where little time is wasted, and where staff and students are present when they are supposed to (Chapter 5; Chapter 7).
- *District and central services* that monitor school's progress in improving student learning and provide support as and when needed (Chapter 8).
- *Communities* that provide a supportive home environment to students and assist schools to carry out their mission (Chapter 8).

In the resource constrained environment of education in SSA protecting quality will mean resource allocation policies driven more by evidence and pragmatism and less by beliefs, ideology or group interest. It may mean slowing down expansion to defend learning. Ultimately it is the "quality imperative" that must determine the pace of development of secondary education. Teacher development is particularly critical in this regard. Practice oriented training and ample opportunities for professional development and certification for teaching at higher levels –often using distance education and vacation classes – are essential for developing a cadre of teachers that can look forward to meaningful career development opportunities (Chapter 7).

Equitable access for the disadvantaged

Inequity in the opportunity to learn and complete primary education remains a major obstacle for disadvantaged students who aspire to enter secondary school (Chapter 2). Poor parents often cannot afford the direct and indirect cost of secondary education. In addition distance and socio-cultural traditions often make rural parents reluctant to enroll their children especially their daughters – in secondary schools located so far away that that long walks or formal or informal boarding is inevitable. Making secondary education accessible to more African adolescents will inevitably mean increasing the density of network of day-schooling opportunities beginning at the junior secondary level. A system of local junior secondary schools would meet the needs of the local communities who often cannot afford boarding fees and expanding equitable access. Such schools could be associated with nearby basic schools, possibly in the form of upper primary classes and rural secondary schools as was done for example in Thailand (Box 9.1) and Zimbabwe (Box 4.4) immediately after independence. This was in fact also the model adopted at the beginning of the 20th century in the industrialized countries (Chapter 4). Such a strategy will need to ensure the quality of the opportunity to learn provided in these smaller schools. This will require a secondary curriculum closely linked to the primary curriculum that provides for a smooth transition, minimizes dropout

and repetition, can be delivered efficiently in smaller schools, and provides equivalent opportunities to learn.

Perhaps most import will be to target public expenditures to ensure that qualified poor students are not excluded from pursuing a secondary education because of inability to pay. A private share in secondary education expenditures of 35% and a significant increase in secondary enrollments (Table 9.1) will only be feasible if public expenditures are explicitly allocated to promote equity in access and quality of instruction. It is unlikely that it will be possible to establish a dense network of senior secondary schools or technical/vocational training institutions in the immediate future. This means that many students that come from far away will have to board. Targeted bursaries and scholarships, incentives for private schools to admit poor students and government funding to establish secondary education schools in disadvantaged areas are key instruments that can be considered for this purpose.

These strategies will need to pay particular to the specific needs of girls who attend secondary school at a time when they have reached sexual maturity, when parental safety concerns are extreme and where opportunity cost are often high. Several countries are implementing programs that not only reduce the direct cost of schooling but also help cover the indirect and opportunity costs incurred when parents let children go to school through conditional cash transfers. These have proved particularly important for girls in such varied settings as Bangladesh and Mexico (Box 9.2). Several rigorous studies, including a large controlled experiment in Mexico, have confirmed the strong impact of

Box 9.1: Thailand: Expanding Secondary Education

Until 1970 secondary schools mainly prepared for employment as civil servants, professionals and teachers. Enrollments in secondary education were only 14 percent of the youths aged 13-18, although primary education reached over 83 percent of children aged 7-12. The continued lack of investment in secondary education led to an undereducated workforce: by 1990 83% of the workers had finished only primary education. With a rapidly growing economy the need to modernize the work force created a sense of urgency for rapid expansion of secondary education.

Such expansion was brought about first and foremost by the revised conceptualization of secondary education as basic education for the general public and the work force as well as preparation for the professionals. Compulsory education was expanded from 6 to 9 years. A multipronged strategy for secondary education development included:

- Expansion of more than 4000 primary schools to teach lower secondary, and conversion of primary facilities that were underutilized because of a declining birthrate;
- Establishment of over 500 new secondary schools in rural areas where no secondary or extended primary schools existed.
- Revision of the highly competitive admission policy of the exclusive secondary schools to provide opportunities for students from differing backgrounds to enroll.
- Gradual abolition of tuition fees starting with the extended primary schools and rural secondary schools.
- Recognition of alternative forms of education including recognition of graduates from non-formal education and establishing special schools for disabled children and welfare schools for marginalized children, especially HIV/AIDS orphans and street children)

By 2005, the secondary enrollment ratio exceeded 70% while lower secondary education had become almost universal enrolling 905 of the age group.

Source: Kasama Varavarn presentation to East Asia Study tour; World Bank, 2006

scholarships on girls' enrollments. Research also suggests that programs that reduce the cost of schooling by providing supplies such as textbooks and uniforms or programs that offer meals or school-based health care can have significant impacts, especially for girls.

Multiple delivery mechanisms

Secondary education provision often takes place in several different ways: upper primary classes covering a few or all years of the secondary curriculum, separate middle schools and combined junior secondary and upper secondary schools of academic (e.g. gymnasium and prep schools) and a wide range of formal and informal vocationally programs (see Box 9.1 for the different secondary education delivery mechanisms in Thailand). Secondary education policy in Sub Saharan Africa will need to be pragmatic and flexible to allow different ways of providing secondary education to respond to the very different conditions in different parts of the country and the very demands for education and training of students especially beyond the junior secondary level.

A similar flexibility will need to apply to the curriculum, especially at the senior level where options and choice become increasingly important. Not all schools will be able to offer all options. Especially smaller schools will be able to offer only a core curriculum with a limited choice. Even in larger schools offering a large number of options chosen by only a few students can be very costly and often offers little value-added to the

Box 9.2: Conditional cash transfers in Bangladesh and Mexico

Bangladesh's national program for stipends for girls in secondary school in rural areas began in 1982. The stipends cover full tuition and exam costs, textbooks, school supplies, uniforms, transport, and kerosene for lamps. Any girl in grades 6–10 is eligible for the stipends in all 460 rural counties (*thanas*) across Bangladesh as long as she meets three basic criteria: (1) she attends school regularly, (2) she achieves certain minimum grades, and (3) she does not marry while she is in school. She receives the stipend through a bank account in her name. During the first five years that the program ran in pilot areas, girls' enrollments rose from 27 percent to 44 percent, almost double the national average. Under popular pressure, in 1992 the Bangladesh government eliminated girls' tuition and extended the stipend program to all rural areas. Girls' and boys' enrollments climbed to 55–60 percent, but girls' enrollment climbed faster than boys'. The program also encouraged more girls to sit for exams and go to intermediate colleges**.** The stipend program's costs are substantial, but the government has found the impact on girls' enrollment and attainment (as well as delayed marriage) impressive enough to continue it on a national scale."

The Mexican PROGRESA scholarship program increased across-the-board enrollment and has been successfully scaled up and replicated. Families receive monthly payments for each child in school, which increase with the age of the child, from about $7 through the third year of primary school to about $25 through the third year of secondary school—contingent on children maintaining 85 percent attendance. Participants also received free health-care services, contingent on regular attendance at clinics and educational sessions. A rigorous randomized evaluation found that nearly all eligible families took advantage of the program, increasing average enrollment by 3.4 percent for all students in grades 1–8. Girls' enrollments improved, especially for children finishing primary school and entering secondary school. The most significant increase (15 percent) was for girls completing grade 6. In part because randomized evaluation of the PROGRESA program allowed for such clear documentation of the program's positive impacts, the program was expanded within Mexico and by 2000 reached 2.6 million families, or 10 percent of the families in Mexico. (The program's budget was also substantial, at $800 million, or 0.2 percent of gross domestic product). The program has now expanded to urban areas and is called Oportunidades.

.Source: Herz and Sperling (2004)

education experience. Multi-grade teaching offers opportunities for quality learning in small schools at reasonable cost. Vocational training can often be offered part time. The duration of technical training will vary depending on specialization. Private providers offering training are ubiquitous in many African cities. Distance education and open learning programs[114] are increasingly important delivery mechanisms, which provide alternative pathways to learning and certification for students and teachers. When combined with ICT they provide increasingly effective mechanisms to overcome the constraints of traditional schooling (Box 9.3).

Encouraging this diversity and providing a qualification framework that establishes equivalence and ensures portability are important elements of post primary education policy that countries are beginning to tackle. Southern African countries have made considerable progress in this regard.

Box 9.3 Technology provides new ways to deliver secondary education

Under the right conditions technology can help remove the constraints of distance, time and underqualified teachers on education delivery mechanisms. While many of the new computer based technologies are inaccessible for African schools for cost and infrastructure reasons these technologies have such great potential and so important to the students future that cost effective ways for introducing them especially at the upper secondary level must be explored. But this should not result in the neglect of the more traditional distance education technologies – such as print and radio- which in many SSA can still be highly effective in many SSA environments.

Secondary education. Distance education can be a cost-effective alternative for students who fail to gain admission to traditional secondary school. Traditionally these courses have been delivered through printed self-instructional materials supported by radio broadcasts and study centers. The Malawi College of Distance Education provided a good model of this strategy for many years. Unfortunately, funding constraints forced the college to discontinue radio broadcasts and limited its ability to provide materials. Television can also expand access to secondary education and improve its quality. Telesecundaria is a television based rural system in Mexico that offers secondary education as part of the national system. Several other countries in Latin America have adopted the system and some are making it available to secondary schools in remote rural areas on DVD to enrich and improve instruction, especially in math and science. In SSA regional collaboration would be necessary to capture economies of scale and drive down cost per student. The internet also offers many resources to support teachers with lesson planning and help students with self study.

Teacher education. The bulk of distance education activity in SSA has focused so far on teacher training using a combination of printed materials, radio, audio and video cassettes and increasingly the internet. Teacher resource and study centers, which often serve as venues for face-to-face training, increasingly offer internet access to training resources and materials. The African Network for Distance Learning (RESAFAD) uses the internet for distance training of school principals.

Lifelong Learning. In African urban areas many private institutes provide training in the application of computer technologies. Several African countries are developing community information and learning centers that offer internet access for a small fee. These centers may be able to provide learning opportunities to people in remote areas.

