

AFRICA HUMAN DEVELOPMENT SERIES



At the Crossroads Choices for Secondary Education in Sub-Saharan Africa

Adriaan M. Verspoor
with the SEIA Team



THE WORLD BANK



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CHOICES FOR
SECONDARY EDUCATION
IN SUB-SAHARAN AFRICA

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Foreword

Expanded access to and improved quality of secondary education in Sub-Saharan Africa are key ingredients for economic growth in the region. The Secondary Education in Africa (SEIA) synthesis report makes this point by bringing together a significant volume of analytical work sponsored by the World Bank and by many African and other international partners. This report provides a timely resource on good practices and potential solutions for developing and sustaining high-quality secondary education systems in African countries. It contains elements of a roadmap for improving the responsiveness of Africa's secondary education systems to the challenges of the 21st century. Its main objective is to facilitate policy dialogue within African countries and between those countries and their development partners.

This report marks an important milestone because it highlights the issues from African countries' successes in promoting primary education. Thanks to the efforts of these countries and support from external donors, notably through the Education for All campaign, the gross enrollment ratio in primary education rose from 63 percent in 1990 to 95 percent in 2006. Similarly, the primary completion rate jumped from 49 percent to 65 percent over the same period. Consequently, the demand for secondary education has been rising rapidly in Africa, and enrollment has been expanding at rates exceeding those in primary education and those in other world regions. Even so, demand continues to outstrip the supply of places, prompting such questions as, where will all the primary school leavers go? Will parents continue to make sacrifices to put their children through primary school when the opportunities for continuation in secondary school and training are so limited? These considerations indicate that to sustain the laudable progress in primary education to date, it is also essential to embrace the development of secondary education and training.

More important, African countries are keen to become competitive in today's global economy. This economy is increasingly based on knowledge and skills, so successful engagement requires a workforce with higher levels of skills beyond primary schooling. Thus, although universalizing primary education is an important first step, African countries must do more, given the current limited coverage of secondary education. In 2005, secondary enrollment in African countries averaged only about 30 percent, compared with 65 percent for developing countries worldwide, and close to 100 percent in East Asia. And quality in most cases is not what it needs to be. Recent research suggests that in all middle-income economies, quality and quantity of secondary and tertiary graduates are among the key factors driving economic and social performance.

The development of secondary education entails multiple challenges, among them expansion of access, improvement in the quality and relevance of services, and enhancement of equity of opportunities—between boys and girls, between urban and rural areas, between the rich and the poor, and across regions within countries. The reform agenda will not be an easy one. It will, in fact, require fundamental changes in the way we approach secondary education. For example, in many cases, curricula will need to be revised to increase their relevance to the needs of modernizing economies. In many African countries, curricula have not been revised for decades. Most secondary education systems in Africa continue to reflect the elite traditions of academic schooling that are out of touch with today's rapidly changing conditions in society and in the labor market. The obsolescence and irrelevance of the curricula are reasons for the significant wastage associated with repetition and dropout. Sadly, curriculum reforms have been attempted, but with limited success.

Addressing the challenges of secondary education will require resources. Three main ways to mobilize these resources include (a) efficiency gains to get more out of what is currently being spent, (b) additional financial effort by the countries themselves (including public-private partnerships) complemented by the support of external development partners, and (c) economic growth. With regard to efficiency gains, the report highlights current cost structures that show, on average, the public cost of educating a junior secondary student in Africa is three to four times the corresponding cost of educating a primary school pupil; and the corresponding multiples for senior secondary and technical and vocational education are, respectively, 6 times and more than 12 times. This report discusses what could be done to reduce these cost ratios to produce more and better graduates with the available resources. With regard to additional effort, many African countries are already devoting large shares of public spending to education

and may not be able to augment the shares; correspondingly, it will be important to explore public-private partnerships to reinforce the government's effort. Economic growth will also be critical for the expansion of secondary education, as the experience of East Asian countries has shown. By generating the resources required for investment in secondary education, such growth also helps to ease the implementation of politically difficult reforms.

The development agenda for secondary education in Africa is huge, in part because it has received insufficient attention in the past. Policy makers are now beginning to discuss and debate options for the way forward. In this synthesis report, the reader will find the conclusions and recommendations from three regional SEIA conferences (Accra 2007, Dakar 2005, and Kampala 2003), eight thematic studies, various international research reports, and studies by country teams (see <http://www.worldbank.org/afr/seia>). The Africa Region's SEIA team, led by Jacob Bregman, will continue to work with its counterparts to address the key issues and prepare the ground for increased World Bank support for secondary education and training. The report informs our technical and strategic dialogue with our partner countries as well as with the local donor community. I hope the insights that it offers will make a useful contribution to ongoing policy dialogue and program design, so that secondary education reform takes root and helps to advance Africa's agenda for rapid economic growth and social development.

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The World Bank

Acknowledgments

The Secondary Education in Africa (SEIA) program is an initiative of the Africa Human Development Department of the World Bank and provides support to African countries for the development of sustainable strategies for secondary education. The task team is led by Jacob Bregman (lead education specialist, Africa Region, World Bank [AFTHD]). The SEIA initiative has 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 to exchange implementation experiences. Their contributions are included in the report and are gratefully acknowledged.

The SEIA study program produced eight thematic studies, a literature study (with the International Institute for Educational Planning, or IIEP, and with the United Nations Educational, Scientific, and Cultural Organization, or UNESCO), several country studies, and three regional SEIA conferences (Uganda 2003, Senegal 2004, and Ghana 2007). In October 2005, a workshop on SEIA sustainable cost and financing was organized in collaboration with the Vrije University of Amsterdam, for which Professor Keith Lewin (University of Sussex) and Professor Alain Mingat (Institut de Recherche sur l'Education Sociologie et Economie de l'Education, or IREDU, Université de Bourgogne) contributed papers. During the regional conferences, comments were received from representatives of 38 country teams. All papers and outputs are published on the SEIA Web site at <http://worldbank.org/afr/seia/>.

Adriaan Verspoor (senior education consultant) is the book's author. He would like to thank all contributors to the eight thematic studies and to the literature study titled "Trends in Secondary Education in Industrialized Countries: Are They Relevant for African Countries?" (IIEP, UNESCO).

The author has benefited from the contributions of many colleagues. Special thanks are extended to the following colleagues and contributors: World Bank Institute for its inputs in organizing the SEIA regional conferences; Jacob Bregman, who supported the development of the book since the original concept; Professor Keith Lewin (University of Sussex) for providing inputs on costs and financing of secondary education (chapter 5); Mamadou Ndoye (secretary general of the Association for the Development of Education in Africa, or ADEA) for his inspiring contributions during the SEIA regional conferences; Andrew Clegg (senior consultant, Namibia), Aidan Mulkeen (AFTHD), and Wout Ottevanger (Vrije University of Amsterdam) for providing inputs on secondary teachers, teaching, and school principals (chapter 7); and Patrick Ramanantoanina for his report on Madagascar's secondary education and training reform. Birger Fredriksen (senior advisor) and Professor Keith Lewin provided detailed comments on the first draft. Paul Glewwe commented on the summary of the economic evidence in chapter 4. Jee-Peng Tan (education advisor, AFTHD) provided inputs from the viewpoint of the Africa Region's work program. Yaw Ansu (director of human development in the Africa Region) provided overall strategic guidance from the viewpoint of Africa's economic growth and social development. Kasha Klosowska provided invaluable research assistance for the writing of the book.

Throughout the SEIA study program a number of research assistants provided valuable inputs: Karen Bryner, Kasha Klosowska, Nicole Laurence, Valerie Nussenblatt, Geraldine Simonnet, and Steffi Stallmeister (all consultants). Norosoa Andrianaivo provided administrative and technical support.