Source: World Bank, 2001a

[114] Distance education is the delivery of learning or training to learners who are separated, mostly by time and space, from those who are teaching and training. Open learning programs are usually based on based on independent or part time study, which permits entry without formal entry requirements and with minimal barriers of age or time while recognizing prior learning. The two come together in the concept of Open and Distance Learning (ODL).

Locally managed schools

An essential feature of African secondary education strategies will have to be the strengthening of the local autonomy for the operation of schools (Chapter 8). This will allow local administrators and schools to choose the most appropriate way to provide secondary education given the opportunities and constraints in their local environment. It will also allow them to take responsibility for the development and improvement of secondary schools. It can provide incentives for the efficient use of resources and the reduction of unit cost.

Decentralization of resources and decision making to districts and schools is happening in almost every country in SSA. So far results have been mixed and progress hampered by weak institutions and local level capacity constraints. But there is considerable evidence (Chapter 8) that local autonomy in the management of schools can have positive effect on school performance. Within a framework of national instructional objectives, supervised and supported by central and district authorities with money and technical assistance, schools can be asked to take responsibilities for student learning.

In most African countries there is a considerable excess demand for secondary school places, providing an incentive for local authorities, communities and parents to support the development of locally accessible opportunities for further learning. In fact, local initiative played an important role in the development of secondary education not only in the USA in the beginning of the 20th century (Chapter 4) but also in Kenya's Harambee movement in the 1970s (Box 9.4). Tapping into the readiness of communities and parents to support the development of secondary schools in their community by providing

Box 9.4: Harambee Schools in Kenya

Harambee Schools originated in a grassroots community movement after independence in 1963 to develop greater access to secondary education than provided by the Government. Harambee schools were planned as four-year schools, but funding difficulties often caused them to start as two-year schools. At various times the Government provided financial support to select Harambee schools. In the early 1990s, the government took responsibility for all Harambee schools and no longer distinguishes them from government schools.

The students were often less academically qualified because most had not been able to qualify for government schools or afford the expense of studying far from their homes. Subject offering were often limited because of the lack of resources to teach e.g. science. Facilities are almost entirely built though community efforts. The proportion of qualified teachers was lower and class sizes higher. Communities that constructed good housing provided a high level of support and respect for their teachers were better at attracting and retaining teachers. Students could take an exam at the end of the second year and if they do well, can transfer to the third year in a government school.

The Harambee model was highly successful in expanding secondary opportunities in rural areas. In 1969 there were 244 government secondary schools, 19 government assisted Harambee schools and 244 unassisted schools; by 1987, there were 709 government schools, 1,142 assisted and 741 unassisted Harambee schools. But the quantitative expansion has not been matched by the needed quality improvements in many Harambee schools, particularly in unassisted schools.

Source: http://www1.worldbank.org/education/est/resources/case%20studies/Kenya%20-%20Harambee%20schools.doc

resources to complement those that can be locally generated and strengthening the capacity of local stakeholders -school personnel, community leaders, members of SMCs and BOGs- can be a cornerstone of secondary education development in SSA.

In such a system the principal role of central government agencies will no longer be to deliver secondary schooling but rather to monitor quality, make available core financing, provide support to schools in difficulty and ensure equity in access and opportunity to learn. Such a strategy will require intensifying and accelerating the ongoing decentralization processes, rethinking the responsibilities of staff and administrators at different levels of the system and rebalancing central management and local management responsibilities. The result would be a system that within a centrally defined framework is managed at the service delivery level by service providers -school administrators and staff- with meaningful involvement of the front line beneficiaries – students, parents and communities. But this can only happen in an environment where there exist competent local administrations. They exist in some countries but not in others. In the latter case strengthening the capacity of local administrations is a pre-requisite for effective decentralization.

Public-private sector partnerships

Partnerships with non-government providers will almost inevitably be a key element of successful secondary education development strategies. In East Asia such partnerships have played a key role in creating an environment that allowed a rapid expansion of secondary education. A similar strategy can be attractive for several countries in SSA. Partnerships can occur in a number of different ways but will most often include government financial support to private provision, including community provision; and often private financing for publicly provided schooling. In virtually every country in SSA parents contribute an important share of the cost of private and public secondary education (Chapter 5). The challenge is to structure these partnerships in such a way that they work effectively together and that public and private sector partners can contribute in those areas where they are best placed to do so. A clear legal framework, transparency in resource allocation, explicit indicators for accountability and open and participatory procedures for consultation on policy and implementation are the preconditions for effective public private partnerships (Chapter 8). Where there are no well designed partnership arrangements, the objectives of the public policy will not be realized (Box 9.5).

Box 9.5 Public-private partnerships in Burkina Faso

A World Bank supported project in Burkina Faso was designed to provide incentives to private operators at the post-primary level to expand enrollments. However, a lack of interest of private school proprietors made it necessary to review the demands on the private schools, which included repayment for the government-provided classroom (the operator would pay back the cost over 5 years, free of interest), and the requirement that the proprietors to build their classroom prior to the government building the matching classroom. The first condition was dropped, i.e. no repayment, and the latter one was changed to requiring the provider to build his classroom within at most one year after the one constructed by the government.

Source: Verspoor, 2006

An evolving role of the government

The secondary education development strategy described above is parsimonious in resource allocations, explicitly quality focused, sequential from the bottom of the education pyramid up in its strategic emphasis, school and community based; and values the importance of diverse partnerships and alternative delivery mechanisms. It is a strategy that suggests an evolving role of the government away from its role as single provider towards a role that focuses on key priorities:

- Policy formulation, setting of standards and monitoring of progress towards national goals.
- Provision of funding to support a broad based equitable expansion of junior secondary education of acceptable quality as well as a selective expansion of senior secondary education and TVET in conjunction with incentives for private provision and subsidies to ensure equality of opportunity.
- Offering incentives and partnerships to non-government providers that are ready provide education opportunities of acceptable quality also to disadvantaged children.

Different countries will have very different initial conditions and longer term objectives; they will emphasize different features and will combine them in a unique way. Nevertheless, it will help almost all to consider the options for strategy and practice that have evolved from regional and broader international experience, as they expand the opportunities for learning beyond primary education to strengthen their human capital base, accelerate economic growth and build a social infrastructure conducive to economic growth and human development.

Implementing Reforms

Much of the discussion on education reforms focuses on the substance of the reforms that countries may want to consider. This report so far is no exception. Yet much of the literature on school reform and change emphasizes that ultimately it is the quality of local implementation -i.e. the extent to which schools adopt the reform- which will determine the success of the reform. Implementation is often much less automatic than central authorities assume. In Zambia for example many primary schools have not implemented the government mandated policy to offer grade 8 and 9 (Bennell et al, 2007; CIDT, 2005). The difficulty of changing class room teaching practice is well documented (Chapter 8). The readiness of schools and local administrators for change will determine to a large extent the feasible pace of implementation. But the mental models of change will be determined by the way change strategies are designed and practiced by central level authorities.

The politics of change

Secondary education policy reform is almost always controversial. This reflects the fact that secondary education is not just a technical problem, it is almost always a political issue with potential winners and losers lobbying to protect their interest. Successful implementation requires political will and efforts to build national consensus and support for policy and reform objectives. Progress will depend first and foremost on the political will to take difficult decisions and sustain them over the long period of time it usually

takes to implement them. The latter involves more than "the will to act". It typically will involve the readiness for consultative practices for policy development, effective communication strategies, transparency in decision making and resource allocation processes and a willingness to consider evidence and lessons of experience even when that questions preconceived ideas and conventional wisdom. Success has more often been associated with pragmatism than with ideology or paying-off political opponents.

Political will is most powerful when it derives from a national development vision which links education development to national development strategies. This involves the interaction between education and the economy, with a clear understanding that these two national development priorities are mutually dependent and reinforcing. But –as the experience of East Asia demonstrates- the emphasis on education's development role is driven by priorities that go well beyond economic issues, as education has been assigned a key role in nation building, including building the moral values and national cohesion required to make a multi- ethnical society work. And it is particularly at the secondary level –with adolescents- that both labor market preparation and the moral aspects of education are particularly important.

Where there is such a vision combined with a will to act, rapid change has often been possible. For example over the past 40 years both Finland and Korea have implemented education policies that have led to a large increase in the number of adults with at least a secondary school education. Korea's policies took only 20 years to achieve this, whereas the same process took 40 years in Finland. Thailand increased it secondary enrollment ration from 30% in 1990 to more than 70% 15 years later. Educational development in the East Asian "tigers" the US and Europe began with improvements at the bottom of the pyramid, through strong and sustained efforts to provide secondary education (World Bank, 2005**).**

Similarly, the experience in SSA also shows that rapid change is possible once it becomes a political priority in the context of national development. In South Africa the reform of the education system became a priority for the first democratically elected government in 1994 (see Box 8.10). Sweeping changes were implemented within three years. Further reforms were implemented to deal with concerns about low "matric" [115]pass rates which resulted in an increase from about 50% in the mid-nineties to 70% a decade later, although arguably not with the same standards and persistent disappointing performance in math and science. Zimbabwe after independence in 1980 launched a massive program to expand access to education to black students who had previously been excluded (see Box 4.4). The Harambee movement in Kenya has impressive record expanding secondary opportunities in rural areas. (Box 9.4).

The practice of change

Education reform and in particular secondary education reform is a complex and multifaceted process that has often failed to produce the promised results. The best ideas often have faltered on the rocks of implementation. Fortunately experience is accumulating and lessons are being learned as countries – in Africa and in other regions-

[115] Grade 12 examination certifying secondary school completion.

are grappling with the challenges of secondary education development. Several trends are becoming apparent.