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Abbreviations

ADEA	Association for the Development of Education in Africa
AGEPA	<i>Amélioration de la Gestion de l'Éducation en Afrique</i>
A-level	advanced level
APL	adaptable policy loan
APU	academic production unit
AS-level	advanced supplementary level
BGCSE	Botswana General Certificate of Secondary Education
BOG	Board of Governors
BREDA	UNESCO Regional Office for Education in Africa
CAS	country assistance strategy
CDP	continuing professional development
CEM	Country Economic Memorandum
CIDT	Center for International Development and Training, University of Wolverhampton
CONFEMEN	Conference of Francophone Ministers of Education
CSR	Country Status Report (see appendix A)
DAC	OECD Development Assistance Committee
DANIDA	Danish International Development Agency
DDSP	District Development Support Program
DFID	UK Department for International Development
DHS	demographic and health survey
DPL	development policy loan
DVD	digital video disc
EAP	East Asia and Pacific region
ECA	Europe and Central Asia region
ECD	early childhood development
EFA	Education for All
EMIS	Education Management Information System

EU	European Union
FDI	foreign direct investment
FTI	Fast Track Initiative (of EFA)
FUNDEF	Fund for the Maintenance and Development of Basic Education and Teacher Appreciation
FY	fiscal year
GDP	gross domestic product
GEEP	<i>Groupe pour l'Etude et l'Enseignement de la Population</i>
GER	gross enrollment ratio
GMR	Global Monitoring Report
GNI	gross national income
GNP	gross national product
GPI	gender parity index
GTZ	<i>Gesellschaft für Technische Zusammenarbeit</i> (German Agency for Technical Cooperation)
HIV/AIDS	human immunodeficiency virus/acquired immune deficiency syndrome
ICT	information and communication technology
IDA	International Development Association
IDB	Inter-American Development Bank
IEG	Independent Evaluation Group (of the World Bank)
IIEP	International Institute for Educational Planning
ILO	International Labour Organization
JICA	Japan International Cooperation Agency
JS	junior secondary
JSE	junior secondary education
K	Zambian kwacha
KSh	Kenya shilling
LAC	Latin America and the Caribbean region
MDG	Millennium Development Goal
MENA	Middle East and North Africa region
MIS	management and information system
Mt	Mozambican meticais
NAYRL	National Association for Year Round Learning
NEPAD	New Partnership for Africa's Development
NGO	nongovernmental organization
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
OED	Operations Evaluation Department (of the World Bank)
O-level	ordinary level

PASEC	<i>Programme d'Analyse des Systèmes Educatifs des Pays de la CONFEMEN</i>
PEAP	Poverty Eradication Action Plan
PER	Public Expenditure Review
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PPEPT	Post Primary Education and Training Plan
PPP	public-private partnership
PRSC	Poverty Reduction Support Credit
PRSP	Poverty Reduction Strategy Paper
PTA	parent teacher association
PTR	pupil–teacher ratio
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SAGA	Strategies and Analysis for Growth and Access
SAR	South Asia region
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
SWAp	sectorwide approach
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
UIS	UNESCO Institute for Statistics
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
US	United States
USAID	United States Agency for International Development
USh	Uganda shilling
VSO	Voluntary Service Overseas
WB	World Bank
WBI	World Bank Institute
WEI	World Education Indicators

All dollar amounts are in US dollars.

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. Concurrently, accelerating economic growth and social change are creating an urgent imperative to expand access to further learning to strengthen the human resources 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. Those systems will not be able to provide a much greater proportion of SSA's youth with an education that effectively prepares them for work and for further education and training in societies with labor markets that increasingly demand advanced knowledge and skills, and that put a premium on the lifelong ability to learn and acquire new skills. In this environment, linear expansion of existing systems is not an option, especially with the constraints on public resources available for secondary education.

Changes in financing and curricula are 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 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 is captive to the pursuit of short-term problem resolution. Firefighting and politics rather than development and capacity building too often determine education policy.

This book addresses issues concerning the education of youth about 12 to 18 years old. It draws on the outcomes of the Secondary Education in Africa (SEIA) initiative,¹ which supported workshops in Kampala, Dakar, and Accra and commissioned eight thematic studies and several background papers underpinning key sections of this book. The emphasis is on general junior and senior secondary education, complementing earlier work on skills development in Sub-Saharan Africa (Johanson and Adams 2004). Secondary education has generally been neglected in education policy and practice. This is now changing, but still suffers from being addressed separately from other parts of the system. What are needed are secondary education plans that are integrated with longer-term national plans for education development.

MAPPING THE CHALLENGE

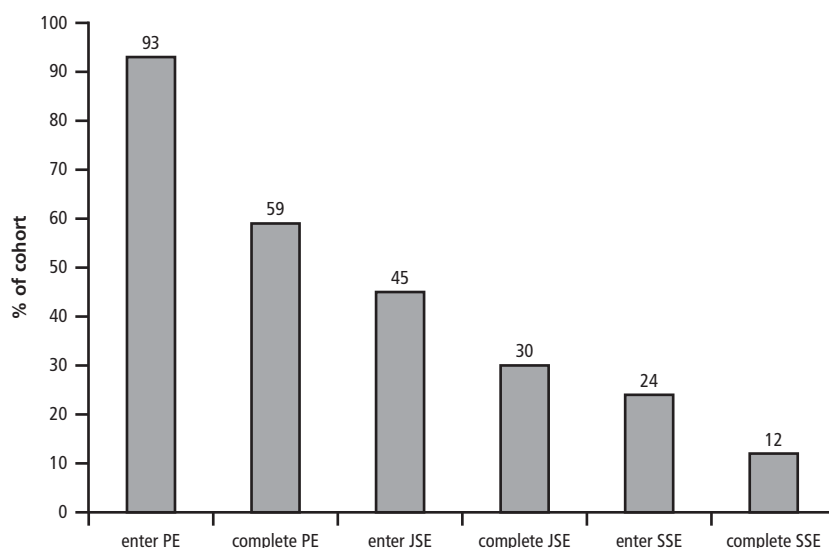
Virtually all countries need to address the triple challenge of expanding access, improving quality, and ensuring equity. Few are ready to respond effectively to the emerging challenges. As a result of differences in history, culture, and policy choices, the state of secondary education varies dramatically across the continent; nevertheless, many countries share the key features summarized next.

ENROLLMENT AND COMPLETION RATES ARE LOW

Of the relevant age groups, less than one youth in two enters junior secondary school and less than one in four enters senior secondary school (figure ES.1). Technical and vocational education (TVE) generally occupies a small, often marginal position with less than 10 percent of total secondary enrollment. The poorest countries generally have the lowest TVE participation rates.

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 Education for All (EFA) and Millennium Development Goal (MDG) target to eliminate gender disparities by 2005 was not reached. Many poor children never enter primary school or drop out early. For those who are successful in the secondary school selection process, tuition and other formal and informal costs are usually unaffordable. Where scholarships are available, they are often poorly targeted.

Figure ES.1 Survival of a Cohort of Students in Primary and Secondary Education in SSA, 2003

Source: Estimates of UNESCO BRENDA.

Note: PE = primary education; JSE = junior secondary education; SSE = senior secondary education.

CURRICULA ARE OUTDATED AND INCREASINGLY INAPPROPRIATE

Programs have rarely been adapted to the changes in the composition of the student body, the need for new life skills, or the labor market demand. Many students leave school ill-prepared for further learning and skill acquisition. Formal public TVE programs have focused mainly on pre-employment training. Many have neglected the informal sector, have become supply driven, and are 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.

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 percent

or more of recurrent expenditure is allocated to primary schooling. Higher education typically absorbs 15–20 percent, leaving some 20–25 percent for secondary education. Many countries have spread the same resources over larger number of students, attempted to mobilize private funding, or both. The per student cost of secondary education is three to six times that of primary, a much higher multiple than in most middle-income countries. In countries where the secondary gross enrollment ratio is above 70 percent, the secondary-to-primary unit cost ratio is almost always less than 2:1.

RESOURCES ARE USED INEFFICIENTLY

In-country variations in per student costs 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 gross national product (GNP) per capita. In others, they are so low that teachers are forced to find second jobs or leave the profession. In some countries, the output of teacher training programs is insufficient to meet the demand. In others, the government cannot afford to hire all those who graduate. Often teacher salaries crowd out other expenditures.

THE SHARE OF PRIVATE FUNDING IS HIGH

More than 13 percent of secondary students in SSA are enrolled in private, for-profit or nonprofit institutions. Some are high-cost elite schools, while others are traditional, church-sponsored schools that usually offer programs of acceptable quality at medium or low cost. But many private schools offer low-cost, low quality programs to poor students. Nongovernment providers of secondary TVE are important. The private cost of public schooling—comprising tuition and boarding fees, contributions to school management committees, as well as costs such as textbooks, learning materials, school supplies, transportation, and clothing—is often significant. Households are thus shouldering a large share, 30–60 percent, of the cost of secondary schooling. In a region where GNP per capita in many countries is less than \$500, secondary education with a cost equivalent to \$200–\$300 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 schemes

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 fund public and private technical and vocational education and training (TVET) institutions on a competitive basis, and use norms, 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.

THE EMERGENCE OF MICROECONOMIC EVIDENCE

Economic research has traditionally found that private rates of return to education decline at higher levels. Recent evidence suggests, however, that in many cases, rates of return increase with the level of education. Studies also show low returns to education where economic growth stagnates.

THE EFFECT 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, especially girls, enhances 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, to exert downward pressure on fertility, to enhance HIV/AIDS awareness and decrease risk, and to 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 rapid strengthening of the human capital base. Immediate priorities for this strengthening involve improvements in the quality of primary education, increases in primary completion rates, and expansion of access to junior secondary education. 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 workforce, and continuous, ambitious investment in the improvement of human capital.

Although the potential benefits of an increase in a nation’s human capital driven by investments in secondary education are substantial, they are not automatic. The benefits critically depend on effective macroeconomic and institutional policies. A good investment climate lets the private sector expand, helps trade flourish, and supports economic expansion. Mitigating market and policy failures responsible for rigidity and segmentation in the labor market will enhance employment opportunities. Strong institutions—stable political systems, secure property rights, efficient financial systems, and 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, languishing human capital growth, growing inability to increase productivity of capital and labor, stagnating public and private resources, and furthering the declines in education quality. Similarly, policies that ignore the imperative of an equitable distribution of education opportunities—for girls and boys, rich and poor, urban and rural—carry within them the seeds of social conflict and reduced growth performance. However, if macroeconomic and political conditions create a favorable environment, investments in secondary education can help accelerate economic growth.

LESSONS FROM INTERNATIONAL EXPERIENCE

The experience of countries where the transformation of secondary education from an 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 subsectors 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 are important to accelerate and sustain progress and ensure equity; yet decentralization and local autonomy hold 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 experience because the economic and education environments in SSA are very different from those that prevailed in other regions at the early stages of secondary education development:

- Progress toward the goal of universal primary completion and improvement in learning achievement remains incomplete in SSA; in the United States, Europe, and East Asia, progress 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 birth rates eased the challenge of expanding access to secondary education in other regions.

TOWARD AN AFRICAN STRATEGY FOR SECONDARY EDUCATION DEVELOPMENT

Providing places in schools of acceptable quality for larger cohorts of children every year and keeping these children in school longer in an environment in which external assistance and national public expenditures

are confronted with many competing priorities is an intimidating policy conundrum. Increasing public funding for education—and increasing the share for secondary education—is the preferred solution of many education planners and policy makers. In practice, increasing public funding will 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, with increases in the share of gross domestic product (GDP) available for public expenditures, will have to be the main source of additional public resources for education. However, even large increases in public spending will be inadequate to generate increases in education attainment and learning achievement unless accompanied by reform that aims to make more efficient use of available resources and recognizes 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 to drive secondary education policy in the medium term:

- Increase significantly the number of young people who have the opportunity to complete a basic education cycle of 8–10 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 taking advantage of it.
- Ensure that opportunities for learning of acceptable quality are available to poor students, especially girls.
- Prepare students for work in an economy that participates in a technology-driven global economy.

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

- 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, resulting from local school administration, multiple delivery mechanisms, and broadly conceived public-private partnerships.

RESOURCE REQUIREMENTS CONSISTENT WITH NATIONAL MEANS

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

Personnel cost is the largest expenditure item in secondary education budgets. Inefficiencies in teacher deployment 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 unaffordably high multiple of GNP 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 minimal effort, with adverse consequences for quality. In such cases, 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 more than one school; that preferential increases will be granted to teachers who can teach several subjects; and that teachers 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 to allow a significant increase in spending on nonsalary 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

Table ES.1 Toward Indicative Benchmarks for Secondary Education Development (2015)

Domestic resource mobilization	Indicative benchmarks	Comments and explanations
Government revenues as percentage of GDP	14–18	As suggested in Bruns, Mingat, and Rakotomalala (2003)
Education spending as percentage of recurrent budget	20–25	As secondary education expands, this ratio may have to increase from the 20 percent suggested by Bruns, Mingat, and Rakotomalala (2003)
Primary as percentage of recurrent education budget	42–64	As suggested in Bruns, Mingat, and Rakotomalala (2003); in countries at the high end of this range, the share will decline as primary enrollment stabilizes and secondary increases.
Secondary as percentage of recurrent education budget	25–30	Assuming a higher-education share of 15–20 percent
Junior secondary percentage of secondary budget	55	See estimates (Lewin 2008) under reform scenarios with 60 percent junior secondary and 30 percent senior secondary gross enrollment ratios
Senior secondary percentage of secondary budget	45	
Percentage of total secondary cost privately funded	35	Where share is currently low, it should increase; where it is high, it will have to decrease as more poor students with limited ability to pay need to be accommodated.
Cost of classrooms	\$10,000	Assuming simple structures and decentralized management of construction (see Theunynck forthcoming)
Service delivery indicators		
Average teacher salary (times average annual GDP per capita)		Based on World Education Indicators primary-to-secondary multiple and Bruns, Mingat, and Rakotomalala (2003) primary multiple; see chapter 5 in this volume.
Primary	3.80	
Junior secondary	4.75	
Senior secondary	6.25	
Pupil-to-teacher ratio		Based on East Asian multiples and assuming efficient deployment of teachers; see chapter 5 in this volume.
Junior secondary	40	
Senior secondary	35	
Nonteacher salary share of recurrent spending (percent)		See Lewin (2008) and the discussion on textbook provision in chapter 7 in this volume.
Junior secondary	35	
Senior secondary	40	
Repeaters (percent)		Some decrease from current levels; assumes senior level will remain more selective
Junior secondary	10	
Senior secondary	5	

Source: Author's compilation.

a reasonable distance from their homes 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 been done and they require different ways of thinking about how schooling is organized and how available infrastructure is used; they also require different ways of employing and deploying teachers and structuring their contracts. But innovations in the way that schooling is delivered, that target resources to those inputs that most cost-effectively produce student learning, and that use these inputs intensively can reduce the cost per student while improving achievement.

CURRICULUM CONTENT RELEVANT TO AFRICAN DEVELOPMENT OPPORTUNITIES

Education development will need to be part and parcel of national development strategies. In situations in which education progresses on a separate path, it will 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 suggests the importance of an education development strategy that evolves with the national economy and that helps young people adopt values and attitudes that guide them to function as responsible citizens and productive workers.

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

- *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 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 who do not gain admission in these, training opportunities*

in nonformal institutions, 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 the junior level, improving teacher qualifications, and ensuring an adequate supply of instructional materials, thus providing incentives for students to select math and science streams at the senior secondary level.
- *Incorporating information and communication technology (ICT) in the curriculum* and improve the quality of instruction by establishing linkages with nongovernment and private providers of training and technical support to ensure basic understanding of and competence in ICT.
- *Reforming examination and assessment systems* by moving toward curriculum-referenced examinations, regular national assessments of student learning, and participation in international or regional assessments.