First, *school systems* are increasing transforming themselves in a *system of schools* where the responsibility for improvement and performance is shifting from the central level managers to the school level. But it does not make a lot of sense to ask schools to implement increasingly complex reforms when the capacity for change at the school level is limited and teachers are unfamiliar with the instructional methods they are asked to implement. There are no quick fixes to the problems of secondary schools. Especially reforms that aim to change instructional practice and improve learning achievement must be conceived as processes not as events. These are not interventions that can be centrally mandated. There is no substitute for a sustained effort over time that builds up the capacity for change at the school level, develops decentralized support mechanisms and provides sustained national leadership. What is needed is a process of continuous improvement and learning, which permeates the system. Schools can learn from each other. Administrators can share their experiences with colleagues in other districts. Central level administrators can learn from their own experience and from the experience of other countries in the region and beyond.

Second. The choice, the packaging and the sequencing of the different elements of reform programs is critically important. No country will be able to implement all necessary reform measures at the same time. Setting priorities, determining what is politically and technically feasible at a particular point in time and negotiating with stake holders packages that combine policies that are desirable with some that are more difficult to accept are key elements of successful implementation strategies. The sequencing also has an important professional rationale. Where teachers and schools are asked to implement changes that require teaching and management practices they are unfamiliar with and require skills they don't have reform will be watered down or simply abandoned. Implementation of reforms –especially those that affect the ways schools are managed and teaching is practiced- require investments in skill building and improvement in practices and performance standards over time.

Third. Evidence based strategies are at the root of successful reform. Continuous learning from experience requires information. Where rigorous evaluations-using quantitative and qualitative information are absent, policy becomes based on anecdotes, opinion and prejudice. These are poor substitutes for authentic information that provides the basis for learning-based planning and policy making. Considerable progress has been made in improving education data collection systems. But much of the effort has focused on primary education. Information gathering on secondary education has been neglected (see Chapter 8). Successful design and implementation of the necessary reform of secondary cannot take place without good information. National statistics should provide information on the availability of inputs. Household surveys provide information on educational attainment, school attendance and education expenditures. Examinations results can provide feedback to schools on student performance. Assessments can provide policy makers with information on the overall performance of the system and compare it with neighboring countries. Continuous classroom assessments can help teachers identify

the need for remedial instruction. Randomized sample surveys are often very useful to gather evidence on the performance of particular interventions.

But significant challenges remain. The capacity to collect data has increased dramatically; but the capacity to analyze these data often lags. Moreover, even when information is available, it is often not used in the policy process, especially when the findings are inconvenient or fly or contradict conventional wisdom. Countries such as South-Africa[116] that have monitored closely the implementation of reform programs and were willing to take corrective actions when the results were not what was anticipated have benefited enormously from these processes.

Fourth. Wide communication of challenges and achievements, public discussion of policy options and transparency in decision making are key ingredients of effective implementation strategies. Many of the reforms in secondary education will be controversial and often threaten vested interest or our challenge established ways of service provision and instructional practice. Consultations with stake holders and open and honest information of the public can often help building acceptance and public support.

Conclusion

The imperative of reform of secondary education can no longer be ignored in Sub Saharan Africa. The transformation of a traditional elite system that prepares a few privileged students into one that provides opportunities for further learning to a rapidly increasing proportion of adolescents is one that is taking-off throughout the region. But the challenge is not one of expansion only; it involves improving quality relevance and equity at the same time. Linear expansion of existing systems –more of the same- is not an option.

The challenge is particular daunting since economic growth –although much improved in recent years- remains fragile, population growth rates will be high for the foreseeable future and primary education still requires additional resources if the EFA goals are to be reached. Sub-Saharan Africa faces the challenge to develop a strategy for secondary education that fits the particular conditions of its current development context. Such a strategy will have to be parsimonious in resource use, recognizes the bottom up sequential nature of education development, is closely aligned with national development priorities, anticipates labor market demand, strengthens school autonomy, ensures effective central direction and supports and builds public-private partnerships reflecting relative competence. It also implies an evolving role of the government towards policy formulation, setting of standards and monitoring of progress towards national goals as well as the provision of funding to support a broad based, equitable expansion of

[116] See for example the Department of Education's *Report to the Minister* : *Review of the Financing, Resourcing and Costs of Education in Public Schools* (3 March 2003(and the related 2003 *Plan of Action: Improving Access to Free and Quality basic Education for All* (14 June 2003) available at http://www.education.gov.za/dynamic/dynamic.aspx?pageid=329&catid=10&category=Reports

Table 9.3: Summary of Policy Options for Secondary Education Development		
Issue	Possible Response	Options for specific actions
Cost poorly aligned with domestic resources	Reduce per student cost	• Increase teaching load to 25 hours/week • Adjust teachers salaries • Double shift use of infrastructure • Boarding only for students from remote areas • Improve internal efficiency, reduce repetition
	Integrate part or all of junior secondary with primary education	• Extend duration of basic education to 8 -10 years • Simplify curriculum • Upgrade primary teachers to JSE subject matter specialists
Curriculum not relevant to demands of labor market and modernizing society	Align curricula with formally established graduate profiles	• Provide common core of general subjects in JSE • Strengthen math and science teaching and introduce ICT • Avoid occupation specific vocational training • Emphasize capacity for further learning and life skills
	Provide broad range of opportunities for further education and training beyond junior secondary	• Maintain selective access to SSE • Provide non-formal opportunities for further learning • Establish TVET systems with a range of programs and providers • Provide opportunities for students to study advanced mathematics, science and ICT
Learning achievement is unacceptably low	Protect basic conditions for teaching /learning	• Ensure primary graduates master primary curriculum content • Align enrollment growth with resources and policy reforms
	Ensure instructional effectiveness	• Ensure adequate supply of textbooks and learning materials • Provide opportunities for teacher support and development • Use ICT to provide teachers with additional subject matter knowledge and assist teachers with lesson preparation • Prepare head teachers for managerial responsibilities
Access and opportunities to learn are inequitably distributed	Remove obstacles to girls attendance	• Provide a safe environment and girl friendly school policies • Provide attractive role models • Reduce distance to school
	Provide opportunities for poor children	• Ensure equitable access to primary schools of acceptable quality • Provide means tested financial support • Reduce/waive fees for poor children • Increase density of day school network
Centralized decision making adversely affects resource use and learning outcomes	Increase school level responsibility for service delivery	• Decentralize resources and decision making authority • Strengthen local institutions • Tap readiness of communities to support local school
	Redefine role of national authorities	• Strengthen central level capacity to set standards, ensure equity, monitor quality, provide core financing, and support schools in difficulty
Encourage multiple delivery mechanisms	Vary service delivery in response to local conditions	• Create different organizational arrangements • Allow variations in curriculum choice and delivery methods • Encourage private training providers
	Exploit potential of ICT and distance education	• Establish systems for teacher support and development • Provide opportunities for secondary education equivalence • Life long learning
Promote Public Private Partnerships	Establish clear legal framework	• Ensure transparency in resource allocation, • Create explicit accountability indicators • Encourage demand side financing schemes
	Set up participatory processes.	• Open and participatory procedures for consultation on policy and implementation

secondary education with incentives for private provision and subsidies to disadvantaged students to ensure equality of opportunity.

Yet, even with the most cost-effective strategy, secondary education development will almost always require additional public resources involving trade-offs with other sectors and allocation choices within the education sector. Making the choices explicit and presenting a case to the Ministry of Finance will almost always require a sector wide medium term expenditure framework and a longer term sector development plan with realistic financial projections. Planning for secondary education development can not be done in isolation from other priorities in the sector.

Table 9.3 summarizes the policy options that governments may wish to consider. Quite clearly there is no single best way for the development of secondary education and training; initial conditions in each country will determine what the priorities and what is feasible over what time frame. The table should thus be considered as a checklist of choices that have produced results in other contexts which may or may not be replicable

Implementing change along these lines will require capacity development throughout the system, effective management information system and most importantly a long lasting political commitment and leadership. Such a commitment is a commitment to provide the essential resources but also a commitment to build broad public support for a reform agenda. Only then will it be possible to tackle the challenge of secondary education with confidence.

> … as the World Bank Group's and our development partners' knowledge base deepens … the impact will be felt in a progressive realignment of IDA allocations in support of post-primary education…
>
> Africa Action Plan World Bank (2005c)

Chapter 10
Supporting Secondary Education: The Contribution of Development Partners in Sub Saharan Africa

There can be little doubt that –as argued in chapter 5- domestic public and private resources will continue to be the main source for the funding of secondary education development in SSA. International development partner can play an important role complementing the national efforts in several ways; but given the challenges they face to live up to their MDG commitments, their ability to mobilize additional financial resources for secondary education development on a large scale is likely to be limited. On the other hand their support for planning and analysis could be important especially where it happens in the context of aid modalities that are designed within a sector wide perspective. This chapter will review trends in aid to secondary education in Sub Saharan Africa, examine some new modalities that are emerging, discuss the experience and planned commitment of the World Bank which remains the larges single source of external funding for education in SSA and concludes with some strategic priorities that donors may want to consider as they prepare to support to secondary education.

Aid to Secondary Education

Aid priorities and practices within the education sector have changed dramatically in the past 25 years. Lockheed and Verspoor (1991) summarize the aid patterns prevailing until the mid- 1980s as follows:

> For a long time external sources of finance preferred to support investment projects that are capital and foreign exchange intensive; that are limited in the number, scope, and geographical dispersion of their components so that the implementation places a minimal burden on scarce managerial resources; that depend heavily on the expertise of professionals (including teachers) in the donor country; and that involved study abroad for nationals in the recipient country. Primary schools meet few of these criteria…For tertiary and secondary institutions the situation is the reverse. … In fact as early as the 1960s bilateral donors (..) and agencies such as UNESCO indicated that supporting primary schools directly was less efficient that supporting them indirectly by funding teacher education programs and central agencies … (p. 214/5).