Vocational training is often considered a trigger for economic growth and a way to reduce youth unemployment. In fact, there is scant evidence that it does either of these. But in countries with strong economic growth, vocational training has played an important role in preparing a workforce that supports a rapidly growing modern industrial sector. And where this preparation happened, students entered vocational training with 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. Thus, it is important to invest in those inputs that most cost-effectively affect student learning achievement:

- *Capable and motivated teachers* with the necessary subject-matter knowledge, expertise in teaching, and classroom management skills
- *Instructional materials*, particularly textbooks, basic equipment, and supplies 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 personnel accept accountability for results, that is, student learning
- *Instructional time* that is optimally used to promote learning
- *District and central services* that monitor schools' progress in improving student learning and provide support as and when needed
- *Communities* that provide supportive home environments to students and assist schools to carry out their missions.

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

Equitable access will mean increasing the density of the network of day-schooling opportunities, beginning at the junior secondary level. A system of local junior secondary schools would meet the needs of local communities whose citizens 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 provided in these smaller schools. Targeted financial support will be a necessary policy instrument to ensure equitable access for the most disadvantaged, to ensure that qualified poor students are not excluded from pursuing secondary education because of inability to pay.

EFFECTIVE MANAGEMENT AND GOVERNANCE

Diversity in patterns 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 senior secondary schools, distance education supported by ICT when appropriate, and a range of formal and informal vocational programs. Secondary education policy should provide a framework for different ways of providing education services 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. 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. Smaller schools will be able to offer only a core curriculum with limited choice. Even in larger schools, offering options chosen by only a few students can be very costly and add little value.

Strengthening the *autonomy of local administrators* for the operation of schools should be an essential feature of African secondary education strategies. Local autonomy will allow schools to choose the most appropriate way to provide secondary education and to take responsibility for school development and improvement. Considerable evidence indicates that local autonomy in the management of schools can have a positive effect on school performance. Within a framework of national core instructional objectives, which are 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—financially and otherwise—the development of secondary schools in their communities 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 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 will be a system that, within a centrally defined framework, is managed at the service-delivery level by school administrators and staff, with meaningful involvement from students, parents, and communities. However, this involvement can happen only in an environment in which competent local administrations exist. They exist in some countries but not in others. Where they are not available, strengthening the capacity of local administrations is a prerequisite for effective decentralization.

Partnerships with nongovernment providers will be a key element of successful secondary education development strategies. A number of different

partnership configurations are possible, but will usually include government financial support for private and community provision, as well as private financing for public schooling. The challenge is to structure these partnerships so that they work effectively and that public and private sector partners contribute in their respective areas of strength.

IMPLEMENTING REFORM

Discussions on education reform usually focus 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, the quality of implementation will determine the success of the reform, that is, the extent to which schools adopt the reform. The readiness of schools and local administrators for change will determine 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 authorities.

THE POLITICS OF CHANGE

Secondary education policy reform is almost always controversial. In addition to being a technical problem, it is usually a political issue, too, with potential winners and losers lobbying to protect their interests. Successful implementation requires political will and the readiness to make difficult decisions and sustain them over a long period. 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 goes against preconceived ideas and conventional wisdom. Success has more often been associated with pragmatism than with ideology or paying off political opponents.

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

THE PRACTICE OF CHANGE

Secondary education reform is a particularly complex and multifaceted process that has often failed to produce the promised results. The best ideas 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:

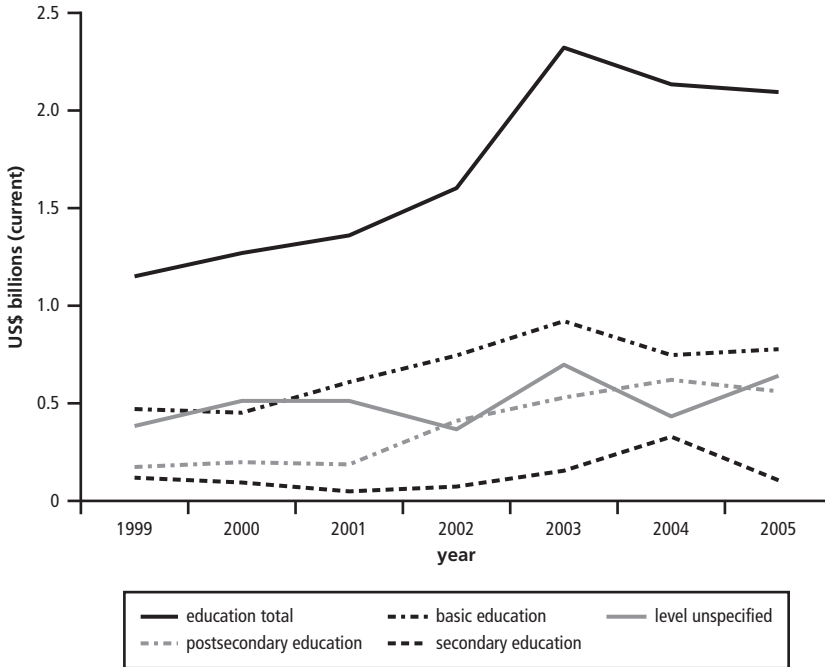
- *School systems* are increasingly transforming themselves into *systems of schools*, in which the responsibility for improvement and performance is shifting from central managers to the school level.
- *Sequencing* of reform measures is critical. No country will be able to implement all measures at the same time. Setting priorities and combining them into politically and technically feasible packages that join desirable policies with some that are more difficult to accept is central to successful implementation.
- *Evidence-based strategies* are at the root of successful reform. If rigorous evaluations using quantitative and qualitative information are absent, learning becomes based on anecdote, 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

Domestic public and private resources will continue to be the main sources for funding secondary education development in SSA. Yet, international development partners can play an important role by providing complementary technical and financial support.

THE DECLINING AID TO SECONDARY EDUCATION

Aid priorities and practices within the education sector have changed dramatically since the 1980s. External assistance to secondary education has been declining since the mid-1980s. Over the period 1999–2004, it was less than 5 percent of external aid (figure ES.2). Between 1999 and 2004, total aid commitments to education in SSA increased by 75 percent, 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 percent as a share of education aid commitments. This raises important questions about the way policy priorities are translated into actual aid allocations. It is hard to

Figure ES.2 Education Official Development Assistance Commitments in SSA, 1999–2005

Source: OECD/DAC database.

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 junior secondary education as part of their goal of providing 8–10 years of basic education.

Similarly, analytical work has been limited, although the World Bank and other donors have supported secondary education reviews in several countries. Several recent education country status reports (CSRs) prepared with World Bank support analyze secondary education issues and include recommendations for policy reform. Economic analyses carried out as part of World Bank appraisals of education projects highlight the parameters for financial sustainability of secondary education investments. But macro linkages remain weak; few Poverty Reduction Strategy Papers (PRSPs) include performance targets related to secondary education.

THE CHANGING CONTEXT

Several recent developments suggest that the past neglect of secondary education is being reversed. Junior secondary education is increasingly

considered 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—the UK Department for International Development, the Japan International Cooperation Agency, and the Netherlands, for example—are increasingly ready to provide financial support for those programs. Secondary education and training is also an important element of the World Bank’s education support strategy. However, the pipeline for future lending and analytical work needs to be strengthened to ensure sustained progress toward the goals of the recently updated Africa Action Plan.

In many countries, support for education is likely to be part of a sectorwide approach. This allows the design of secondary education development strategies to be part of an integrated national development program. Financial support for education development is increasingly provided through Development Policy Loans (DPLs).² In fiscal year 2005 (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 Reduction Support Credits (PRSCs) provide general budget support for the implementation of the national Poverty Eradication Action Plan with a detailed matrix of policies and results. Implementation of the government undertakings agreed on during these sector reviews is a prior action for the PRSC.

The knowledge base on secondary education is improving. The task ahead is to use the knowledge 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 the following:

- Sharing the findings of this report and other analytic work with a broad audience of African decision makers, education professionals in and out of SSA, and development partners 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 sectorwide policy framework, linked to the national PRSP and medium-term expenditure framework to improve visibility into the longer-term financial basis for action
- Using flexible lending instruments such as Adaptable Program Loans, Development Policy Loans, or PRSCs whenever possible
- Carefully monitoring the implementation progress of reform programs, learning the lessons of experience, and adapting interventions accordingly
- Making explicit support of quality, equity, and financial sustainability 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 for further learning to a rapidly increasing proportion of adolescents is an urgent need throughout the region. But the challenge is not just expansion; it encompasses quality improvement, relevance, and equity at the same time.

The challenge is particularly daunting because 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 require additional public resources. Mobilizing those resources may, in some countries, involve trade-offs with other sectors and allocation choices within the education sector. However, in most cases it will require sustained economic growth, stepped-up mobilization of public resources, and effectively targeted public funding. Making the choices explicit will 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 frequently without considering the implications for secondary education or the trade-offs in public expenditure allocations necessary to reach subsector education development objectives in a balanced way.

Sub-Saharan Africa faces the challenge of developing a strategy for secondary education that fits its current development context. Such a strategy will have to be parsimonious in resource use; recognize the bottom-up, sequential nature of education development; be closely aligned with

Table ES.2 Summary of Policy Options for Secondary Education Development

Issue	Possible response	Options for specific actions
Costs are poorly aligned with domestic resources	Reduce per student cost	<ul style="list-style-type: none"> • Increase teaching load to 25 hours per week • Adjust teachers' salaries • Double-shift use of infrastructure • Have boarding only for students from remote areas • Improve internal efficiency; reduce repetition rates
	Integrate part or all of junior secondary with primary education	<ul style="list-style-type: none"> • Extend duration of basic education to 8–10 years • Simplify curriculum • Upgrade primary teachers to JSE subject-matter specialists
Curriculum is not relevant to demands of labor market and modernizing society	Align curricula with formally established graduate profiles	<ul style="list-style-type: none"> • Provide common core of general subjects in JSE • Strengthen math and science teaching; 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	<ul style="list-style-type: none"> • Maintain selective access to SSE • Provide nonformal 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 and learning	<ul style="list-style-type: none"> • Ensure primary graduates master primary curriculum content • Align enrollment growth with resources and policy reforms
	Ensure instructional effectiveness	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Provide a safe environment and girl-friendly school policies • Provide attractive role models • Reduce distance to school
	Provide opportunities for poor children	<ul style="list-style-type: none"> • Ensure equitable access to primary schools of acceptable quality • Provide means-tested financial support • Reduce or 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	<ul style="list-style-type: none"> • Decentralize resources and decision-making authority • Strengthen local institutions • Tap readiness of communities to support local school
	Redefine role of national authorities	<ul style="list-style-type: none"> • Strengthen central-level capacity to set standards, ensure equity, monitor quality, provide core financing, and support schools in difficulty
Multiple delivery mechanisms are encouraged	Vary service delivery in response to local conditions	<ul style="list-style-type: none"> • Create different organizational arrangements • Allow variations in curriculum choice and delivery methods • Encourage private training providers
	Exploit potential of ICT and distance education	<ul style="list-style-type: none"> • Establish systems for teacher support and development • Provide opportunities for secondary education equivalence • Create opportunities to pursue lifelong learning
Public-private partnerships are promoted	Establish clear legal framework	<ul style="list-style-type: none"> • Ensure transparency in resource allocation • Create explicit accountability indicators • Encourage demand-side financing schemes
	Set up participatory processes	<ul style="list-style-type: none"> • Use open and participatory procedures for consultation on policy and implementation

Source: Author's compilation.

Note: ICT = information and communication technology; JSE = junior secondary education; SSE = senior secondary education; TVET = technical and vocational education and training.

national development priorities; strengthen school autonomy; ensure effective central direction and support; and build public-private partnerships reflecting relative competences for action. It will prioritize the expansion of junior secondary education as well as the development of opportunities for further education and training in response to the demands of economic growth. It also implies that the government's role will evolve toward policy formulation, setting of standards, and monitoring of progress toward national goals, as well as providing funding to support a broadly 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 education management information systems, and, most important, a long-lasting political commitment not only to provide 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 ES.2 summarizes the policy options that governments may wish to consider. Clearly, there is no single best way for the development of secondary education; initial conditions in each country will determine the priorities and the feasibility over a realistic time frame. The table should thus be viewed as an array of options that have produced results in other contexts and may or may not be replicable.

NOTES

1. SEIA was 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. 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 and a timetable for implementation are agreed upon with the government (Hicks 2006).

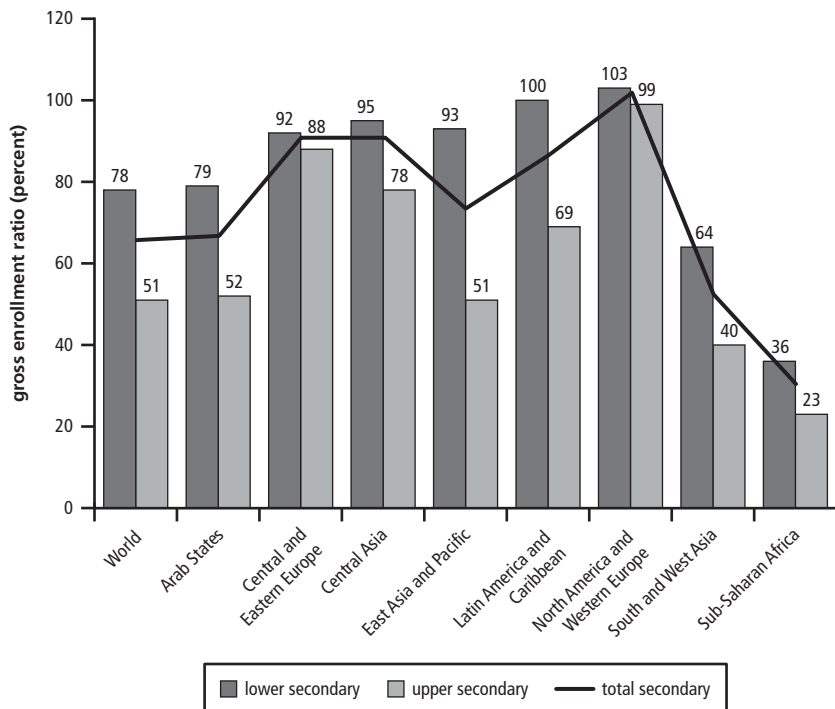
Secondary Education in Africa: Rationale and Objectives

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

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 complete 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 training. 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 lifestyle for and enhance the productive potential of young people. Many political leaders recognize the importance of making better use of the human capital embedded in their youth. There is little doubt that countries can no longer afford what Hernes has characterized as the “quiet neglect” of secondary education (Caillods and Lewin 2001, v).

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 for students who are willing and able to

Figure 1.1 Gross Enrollment Ratios in Secondary Education, by Region, 2004 or Latest



Source: UIS 2006a.

take advantage of it. However, the obstacles to meaningful progress toward these goals are legion and often result in policy inertia with more of the same policies that do not 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 often 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 policy frameworks that will allow them to expand access, enhance equity, and improve quality at the same time.

Changes in 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 frequently 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 to the pursuit of short-term problem resolution. Firefighting and politics rather than development and capacity building too often typify the practice of education policy. Designing and implementing the necessary reforms is controversial and a national dialogue leading to a broadly supported national strategy is an essential part of any reform strategy.