Today these views have been almost completely reversed. In SSA primary education receives more aid than any other part of the education system. A large proportion of education aid is provided as budget support instead of tied project aid. Strengthening the national capacity to manage the internal and external resources available to the sector using transparent national procedures has become a key objective of donor support. Similarly analytical work has focused heavily on primary education, and planning efforts

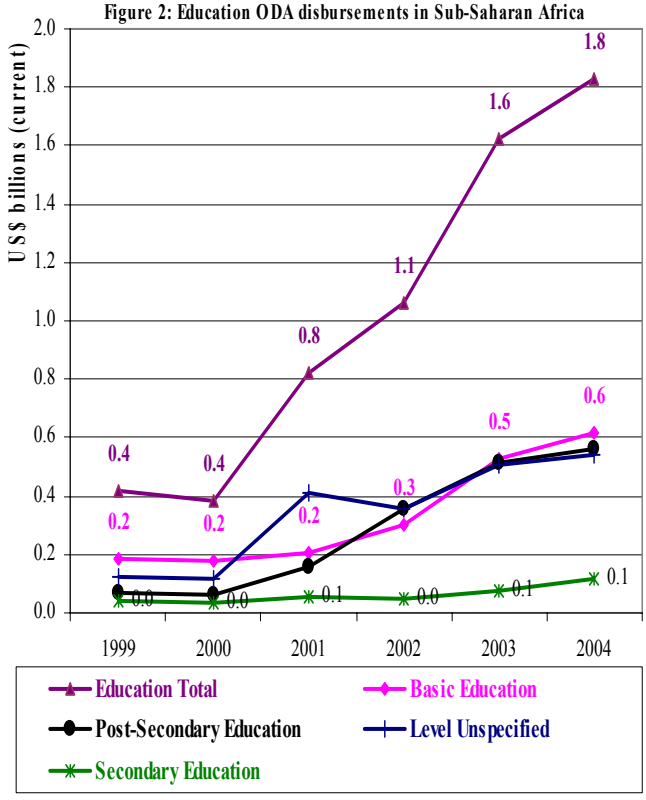
have emphasized the development of "credible" EFA plans. Conversely, there has been limited analytical work on secondary education in SSA, while the often disappointing results of past investments, including those in TVET, and the political difficulty of implementing the reforms that are necessary for a sustainable provision of secondary programs of acceptable quality and relevance made donors reluctant to get involved in these sub-sectors.

Declining aid allocations to secondary education

Trends in the share of secondary education in aid allocations show the magnitude of these changes. During the 1980s some 95% of all aid was allocated to secondary and tertiary education. In SSA secondary education received about one third of all aid to education between 1981 and 1983 (Lockheed and Verspoor, 1991). Driven by concerns about the persistence of low primary enrollment levels and the high economic and social returns found by an increasingly robust body of research, aid to primary education began to increase in the late 1970s, especially in low income countries.

This trend accelerated after the Jomtien Education for All Conference in 1990 and especially after the 2000 World Education Forum in Dakar. The Sub-Saharan Regional EFA Framework for Action (UNESCO, 2000a) calls for a doubling of international aid to basic education. In response many donors redefined their aid priorities for the education sector and increased their support for basic education. By 1999 the share of primary education in education aid commitments to SSA exceeded more than 50%[117] while secondary education received about 12%. Since then this shift in aid priorities has continued. Between 1999 and 2004 total aid commitments to education in SSA increased by 75% from $1.2 to $ 2.1 billion. Virtually all of this increase was allocated to primary and tertiary education, while commitments to secondary education stabilized in dollar terms but declined to about 5% as a share of education aid

Figure 2: Education ODA disbursements in Sub-Saharan Africa



Source: OECD/DAC data base

[117] This assumes that at least 50% of the aid that is not specified by sub sector –e.g. education budget support - is in fact allocated to basic education.

commitments (Figure 10.1). This raises important questions on the way policy priorities are translated into actual aid allocations. It is hard to understand why external support to higher education has increased almost as fast as support to primary education while allocations to secondary education are stagnating, especially when countries are aiming to expand access to lower secondary education as part of their goal of providing 8-10 years of basic education.

Box 10.1: Tanzania: Secondary Education Development Program

Tanzania has one of the lowest secondary enrollment rates in Africa. Fundamental changes are needed to increase enrollment and improve quality in both government and non-government schools. These changes include reducing the costs to households, redesigning and restructuring education programs and strengthening system management through decentralization. Several donors are supporting the Government Secondary Education Reform Program, most importantly the World Bank with a Sector Adjustment loan of $150 million which will be disbursed in three annual tranches contingent upon the implementation of specified policy reforms.

Substantial numbers of classrooms will be constructed, teachers trained and students enrolled but the main purpose is to lay foundation for system of quality secondary education that is relevant, effective and efficient. Development grants will assist communities to build schools. Incentives for non-government providers will be introduced. Fees in government schools will be reduced. Scholarships will be provided to children from poorer families. Distance learning programs will be expanded. Curricula will be reviewed and revised and teachers oriented in their use; a new examinations syllabus will be completed and issued; a new pre-service teacher training structure and content will be established; policies will be adopted to make more productive use of teachers; new textbooks will be developed; and a new organizational structure put in place with capacities to perform more functions effectively at lower levels.

Tranche conditions for the World Bank loan are linked to the implementation of the reform package. Two tranches have been released upon completion of:

- Enactment of regulations on capitation, development, scholarship and norms for posting of teachers in public schools to achieve by 2008 a ratio of at least 30 students per teacher;
- Conclusion of arrangements between the Tanzanian Institute of Education (TIE) and private sector publishers for publishing existing textbook titles and revision of the textbook evaluation process
- Budgetary allocations for staffing, scholarships, capitation grants, and development grants for facilities and pedagogical improvements according to agreed norms;
- Government reduction in fees for public secondary schools from TSh 40,000 to TSh 20,000 starting in 2005 school year;
- Regulations for a package of benefits to attract teachers to underserved areas; and
- Adoption and implementation of a program for continuous professional development of school managers and teachers

The third tranche will be released upon fulfillment of the following conditions:

- Budgetary allocations to cover staffing, scholarships, capitation grants, and development grants for facilities and pedagogical improvements according to agreed norms;
- Revised curricula completed and introduced; revised examination structure approved and distributed to all schools; and
- New regulatory framework and organizational structure in place for decentralized management of secondary education.

Source: World Bank, 2004

Changing aid modalities: Development Policy Lending

The external support to education in SSA is delivered increasingly through new aid modalities and linked with Poverty Reduction Support Programs (PRSCs) instead of through traditional investment projects. The new aid modalities –often embedded in sectorwide approaches (SWAps) provide important opportunities to ensure that secondary education development is part and parcel of overall national education development and poverty reduction strategies. The financing mechanisms increasingly used by the World Bank for this purpose is the Development Policy Loan (DPL). DPLs provide rapidly disbursing policy based budget support assistance, with a considerable emphasis on defining and measuring results. The majority have a programmatic approach, where a program of reform is agreed upon with the government, as well as a timetable for implementation. The program is supported by a series of (normally) single tranche operations, which come into effect as certain benchmarks as defined in the policy matrix are met. A DPL policy matrix –usually with about 10 core triggers- summarizes the key results which will trigger further assistance (Hicks, 2006). In many instances other donors support also the same program with similar or sometimes different financing instruments.

In FY05 $188.5 million–more than half of all World Bank education lending in SSA was provided through DPL instruments (Hicks, 2006). In most cases the education policy objectives of DPL are designed to support the expansion of access and improvement of the quality of primary education. Tanzania and Uganda are exceptions to this pattern, although they do this in somewhat different ways. In Tanzania the DPL (FY04) follows a sector adjustment approach with tranche release conditions linked to the implementation of secondary education policy reforms (see Box 10.1). In Uganda annual poverty support credits (PRSCs) provide general budget support for the implementation of the national Poverty Eradication Action Plan (PEAP) which has five pillars with secondary education and technical and vocational training included in the Human Development pillar with a detailed matrix of policies and results (Box 10.2). The secondary education policy framework is detailed in the Post Primary Education and Training Plan (PPETP).[118] Policy dialogue and assessment of implementation progress takes place annually during an education sector review which includes PPETP. Implementation of the government undertakings agreed during these sector reviews is a prior action for the PRSC. In both Uganda and Tanzania the World Bank DPL support is part of a multi donor sector wide approach (SWAp)

[118] This Uganda plan is superseded by a move towards universalizing access to secondary education, which is will need to be underpinned by a coherent set of policy reforms. The rate of building of schools is below target which is below needs. The bursary scheme listed is inadequate to cover the needs and there is not much progress on curriculum reform and limiting the number of subjects. To date no new teachers have been recruited on pay roll (though 2000 have been identified) but the number paid by the PTA has increased.

Box 10.2 : Uganda: PEAP Policy and Results Matrix for Secondary level Education				
	End June 2005	End June 2006	End June 2007	End June 2008
Increased post primary enrollment (GER by Gender) *Increase access to secondary schools and BTVET institutions*	Government continues enhancing access through the construction of 60 secondary schools	Construction continued	Construction continued	All seed schools (60) constructed. Target of 270 schools reached
	More teachers recruited	More teachers recruited	More teachers recruited	Implementation according to review.
	Government continues grant aiding target of 270 community/private schools			
	Implemented pilot of establishing a maximum of 30 Community polytechnics of which 14 are to be fully funded by GoU while 16 are to be co-funded by IDB	Continued to implement the pilot	Reviewed and evaluated the pilot	
Improve equity of access and effectiveness of system through providing bursaries to poor bright students.	Implement bursary scheme with each secondary class of education now having 2 beneficiaries per sub county. Scheme to include girls who have had a child and wish to return to school	Increased the number of beneficiaries per sub county to three to be shared by gender in a ratio of 2:1 in favor of girls.	Continued to implement the 2:1 (girl:boy) ratio patio per class per sub county	Continued to implement the 2:1 (girl:boy) ratio patio per class per sub county
Improved Quality of Post Primary Education (Completion rate of senior 4 disaggregated by gender)		Developed Vocational Qualifications Authority	Implemented modularized programs in the TVET institutes	Implemented modularized programs in the TVET institutes
	Review Curricula to transform them into credit units weighed according to the level of the institution	Curriculum reviewed and implemented	Curriculum reviewed and implemented	Implemented, monitored and evaluated the new curriculum
	Science and technology subjects made compulsory	Science and technology teachers trained and retrained	Science and technology teachers trained and retrained	Science and technology teachers trained and retrained
	Rehabilitated existing laboratories	Laboratories and libraries constructed	Laboratories and libraries constructed	Laboratories and libraries constructed
		Rehabilitated and equipped existing laboratories and libraries	Rehabilitated and equipped existing laboratories and libraries	Rehabilitated and equipped existing laboratories and libraries
	Community Polytechnics curriculum modularized	Technical and Commerce Colleges curriculum modularized	Technical Schools and Farm Schools curriculum modularized	Continued implementation of modularized programs and evaluation
Source: World Bank, 2005e				

Macro linkages: Poverty Reduction Strategy Papers (PRSPs)[119]

Education is usually included in PRSPs. A recent review of the place of education in PRSPs that were completed by 2003 (Caillods and Hallak, 2004) concludes that post-primary levels "are not considered" (p.149). Skill development issues are often included, but usually in support of sector programs other than education and outside the education policy framework. This may be changing. For example, the Burkina Faso PRSP (2004) makes the point that increasing demand for more qualified manpower for the growing economy will require more and better trained graduates from secondary, vocational, and professional education to improve Burkina Faso's ability to compete in regional and global markets. Similarly, the Tanzania PRSP calls for an expansion of secondary education through existing government schools and encouragement of non-government schools. A target is to have one secondary school in every ward (implying about 2,500 secondary schools, compared with 1,000 at present).