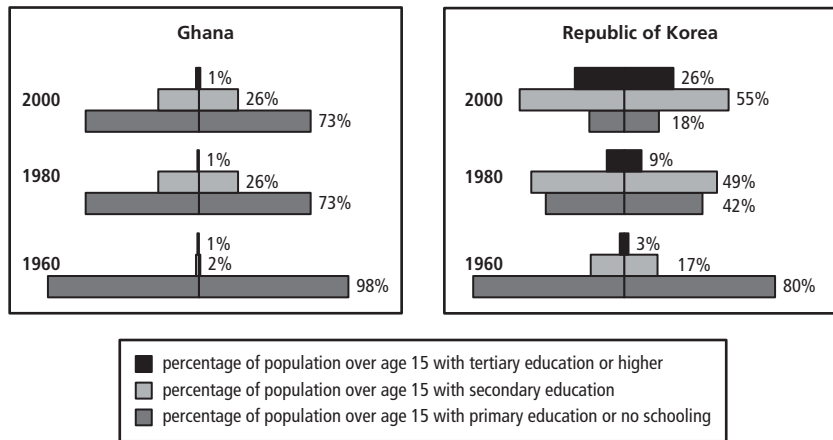
DAUNTING CHALLENGES

The social demand 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 prevailing in SSA, countries today need a more advanced human resources foundation for effective participation in a world economy that has 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 pressure; it is also an economic imperative.

FROM AN ELITE TO A MASS SYSTEM

In middle-income 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 cycle¹ of 8–10 years and provides ample opportunities for education and training thereafter. SSA countries need to move in the same direction.

This transformation of secondary education from an elite system that offers opportunities for further learning for a few selected students to a mass system that aims to enroll most primary school graduates for several years beyond the typical six years of primary education is only just beginning in SSA. In the Republic of Korea, this transition occurred between 1960, when 80 percent of the population over age 15 had primary education or less as their highest level of education, and 2000, when 81 percent had completed secondary education or higher. In Ghana, as in much of SSA, this transition has yet to start (figure 1.2). Accelerating progress toward this transition and managing it well will determine the ability of

Figure 1.2 The Education Transition in Ghana and the Republic of Korea

Source: World Bank 2005b.

African countries to participate effectively in the technology-driven global economy of the 21st century.

The transition toward a mass system not only is a quantitative challenge but also has important implications for the objectives and methods of instruction. The traditional role of secondary education as a mechanism for selecting a limited number of candidates for university education is costly and precludes progress toward 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 prepare for lifelong learning (World Bank 2005b; Bregman and Bryner 2003).

In transforming secondary education, countries will have to deal with several major, urgent policy challenges at the same time: responding effectively to 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. 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.

INCREASING DEMAND

Following the World Education Forum (Dakar 2000) and the adoption of the Education for All (EFA) initiative and the Millennium Development Goals (MDGs), primary enrollment has been increasing rapidly in many African countries. The growth rate between 1998 and 2002 exceeded the rate on all other continents. Secondary education enrollments showed a similar pattern with a growth of 5.3 percent per year during the same period (table 1.1). This rapid growth continued: between 2002 and 2004, secondary enrollment in SSA grew by another 27 percent (UNESCO 2004, 2006).

Continued high population growth adds to the challenge. The proportion of secondary school-age people (12–18 years old) 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 who complete primary school and seek admission in junior secondary education. Enrollment in secondary education will double to exceed 60 million by 2015 if recent growth rates are maintained. If transition rates between primary and secondary education remain unchanged and if all those who start primary school complete it, enrollment will

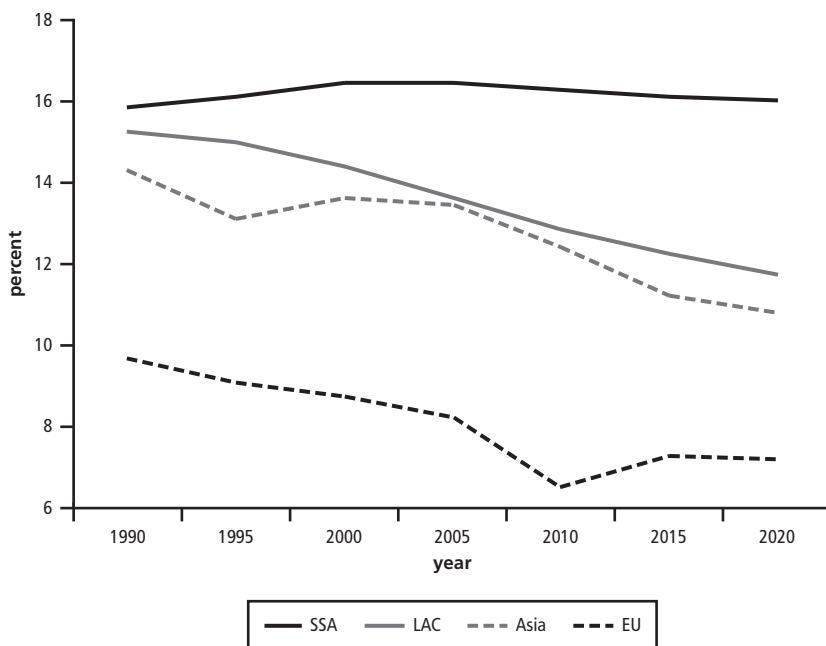
Table 1.1 Enrollment Growth in Primary and Secondary Education, 1990–2002

	Absolute number of pupils (millions)				Annual change rate		
	1990	1995	1998	2002	1990–95	1995–98	1998–2002
Secondary education							
World	321	385	432	492	3.71	3.92	3.36
Africa	24	30	35	44	4.47	5.21	5.30
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	—	3	3	3	—	4.17	1.58
Primary education							
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	2.30	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 2005.

Note: — = not available.

Figure 1.3 Young People Ages 12–18 as a Percentage of Total Population, by Region, 1990–2020



Source: UN population data.

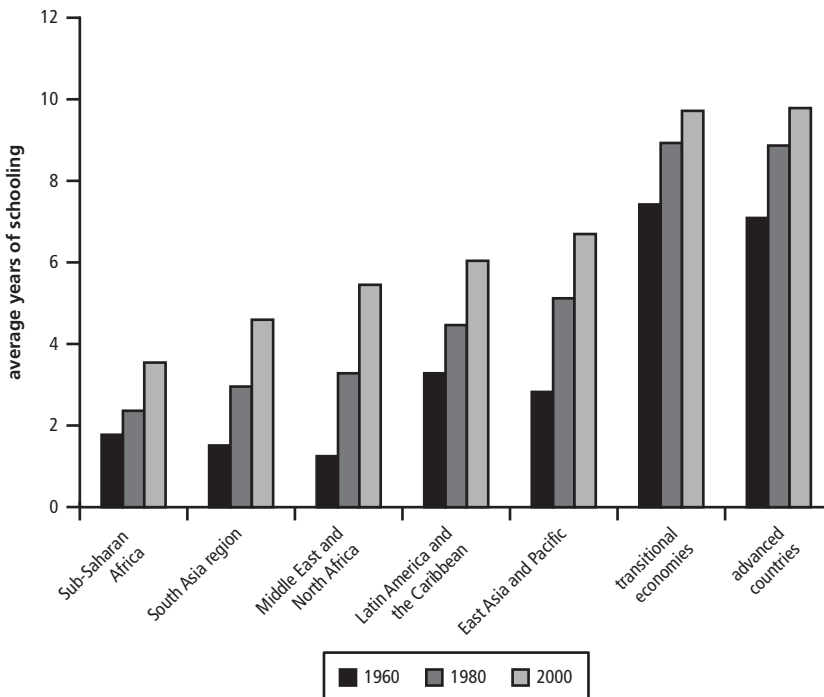
Note: EU = European Union; LAC = Latin America and the Caribbean.

more than triple by 2015 (Lewin 2008). Few countries have the policies in place that will allow them to absorb so many new students.

LAGGING ATTAINMENT

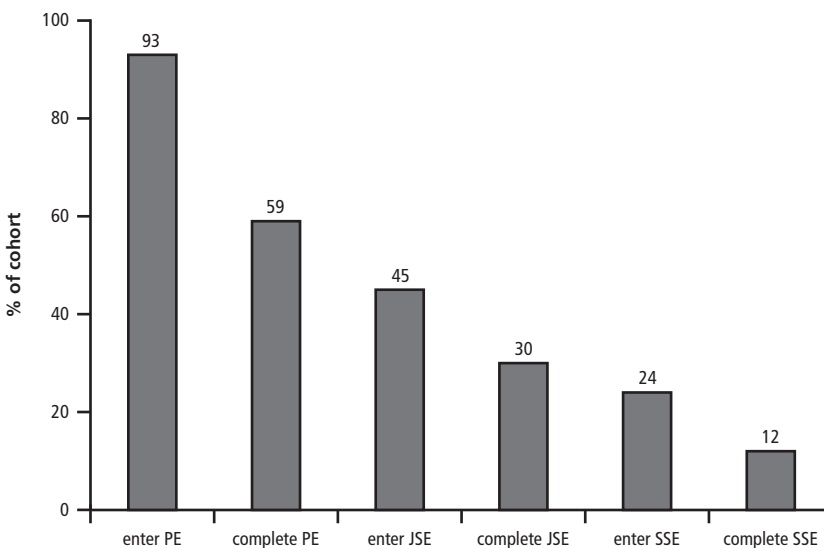
Educational attainment in SSA, while lower than in any other region (figure 1.4), has more than doubled since 1960, when it was higher than in the South Asia (SAR) and Middle East and North Africa (MENA) regions. These regions were able to increase the level of education of their populations even more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

Figure 1.4 Average Years of Schooling, Population Age 5 and Older, by Region



Source: Barro-Lee 2000.

Figure 1.5 Survival of a Cohort of Students in Primary and Secondary Education in SSA, 2003



Source: Estimates from UNESCO BRENDA.

Note: PE = primary education; JSE = junior secondary education; SSE = senior secondary education.

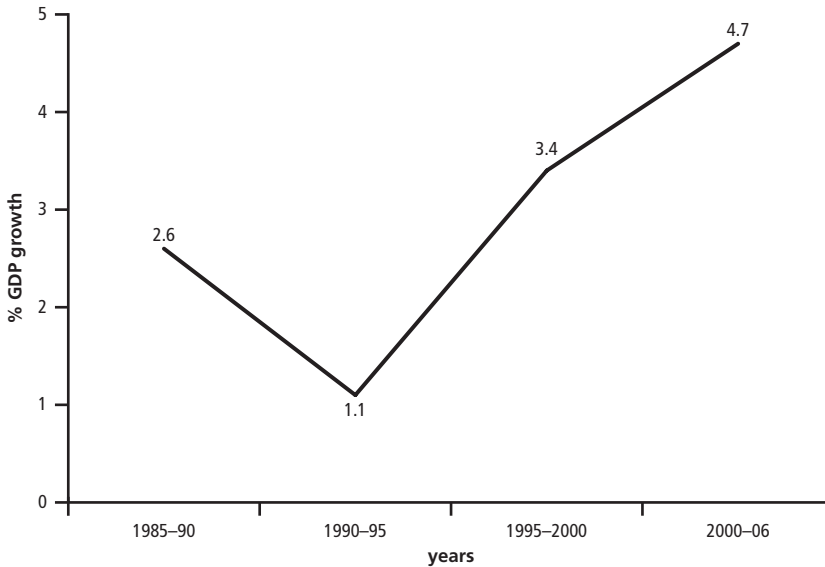
economic and social development, exacerbated by limited opportunities for participation in secondary education for the poor and for girls.

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 are in conditions that preclude effective instruction. Growth in the number of teachers has consistently lagged behind growth in the number of students. Between 1990 and 2004, the average pupil-to-teacher ratio in SSA increased from 22:1 to 29:1. With teacher-to-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 enrollment. The 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, van den Akker, and de Feiter 2007; Leyendecker, Ottevanger, and van den Akker 2008). Thus, levels of learning are low, repetition and dropout are high, and many graduates are poorly prepared for further education and training or entry into the world of work.

A WINDOW OF OPPORTUNITY

The case and the opportunity for an all-out effort to increase education attainment in the Sub-Saharan Africa region, as well as for 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 when economic growth is finally accelerating (figure 1.6). Since 2000, the gross domestic product (GDP) growth has averaged 5 percent. In 2006 it reached 5.5 percent and in 2007 is expected to rise to 6 percent with virtually all countries reporting positive growth (OECD 2007). Since the mid-1990s, 16 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

Figure 1.6 Average Annual Percent GDP Growth in SSA, 1985–2006

Source: WB World Development Indicators; World Bank 2005f.

in expanded economic activity. The African Development Bank and the Organisation for Economic Co-operation and Development (OECD) expect that the outlook for much of Africa will continue to be more favorable than it has been for many years.

RECOGNIZING SYSTEM DIVERSITY AND LINKAGES

Three points need to be emphasized by way of introduction to the analysis in this book. 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, downward with primary education and upward with higher education. Analysis and policy formulation will be meaningful only when the linkages with other parts of the education system are clearly recognized and part of a comprehensive education sector strategy. Third, secondary education has a mutually reinforcing relationship with the economy because 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. Cost-conscious choices for resource

utilization and service delivery strategy can provide a framework for a rapid expansion of access to secondary education, even at low levels of GDP.

DIVERSITY

The organization of secondary education varies considerably between countries. The duration of secondary education varies from eight 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 two to four years (table 1.2). Any discussion of secondary education policy needs to distinguish clearly between junior secondary and senior secondary education. Junior secondary is increasingly considered to be the second stage of basic education, which should ultimately be available to all. In some countries it is provided in the same institutions and is often taught by the same teachers as primary education. In others, provision is clearly distinct from primary education, with 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 junior secondary. Students 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 lifelong-learning programs.

Key indicators also vary widely between African countries. The gross enrollment rate in junior secondary education ranges from 11 percent in Niger to 109 percent in the Seychelles; at the senior secondary level, the ratio ranges from 3 percent in Mozambique and Niger to 92 percent in the Seychelles (UNESCO 2006). The completion rate at the junior secondary education level ranges from 6 percent in Tanzania to 86 percent in Botswana; at the senior secondary level the ratio ranges from 2 percent in Burkina

Table 1.2 Structure of Secondary Education in SSA

Duration (years)	Number of countries
Junior secondary education	
4	22
3	18
2	8
Senior secondary education	
4	7
3	31
2	10

Source: UIS 2006a.

Faso to 45 percent in South Africa (UNESCO BREDIA 2005).² 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 percent in Sierra Leone to 50 percent in Eritrea;³ unit cost expressed as a percentage of GDP per capita from 6 percent in Botswana to 73.5 percent in Burundi; and pupil-to-teacher ratios from 14 to 1 in the Comoros, 16 to 1 in Botswana and Swaziland, to 46 to 1 in Malawi, and 54 to 1 in Ethiopia (UNESCO BREDIA 2005).

EDUCATION SECTOR LINKAGES

The successful response to secondary education development challenges will depend decisively on progress toward the EFA objectives and education MDGs. Broad, equitable, and successful participation in quality secondary education is inconceivable without a primary education system that effectively prepares the large majority of students 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 of this effort for secondary education. Where EFA objectives remain distant goals and priority allocations to primary education are formally agreed on, the resources for secondary education development often will be severely limited (Lewin 2008; Mingat 2004).

Several analyses (Lewin 2008; UIS 2005) have pointed out that 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 so far no country has achieved over 90 percent primary net enrollment without having at least roughly 35 percent 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 in—or not allowing them to drop out of—primary school. This affects girls in particular, because boys are usually the first to enroll. Gender inequities in primary education are thus almost inevitably magnified at the secondary level.⁴ Gender equity in secondary education has 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 a source of teachers. Poor-quality secondary education will result in poorly prepared candidates for teacher training. Thus, primary and secondary education development are tied in a mutually reinforcing relationship.

Balanced development of the sector (World Bank 2005b; UNESCO BRENDA 2005) will only happen when these links are recognized as a central strategic reality of education development.