World Bank country assistance strategies (CASs) which specify planned World Bank support for PRSP implementation usually recognize the importance of a better educated labor force, but often do not express explicit support for secondary education development or the inclusion of secondary education or vocational training as important elements in the lending program. An exception is the Tanzania CAS which has as one of the two benchmarks for country performance in education an increase in the transition rate from primary to secondary schools. The Burkina CAS 2006-2009 includes support for lower secondary education as one of the priority objectives

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Trends in World Bank Support

The World Bank has long been the single largest source of funding for education development in SSA. Its policies and practices have an important impact on the agenda for and the direction of external support to education in the region. World Bank support for education development happens through financial support – in SSA mainly IDA credits (low interest loans) or grants – and through analytical work typically carried out in close collaboration with staff from Ministries or research institutions in the countries concerned.

Well before the Education for All initiative World Bank lending had begun to emphasize, on economic and social grounds, the development of primary education consequently lending for secondary education took place mainly in countries that already had achieved universal access to primary schooling. For projects approved since FY90[120] two thirds of secondary lending is concentrated in the middle income countries of Latin America and Caribbean (LAC), Eastern Europe and central Asia (ECA) and East Asia (EAP), although the relative shares changed considerably in the more recent period with significant increases in the share of South Asia and ECA and a notable decline in EAP (Figure 10.1).

[119] PRSPs describe a country's macroeconomic, structural and social policies and programs to promote growth and reduce poverty, as well as associated external financing needs. PRSPs are prepared by governments through a participatory process involving civil society and development partners, including the World Bank and the IMF. Realistic, quantified development targets, intended to help governments focus their resources and hold them accountable for subsequent actions, are key components of PRSPs.

[120] The World Bank fiscal year (FY) runs from July 1st to June 30th; FY90 starts on July 1, 1989.

Table 10.1: Regional distribution of projects supporting secondary education

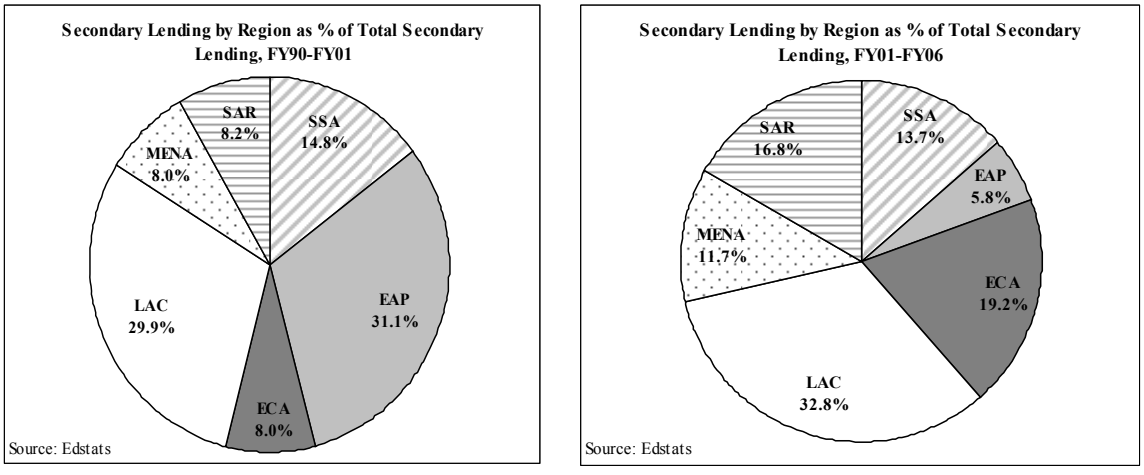
	AFR	Total Bank
Projects approved FY80-FY02		
All education Project	137	477
Projects with any Secondary (%)	39	37
Projects all secondary (%)	15	19
Projects closed FY90-FY01		
All education Project	66	236
Projects with any Secondary (%)	41	35
Projects all secondary (%)	15	19
Projects closed or active FY02		
All education Project	46	183
Projects with any Secondary (%)	39	45
Projects all secondary (%)	13	21

Note: Categories overlap: "Projects with any secondary" includes the "all or mainly secondary education projects" i.e., those allocation a larger share of costs to secondary than to either primary or tertiary. *Source:* Perkins, 2004

The share of Sub Saharan Africa has been remarkably stable throughout both periods at about 13-14%. Given the much larger annual lending commitments in the later period this means that the average annual investment in secondary education in SSA increased from $27 million in FY90-FY01 to $37 million FY01-06.

The regional distribution of the number of projects with secondary education components similarly shows Sub-Sahara Africa as the region with the lowest proportion of "all secondary education" projects of all regions, although the region is close to the Bank average for "projects with any secondary" (Table 10.1). This suggests that much of Bank lending for secondary education in SSA has taken place in the context of projects with multiple components across the education and training sectors. But clearly middle income countries with high primary enrollments have dominated bank lending for secondary education. This is consistent with Bank policy priorities as they evolved over time and reflects the high priority of primary education development in low-income countries –especially those in SSA-, the limited public resources available for secondary education and the small size of the modern sector labor market where most graduates look for employment.

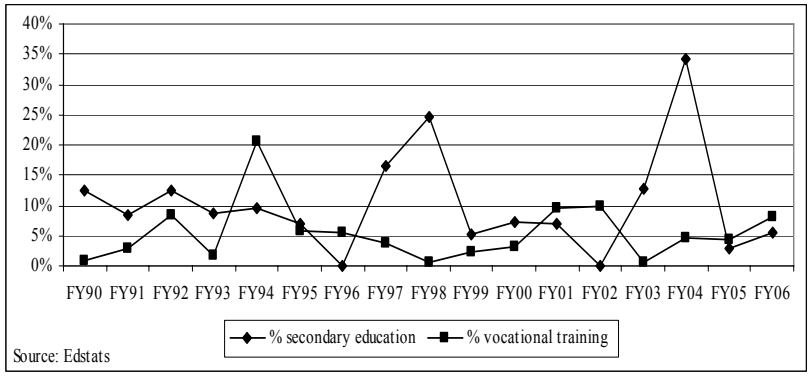
Figure 10.1: Changes in the Regional Shares of World Bank Commitments for Secondary Education



Lending for secondary education in SSA

Figure 10.2 shows the trend in ending for secondary education and vocational training in the Africa region since 1990. Annual amounts of lending tend to fluctuate significantly: secondary education was 35% of total education lending in SSA in FY04 but 0% in FY96; vocational training comprised 20% FY94 but only 0.5% in FY93. Single investments can have an important impact. The high share of lending for secondary education in FY 04 was almost exclusively caused by a "Secondary Education Development Project" in Tanzania ($150 million total cost); in FY06 a "Post Primary Education Project" in Burkina Faso accounted for 80% ($15 million) of the secondary lending. Above average lending for vocational training in FY06 was due to a vocational training project in Mozambique with a total cost of $30 million.

Figure 10.2: Percentage of World Bank Education Lending to Africa for Secondary Education and Vocational Training, FY90-06



Notwithstanding these fluctuation five years averages –FY 90-94, FY 95-99 and FY00-FY06 are remarkable stable at 10.3%, 10.6% and 11.6% respectively for secondary education and 7.0%, 3.6% and 7.0% for vocational training. Secondary education has been supported in ten countries in SSA since FY03 (Table 10.2) or two or three every year; support for vocational training projects is wider spread over countries - 3-5 a year but the scope -as reflected in the amount committed - tends to be rather small.

With the exception of a few projects that focus almost exclusively on secondary education –Tanzania and Burkina Faso- the amounts committed for secondary education also tend to be rather small - $5-6 million in FY 05 and FY06 spread over components in several countries. These efforts are unlikely to provide meaningful support for major reform programs. The Burkina Faso project provides a good example of a sustained effort to support secondary education. A first project was approved in 1996 followed by a follow-up project in FY06. The first project supported innovative approaches to

Table 10.2 Bank lending for secondary education and vocational training in SSA (FY00-06)

	01	02	03	04	05	06
Secondary education						
Projects (#)	1	0	3	2	2	3
Amount ($m)	14.4	0	53.9	124.2	11.2	18.3
Vocational training						
Projects (#)	1	3	1	3	5	5
Amount ($m)	19.8	47.1	2.1	16.5	15.8	27.2
Total ($m)	209.5	472.6	423.6	362.9	369	339.3
Sec &Voc % of total	16	10	13	39	7	13

Source: Edstats

promote: public – private partnerships for the construction and operation of schools (Chapter 9, Box 9.1); reforms of teacher education (Chapter 7, Box 7.3), systematic assessment of student learning: progress towards gender equity; and better access of poor students. The second (FY 06) operation continues these efforts incorporating the lessons of experience while supporting a large increase in enrollments especially at the junior secondary level with an increase in the intake ratio from 22% in 2004 to 40% by 2009.

Project performance

A 2004 review of the World Bank Independent Evaluation Group (IEG)[121] by Perkins, (2004) of secondary education projects closed between 1990 and 2001 found that the performance of about 30% of the projects was rated as unsatisfactory, higher than in any other region. Completion and evaluation reports identified several factors causing poor performance: lack of government/ national ownership and underestimation (or lack of adequate assessment) of institutional constraints. In addition over-complex project design, failure to anticipate or address the need for legal and regulatory changes, and lack of an adequate stakeholder assessment and participation strategy, were weaknesses that affected outcomes even in relatively favorable country conditions. The moderately unsatisfactory outcome of the Mauritius Education Sector Project (FY93), for example, was attributed in part to shifts in government and changes in personnel, but mainly to neglect of institutional weaknesses in the course of project design and implementation, overestimation of institutional capacity and of government commitment to some components, and lack of attention to dialogue and consensus building (Perkins, 2004).

Conversely good performance was found to be associated with strong government commitment, political stability, and capacity and continuity of Bank and project implementation staff. Top-down initiatives (curriculum and assessment, supply of inputs), combined with demand-driven interventions (such as school-managed improvement funds and book selection) were found to be an important factor in projects that successfully supported improvements in education quality and/or equity.

The older generation of projects in the Africa region in the IEG review, emphasized mainly improvements in quality, the expansion of capacity and improvement in planning and management. Reducing the obstacles of poverty and gender were much less prevalent. Partnerships with the private sector were rarely pursued in these projects beyond studies and technical assistance. Linkages to development objectives beyond the education sector were weak or non-existent. Many pursued multiple objectives across sub-sectors. Few projects successfully contributed to major policy reforms.

In recent years this picture is changing. Considerable attention is being paid to gender and equity issues: The UGANDA PEAP and the Gambia (FY05) for example provide financing of scholarships for poor girls. The Burkina Faso Post Primary Project explicitly targets 18 poor provinces, provides for a reduction in school fees, supports scholarships targeted at the poor and specifically at girls and establishes innovative partnerships with communities and the private sector. The Tanzania Secondary Education Development Program (FY 04) provides development grants for classroom construction

[121] At that time known as the Operations Evaluation Department (OED)

to the poorest communities, supports fee reductions and scholarships for poor children. Sectorwide financing and sustainability issues are a central part of the analysis in many projects. Where there is no coherent plan for reform, the projects provide financial and technical support to develop it.

The Way Forward

There is little doubt that secondary education is becoming –in most instances belatedly- a key element of national education policy and that governments are putting pressure on donors to include it in their aid programs. This reflects a strongly held view of many political leaders[122] that secondary education cannot be dealt with in isolation from the other sub sectors and that primary education is no longer sufficient for effective participation in the economy and society of the 21st century.

Expanding support for secondary education

It is encouraging that, notwithstanding the large unfinished MDG and EFA agenda related to primary education, several recent developments suggest that the past neglect of secondary education is being reversed. Lower secondary education is increasingly considered as part of basic education and part of the EFA agenda. Many countries have education development programs that include secondary education and vocational training plans or provide for a detailed review of policy and financing issues for these sub-sectors. Donors are increasingly ready to provide financial support for secondary general and technical/vocational education programs. For example DFID recently published a brief on the importance of secondary, vocational and higher education for development committing itself to a sectorwide approach and support for government plans to distribute funding in a balanced way with lower secondary education increasingly considered as part of basic education across all levels of their education system[123]. The African Development Bank has provided support to secondary education in many of its education operations, often focusing on math and science teaching. JICA is supporting the improvement of math and secondary math and science education. The Netherlands is co-financing the post primary Project in Burkina Faso. Several agencies –e.g. DANIDA and GTZ- have a longstanding commitment to support TVET. Yet external financial support for secondary varies considerably between donors.

The World Bank Africa Action Plan (The World Bank, 2005c) and the recently issued progress report (World Bank, 2007) also identifies skills development and secondary education as one of its priority areas (Box 10.3) and confirms the Bank's readiness to support SSA countries as they design and implement policy reforms that aim to accelerate the expansion of access to lower secondary education and the diversification of opportunities for further education and training at the senior secondary level. The SEIA program has initiated reflection and policy discussion on priorities and policies for secondary education development in Sub-Saharan Africa.

[122] This was a key messages conveyed by education ministers at the third SEIA conference in Accra, Ghana (April 1-3, 2007)

[123] See http://www.dfid.gov.uk/pubs/files/post-primary.pdf

Box 10.3: The World Bank Africa Action Plan: Progress in Implementation Building Skills for Growth and Competitiveness

In 2007 the World Bank reviewed progress of the implementation of its 2005 Africa Action Plan (World Bank, 2005). The review reports good progress in increasing primary enrollments but expresses concern about the quality of secondary education and the low completion rates (30% for junior secondary and 12% for upper secondary education). It notes that over the past two years:

- African policy makers and development partners have placed greater emphasis on post primary education and primary school completion.
- Private secondary education and training is expanding and public private partnerships are emerging.
- Previously neglected issues such as labor market linkages of curricula, science and technology capacities and research performance are merging in public discussions

Given the good progress on primary education and the alignment of international donors behind the EFA Fast Track Initiative, which has resulted in substantial financing for primary education, including increased Bank support, the review proposes that the Bank adjust its incremental focus to the overall quality of the education system, with special emphasis on ensuring that students are provided with the skills needed to succeed in the prost primary system. Management attention can shift toward post-primary education and apply the lessons learned from success in primary education.

The report identifies eight areas of operational focus (flagships) including "building skills for competitiveness in a global economy". The goal is to increase the skills of Africans to innovate, develop SMEs and meet the needs of the private sector for a trained workforce. As for primary education the Bank plans an approach that includes developing an effective set of policy options and engaging with development partners and the private sector in viable joint programs. The Bank group will:

- Contribute to increasing secondary enrollment, improving learning outcomes and preparing students for further study in science, technology and business
- Help countries to develop a sound and fiscally sustainable policies and comprehensive education programs to meet education MDGs; improve learning outcomes throughout the system; manage the growing pressures on post primary education; respond to employers demand for skilled labor; and ensure that the post primary system is oriented to enhance Africa's connection to international knowledge and know-how.
- Support innovation in education systems and skill training through public-private partnerships

In slow-growing economies the Bank's most effective role will often be in capacity development of core government functions and donor coordination with the most immediate impact in human development and basic infrastructure. In sustained growth countries building skills for competitiveness and ensuring that the benefits of growth are equally share are likely to be key priorities.

Source: World Bank, 2007a

There remains, however, considerable uncertainty on the extent of external support for secondary education. PRSCs in Uganda, Ethiopia, Madagascar and Niger are likely to be linked explicitly to progress in secondary education development. The World Bank has free standing secondary education or TVET projects operations in the pipeline only in Zanzibar and possibly in Uganda and Benin. Additional efforts focused more narrowly on secondary education policy choices to underpin the policy dialogue between government, development partners and other stakeholders is required almost everywhere. It remains to be seen how the intentions of other donors will be translated into actual aid allocations.

Strengthening the analytical foundations

Important analytical work has been carried out by the Bank in recent years: *"Expanding Opportunities and Building Competencies for Young People: A New Agenda for Secondary Education*" (2005) provides a global perspective on the challenges of secondary education development in developing countries and transitional economies. The 2007 World Development Report "*Development and the Next Generation*" (World Bank, 2007b) explores the issues involved in young people's transition to adulthood including: learning for life and work, staying healthy, working, forming families, and exercising citizenship.

Many secondary education policy reforms are controversial and are opposed by corporatist and economic interest groups. In the absence of a coherent policy reform frame work and evidence based policy dialogue grounded in a robust analysis of financial issues, labor market and poverty impact (Perkins, 2004) the conditions for lending are often not in place. Yet, a robust analytical foundation is often a first step towards a national discussion of policy options.

The World Bank –in collaboration with national specialists- has carried out a number of formal country specific in-depth studies of secondary education issues in recent years: Uganda (Liang, 2002) and Madagascar (Ramanantoanina, 2008). In Tanzania a draft secondary education strategy report was developed by the government supported by the World Bank and other Development partners to lay the foundation for the Secondary Education Development project referred to before. Other donors have also supported analytical work on secondary education policy (see for example CIDT, 2005). Several countries –for example Kenya and Mozambique- have assembled planning teams to analyze the policy options for secondary education development that may be considered. The SEIA initiative has supported country studies in–Nigeria, Cameroon, Benin, Ghana and Zambia. Economic analyses carried out as part of World Bank appraisal of education projects in -for example- Malawi (Education Sector Support Programs and Burkina Faso highlight the parameters for financial sustainability of secondary education investments. Many CSRs include an analysis of secondary education issues and recommendations for policy reform- although typically less in depth than for primary education- but only a few (examples) actually provide a framework for action and are followed by financial support to the secondary sector.

In several countries secondary education development is already gaining importance in the analytical work. Increasingly FTI programs analyze the implications of EFA on lower secondary education include lower secondary education as part of support for basic education. But few countries have a sustainable strategy; many need technical support to develop one. Recent CSRs in Burundi, Chad and the republic of Congo and Public Expenditure Reviews in Eritrea, Zambia and Zanzibar for example have included reviews of secondary education expenditure allocations and requirements. In several other countries (e.g. Uganda, Burundi, and Ethiopia) informal analysis are planned often with support of other development partners. The World Bank is planning is specific sector work on post primary education only in Zambia (FY09). Several recent World Bank

projects (e.g. Kenya and Burundi) make financial provision to support the development of a secondary education development strategy.

The challenge in many countries is to move beyond sub-sector analysis towards a national program that provides a policy framework that deals with intra-sectoral resource allocations within a resource envelope agreed with all government agencies concerned, including the Ministry of Finance. Such a strategic plan can then be the basis for a medium term expenditure framework (METF). The importance of this kind of approach cannot be underestimated as the many countries are moving simultaneously to move towards the MDGs for primary education, expand access to secondary, develop TVET and strengthen higher education and need to consider trade-offs between sub-sector resource allocations. The magnitude of the challenge is illustrated in Burkina Faso where the share of secondary education is expected to increase from less than 10% of the education budget to more than 20% with a concomitant decrease in the share of primary education made possible by major reforms in the way teachers are recruited and remunerated (World Bank, 2006c). An integrated sectorwide policy framework and analysis of financial sustainability is usually a pre-condition for moving towards the DPL instruments for support to post primary education.

Conclusion: Strategic priorities

Adequate and credible support for secondary education from the international development partners will mean that they reconsidering their current aid priorities especially as regards the relative allocations to secondary and higher education. This is of course never easy especially not given the importance of linking Africa with the international knowledge economy. On the other hand international experience clearly suggests that education development takes place from the bottom-up. Secondary education of good quality is a precondition for effective higher education. Allocating a share of education to higher education that is six times the share of secondary education is hard to justify.

It will be important to ensure that the external support for secondary education development-increasingly available from multiple sources- is well coordinated and coherent and where possible provided in the framework of a sectorwide approach (SWAp). Support for secondary education can be provided through an array of financing mechanisms and country conditions will determine the appropriate most appropriate one. Several examples have been discussed above: PRSC linked general budget support in Uganda (Box 10.2), Sector Adjustment Loan in Tanzania (Box 10.1), and the Specific Investment Loan in Burkina Faso. The World Bank is supporting secondary education also through Adaptable Program Loans[124] (APLs). In Mali 20% of the second phase of an APL for the Second Education Sector Investment Program is supporting the development of secondary education, in particular the second cycle of basic education (Grade 7-9). In Senegal the second phase of an APL (FY07) is supporting mainly lower secondary education. All of these are designed as part of a coherent package of financial

[124] An Adaptable Program Loan (APL) provides support for a long term development program by releasing three tranches in support of specific investments based on a set of agreed performance indicators known as triggers.

support funded by several donors. But in many instances –especially in World Bank funded projects- support to secondary education and TVET is limited and part of larger operations. This often limits the ability of agency staff and government officials to pay attention paid to policy issues.

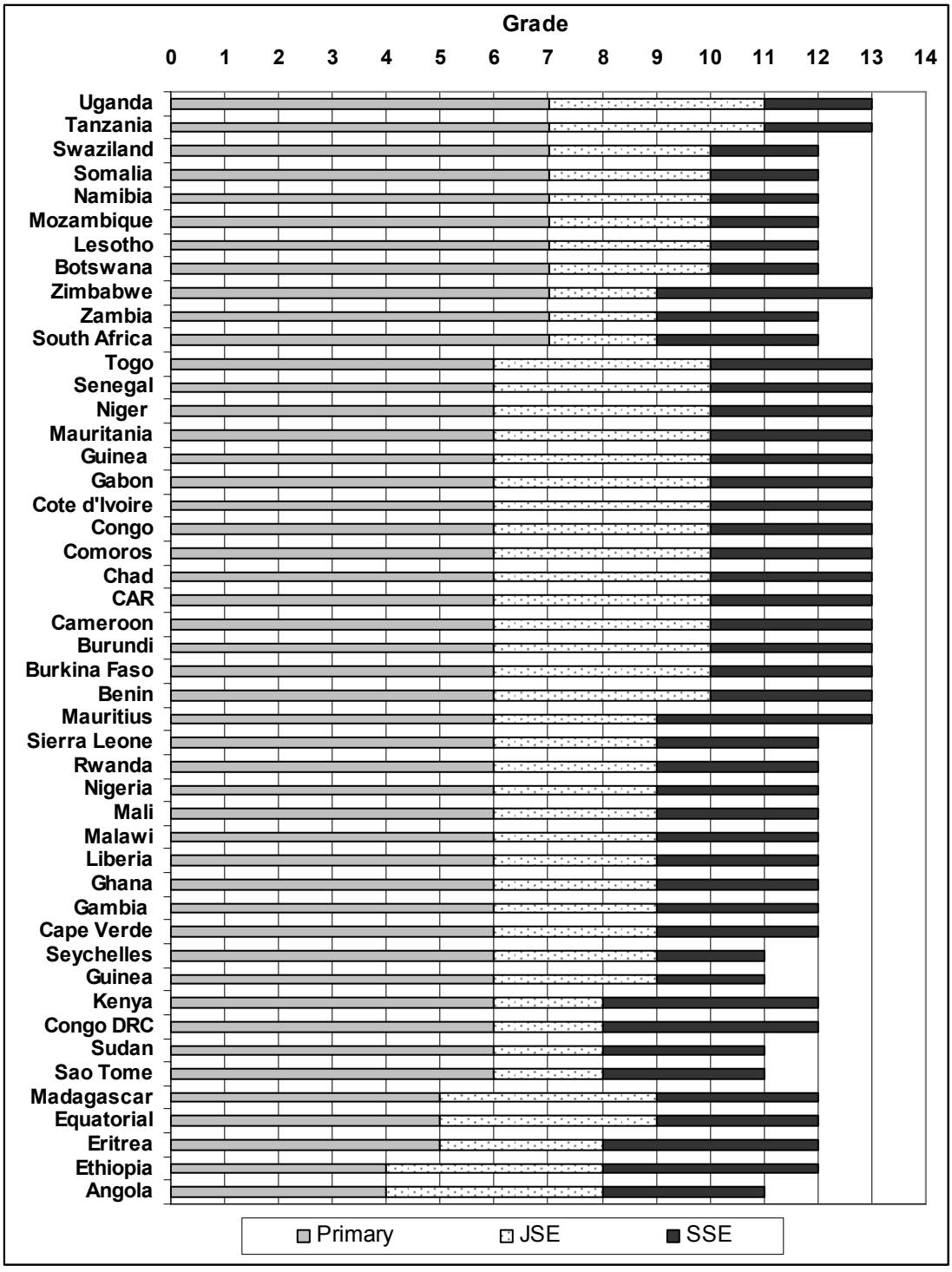
In addition, the task ahead now is to capitalize on the knowledge base that all this analytical work provides in working together with countries on the development of country specific strategies that can be supported financially by the Bank and other Development Partners. Specific action in this regard will need to include:

- Sharing the findings of this report and other analytic work with a broad audience of African decision makers, education professionals in African region and outside, and development partners in order to establish an understanding of the urgency to act and an awareness of the most promising policy options for reform.
- Developing country specific analytic foundations for national planning and consultation with stakeholders as well as for policy dialogue and financial support.
- Incorporating secondary education in the Bank's CAS papers and in supporting the inclusion in PRSPs.
- Supporting secondary education as much as possible in a sector wide policy framework, linked to the national PRSP and METF to improve visibility on the longer term financial basis for action.
- Using flexible lending instruments such as APL, SIPs or PRSCs whenever possible.
- Carefully monitoring the implementation progress of reform programs, learning the lessons of experience and adapting interventions accordingly.
- Explicit support of quality, equity and financial sustainability should be hallmark of Bank support

Annex 1: List of Country Status Reports (CSRs) in Education

1. Education and Training in **Madagascar**: Towards a Policy Agenda for Economic Growth and Poverty Reduction (September 2001)
2. Le système éducatif **mauritanien**: Eléments d'analyse pour instruire des politiques nouvelles (November 2001)
3. Le système éducatif **béninois** : Performance et espaces d'amélioration pour la politique éducative (January 2002)
4. Le système éducatif **togolais** : Eléments d'analyse pour une revitalisation (June 2003)
5. Cost and Financing of Education Opportunities and Obstacles for Expanding and Improving Education in Mozambique (July 2003)
6. Education in **Rwanda**, Rebalancing Resources to Accelerate Post-Conflict Development and Poverty Reduction (August 2003)
7. La dynamique des scolarisations au **Niger** : Evaluation pour un développement durable (February 2004)
8. School Education in **Nigeria**: Preparing for universal Basic Education (February 2004)
9. Rapport d'état du système éducatif national **camerounais** : Eléments de diagnostic pour la politique éducative dans le contexte de l'EPT er du DSRP (May 2004) [unpublished]
10. Cost, Financing and School Effectiveness of Education in **Malawi**: A future of limited choices and endless opportunities (August 2004)
11. Le système éducatif de la **République Démocratique du Congo** : Priorités et alternatives (January 2005)
12. Education in **Ethiopia**: Strengthening the Foundation for Sustainable Progress (June 2005)
13. Rapport d'état du système éducatif **ivoirien** : Eléments d'analyse pour instruire une politique éducative nouvelle dans le contexte de l'EPT et du PRSP (September 2005)
14. Le système éducatif **guinéen** : Diagnostic et perspectives pour la politique éducative dans le contexte de contraintes macro-économiques fortes et de réduction de la pauvreté (November 2005)
15. Primary and Secondary Education in **Lesotho**: A Country Status Report for Education (December 2005)
16. Rapport d'Etat sur le système éducatif national **mauritanien** (2006) [unpublished]
17. **Swaziland**: Achieving Education for All – Challenges and Policy Directions (June 2006)
18. Education in **Sierra Leone** (February 2007)
19. Eléments de diagnostic du système éducatif **malien** (May 2007)
20. Le système éducatif **burundais** (June 2007)
21. Le système éducatif **tchadien** (July 2007)
22. Eléments de diagnostic du système éducatif **centrafricain** : Contraintes et marges de manœuvre pour la reconstruction du système éducatif dans la perspective de la réduction de la pauvreté (to be published in 2007)
23. Le système éducatif **béninois** (in progress)
24. Le système éducatif au **Burkina Faso** (in progress)

Annex 2: Secondary Education Structure in Sub Sahara Africa



Source: UIS Database

Annex 3: Secondary education statistics

1. Participation in Secondary education (year)								
Country	Age group (2004)	School age population (000)	Dependency ratio	Total enrolment (School year ending in 2005)		Enrollment in TVET (%) (School year ending in 2005)		Private enrollment as % of total secondary enrollment (School year ending in 2005)
				Total	% female	Total	% female	
Angola	10-16	2828	91					
Benin	12-18	1339	83	435	35	58	43	25
Botswana	13-17	226	58	170	51	11	38	4
Burkina Faso	13-19	2104	91	295	41	22	49	39
Burundi	13-19	1291	86	174	43	14	48	12
Cameroon	12-18	2704	76	1198	44	381	36	40
Cape Verde	12-17	76	70	52	52	3	39	
CAR	12-18	668	80					
Chad	12-18	1526	91	237	25	3	41	
Comoros	12-18	123	76	43	43	.2	7	41
Congo	12-18	629	76	235	46	43	48	22
Cote d'Ivoire	12-18	3078	76					
DRC	12-17	7900	94	1655	37	443	38	
Equatorial Guinea	12-18	78	79					
Eritrea	12-18	690	79	217	37	2	36	6
Ethiopia	11-18	14529	84	5185	41	124	50	6
Gabon	12-18	227	60					
Gambia	13-18	188	75	85	45	0.4	82	39
Ghana	12-17	3099	68	1409	46	31	50	14
Guinea	13-19	1390	81	423	33	8	48	10
Guinea-Bissau	13-17	172	96					
Kenya	12-17	5053	78	2464	49	14	46	6
Lesotho	13-17	244	74	94	56	1	52	2
Liberia	12-17	461	92					
Madagascar	11-17	2959	83					
Malawi	12-17	1822	94	515	45			15
Mali	13-18	1827	98	430	37	42	40	26
Mauritania	12-18	452	72	93	46	3	38	13
Mauritius	11-17	145	35	128	49	18	31	
Mozambique	13-17	2323	84	306	41	25	30	15
Namibia	13-17	263	68	148	53			5
Niger	13-19	2079	98	182	39	5	39	11
Nigeria	12-17	18681	84	6398	45			
Rwanda	13-18	1432	80	204	48	73	48	44
Sao Tome and Principe	13-17	18	77	8	51	.1	18	
Senegal	13-19	1903	79	406	42	5	40	23
Seychelles	12-16			8	48			4
Sierra Leone	12-17	711	79					
Somalia	13-17	852	83					
South Africa	14-18	4932	50	4593	52	276	40	3
Sudan	12-16	4001	73	1370	48	18	28	10
Swaziland	13-17	151	70	68	49			
Togo	12-18	988	81	399	34	22	18	28
Uganda	13-18	4074	103	760	44	32	32	45
UR of Tanzania	14-19	5403	84					
Zambia	14-18	1445	89	409	45	8	8	4
Zimbabwe	13-18	2105	69	758	48			

Source: UNESCO (2007), UN Population Division

2. Secondary Education : Access and Equity (year)						
Country	Junior Secondary GER			Senior Secondary GER		
	Boys	Girls	GPI	Boys	Girls	GPI
Angola						
Benin	51	30	0.58	27	14	.52
Botswana	84	89	1.07	57	58	1.02
Burkina Faso	22	16	0.73	9	5	.6
Burundi	20	15	0.76	9	6	.68
Cameroon	52	47	0.91	46	28	.61
Cape Verde	87	92	1.06	43	47	1.1
CAR	18	10	0.54			
Chad	28	10	0.35	16	4	0.26
Comoros	47	35	0.75	30	24	0.78
Congo	53	47	0.88	25	17	0.69
Cote d'Ivoire						
DRC	37	23	0.63	23	12	0.54
Equatorial Guinea						
Eritrea	54	34	0.64	27	14	0.52
Ethiopia	56	41	0.73	24	14	0.58
Gabon						
Gambia	63	56	0.90	39	27	0.69
Ghana	68	61	0.91	27	22	0.81
Guinea	48	26	0.54	27	14	0.52
Guinea-Bissau						
Kenya	92	91	0.99	29	26	0.90
Lesotho	42	54	1.31	23	27	1.15
Liberia						
Madagascar	28	28	0.98			
Malawi	43	36	0.85	18	13	0.73
Mali	40	26	0.64	16	10	0.58
Mauritania	22	18	0.82	22	19	0.84
Mauritius	98	100	1.02	81	78	0.96
Mozambique	22	15	0.70	5	3	0.62
Namibia	67	78	1.17	28	30	1.07
Niger	14	10	0.69	4	3	0.63
Nigeria	40	34	0.87	34	28	0.81
Rwanda	19	17	0.89	11	10	0.89
Sao Tome and Principe	66	75	1.14	27	27	0.98
Senegal	31	24	0.78	15	10	0.67
Seychelles	102	100	0.98	111	113	1.01
Sierra Leone						
Somalia						
South Africa	94	99	1.06	87	95	1.09
Sudan	50	44	0.88	23	23	1.00
Swaziland	53	54	1.02	35	30	0.84
Togo	69	39	0.57	31	10	0.31
Uganda	24	20	0.84	12	8	0.68
UR of Tanzania						
Zambia	47	41	0.87	20	15	0.73
Zimbabwe	56	53	0.95	29	25	0.86

Source: UNESCO (2007)

3. Secondary education: transition and internal efficiency					
Country	Primary completion rate	Primary/ lower secondary transition rate	Percentage of repeaters: all secondary programs		
			Male	Female	All
Angola					
Benin	36	51.1	23	24	23
Botswana	79	95.1		1	1
Burkina Faso		46.0	26	29	28
Burundi	36	32.8	19	22	20
Cameroon	53	44.7	10	11	10
Cape Verde	82	72.8	21	19	20
CAR					
Chad		51.3	21	22	21
Comoros		63.2	15	18	16
Congo		58.1	24	25	24
Cote d'Ivoire			16	16	16
DRC					
Equatorial Guinea					
Eritrea	68	88.6	16	18	17
Ethiopia		85.4	8	12	9
Gabon					22
Gambia					
Ghana	53	86.8	2	2	2
Guinea	59	64.0	11	14	12
Guinea-Bissau					
Kenya					
Lesotho		65.9	9	9	9
Liberia					
Madagascar		54.3	15	14	14
Malawi		74.3			
Mali	57	57.1			
Mauritania	21	45.9	12	14	13
Mauritius		64.2	14	11	12
Mozambique		53.2	22	23	22
Namibia	67	87.4	7	9	8
Niger	36	58.7	7	8	7
Nigeria					
Rwanda	12				
Sao Tome and Principe		55.9	31	34	32
Senegal	31	49.1	12	13	12
Seychelles		94.9			
Sierra Leone					
Somalia					
South Africa		89.7	11	10	11
Sudan		89.5			
Swaziland	69	89.6	12	12	12
Togo	55	66.6	23	22	23
Uganda		37.4	2	2	2
UR of Tanzania		46.1	2	4	3
Zambia		55.3	5	5	5
Zimbabwe		69.7			

Source: UNESCO (2007), UIS (2006a)

4. Secondary Education : Teachers					
Country	Pupil teacher ratio		% trained teachers		
	Junior Secondary	Senior Secondary	Male	Female	All
Angola					
Benin	30	22			
Botswana	17	11	94	93	93
Burkina Faso					
Burundi			39	28	37
Cameroon					
Cape Verde	23	23	59	64	61
CAR					
Chad					
Comoros	16	11			51
Congo	45	18			
Cote d'Ivoire					
DRC					
Equatorial Guinea					
Eritrea	55	39	48	64	50
Ethiopia	57	47			
Gabon	31				
Gambia	51	31			
Ghana	18	22			
Guinea	33				
Guinea-Bissau					
Kenya	52	20			
Lesotho	27	18	83	86	85
Liberia					
Madagascar					
Malawi	51	34			
Mali	41				
Mauritania	26	26	100	100	100
Mauritius					
Mozambique					
Namibia	24	22			
Niger	44	11	100	100	100
Nigeria			71	86	76
Rwanda					
Sao Tome and Principe	23				
Senegal	27	25	50	55	51
Seychelles	14	13	90	93	91
Sierra Leone					
Somalia					
South Africa	28	31	88	90	89
Sudan	29	20			
Swaziland	19	13	91	93	92
Togo	35		47	39	47
Uganda			81	86	82
UR of Tanzania					
Zambia	38	28			
Zimbabwe					

Source: UIS (2006a)

5. Education expenditures							
Country	Public expenditures per student (% GDP)			Total Public Expenditures on Education		Public expenditures per student as % of GDP/capita JSE	Public expenditures per student as % of GDP/capita SSE
	Primary	Secondary	Tertiary	% of GDP	% of total government expenditures		
Angola							
Benin	12.2	22.1		3.3		28	71
Botswana							
Burkina Faso						47	64
Burundi	19.9	73.5	442.1	5.2	13.0	64	240
Cameroon			74.4	3.8	17.2	32	37
Cape Verde	17.5	20.7	118.9	7.3	20.7		
CAR						15	25
Chad						19	25
Comoros	12.4	33.9		3.9	24.1		
Congo	7.9	18.3	245.9	3.2		12	36
Cote d'Ivoire						34	63
DRC						19	19
Equatorial Guinea				0.6			
Eritrea	9.8	17.4	1105.4	3.8		25	35
Ethiopia				4.6		21	40
Gabon							
Gambia	7.1	8.7	229.7	1.9	8.9	26	47
Ghana						30	85
Guinea						11	9
Guinea-Bissau						14	14
Kenya	24.7	23.8	274.7	7.0	29.2		68
Lesotho	20.7	48.5	602.0	9.0		46	71
Liberia							
Madagascar			184.2	3.3	18.2	27	73
Malawi	14.0	29.7		6.0		49	49
Mali						26	117
Mauritania				3.4		31	42
Mauritius	13.2	19.4	44.9	4.7	15.7		
Mozambique						32	138
Namibia	21.0	25.2	111.1	7.2			
Niger	19.0	64.3		2.3		49	157
Nigeria						20	25
Rwanda						51	63
Sao Tome and Principe							
Senegal				4.0		22	36
Seychelles	15.9	17.4		5.4	18.1		
Sierra Leone						29	30
Somalia					13.6		
South Africa	13.6	20.2	46.8	5.4	18.3		
Sudan							18
Swaziland	11.7	29.0	260.7	6.2			
Togo	6.7			2.6	14.8	19	32
Uganda	11.2	33.7	187.5	5.2		45	45
UR of Tanzania						44	44
Zambia	9.3	11.9		2.8		17	25
Zimbabwe						23	23

Source: UIS (2006a), Mingat (forthcoming)

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