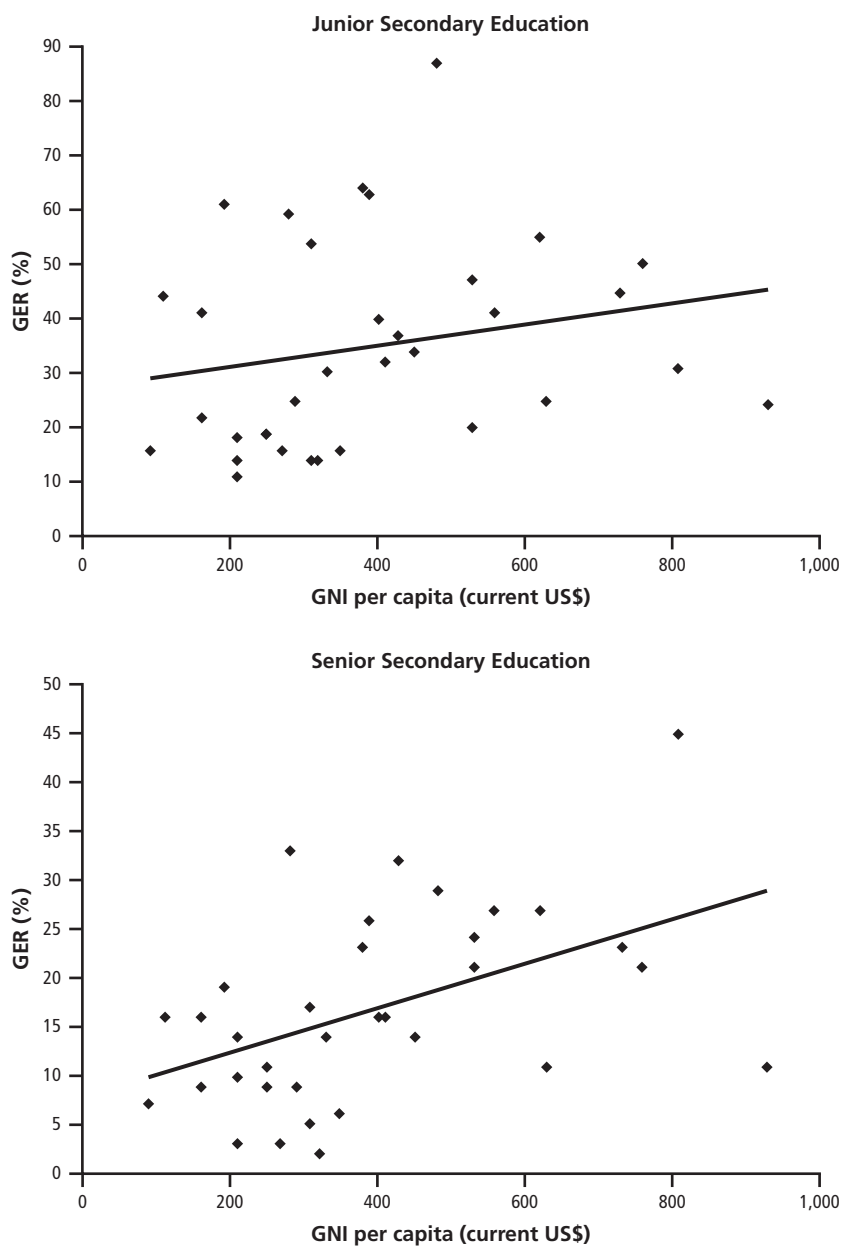
A similar relationship exists between secondary education and tertiary education. Senior secondary education is the source of students who enter universities and specialized institutions of higher education and training, including teacher training colleges. In several countries, progress toward EFA and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

ECONOMIC DEVELOPMENT AND POLICY CHOICES

Secondary education and economic development can reinforce each other positively or negatively. In the industrial and East Asian high-economic-growth countries, secondary education development accelerated in parallel with economic development. Economic growth increased government revenue, enhanced parents' ability to pay the direct costs and absorb the opportunity costs of education, and expanded the demand for educated labor. In much of Sub-Saharan Africa, per capita incomes stagnated or declined 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 costs of education, and the labor markets could not absorb the graduates. The East Asian experience underscores the mutually reinforcing relationship 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 a low proportion of its labor force having successfully completed secondary education—is not.

Countries in SSA with gross national income (GNI) per capita of more than \$1,200 all have junior secondary enrollment ratios of 50 percent or more and senior secondary ratios of 30 percent or more. Of the 10 SSA middle-income countries for which data are available,⁵ only 6 have reached junior secondary enrollment ratios of 80 percent or more and have reached or are close to the goal of universal junior secondary enrollment. For countries with GNI per capita less than \$1,200, 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,

Figure 1.7 Secondary Gross Enrollment Ratios in SSA Countries with GNI Per Capita Less Than \$1,000



Sources: UIS (2005) for GER; World Bank World Development Indicators (2005) for GNI per capita.
 Note: GER = gross enrollment ratio; GNI = gross national income.

São Tomé and Príncipe, Togo, and Zimbabwe all enroll 50 percent or more of the junior secondary age group. Ratios vary between 14 percent in the Central African Republic and 60 percent in Ghana, and at the senior secondary level between 2 percent in Tanzania and 32 percent in Nigeria.

For the poorest countries, with GNI per capita about \$400, the junior secondary enrollment ratio varies between 14 percent in the Central African Republic and 60 percent in Ghana, and at the senior secondary level between 2 percent in Tanzania and 32 percent in Nigeria. This finding 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.

Education development strategies in SSA will need to balance the demands of the different subsectors 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 INITIATIVE

Secondary education was the major focus of external development assistance in education 40 years ago. An estimated 80 percent of education aid in the mid-1970s was allocated to secondary and higher education, much of it for technical assistance in the form of expert personnel and fellowships.⁶ Similarly, the World Bank's 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."⁷

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 subsectors of the education and training system, including, most important, 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 percent 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 2005c). 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 percent of international education aid (OECD/DAC database). But priorities are evolving in response to demand in 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 sector-wide approaches (SWAps). The World Bank's 2001 education sector assistance strategy for the Africa region (World Bank 2001b, 5) 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." 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 strategy. Most important, the World Bank's Action Plan for Africa (World Bank 2005d) identifies secondary education and skills development as priority areas and as part of a broader perspective on the economic and social development needs of Sub-Saharan Africa. However, successful implementation will require countries and development partners to reflect on the challenges and trade-offs 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 SSA with secondary education development is varied and rich. Some 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 experiences of other countries in the region and formulate policies taking into account the lessons learned in actual implementation situations. Well-documented experiences are crucial to providing 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 SEIA initiative with a UNESCO BREDA–World Bank workshop in Mauritius,

titled “Secondary Education in Africa: Strategies for Renewal” (World Bank 2002b) 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 work⁸ 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 (Read et al. 2008; Mingat 2004), and case studies documenting country experiences with secondary education reform.⁹ The design and findings of several of these studies were discussed

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 et al. 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 et al. 2007)
7. *Gender Equity in Junior and Senior Secondary Education in Sub-Saharan Africa* (Sutherland-Addy 2008)
8. *Developing Science, Mathematics, and ICT Education in Sub-Saharan Africa* (Ottevanger, van den Akker, and de Feiter 2007)

with African stakeholders in several local workshops. Forty countries participated in two regional conferences—in Uganda in 2003 and Senegal in 2004—in which 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.

The message from the thematic studies and other SEIA work is that balanced education development strategies in SSA 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 book takes account of these messages and attempts to synthesize 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), which was attended by 17 African Ministers of Education and more than 250 delegates from countries, aid agencies, and nongovernmental 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 national education development strategies that include the whole 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 six years while recognizing that this goal will vary according to national conditions, although it typically will be between 8 and 10 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 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 book 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 that study means that only limited attention could be paid to the specific challenges faced by the countries of SSA. This book is designed to fill that gap by summarizing evidence and experience from the SEIA initiative. The main findings and policy options recommended for consideration by planners and policy makers are summarized in box 1.2. The book is intended to help African policy makers and their external development partners, including the World Bank, in the development of secondary education strategies by documenting African and relevant broader international experience and by summarizing evidence on strategic directions and policy options. Specifically, the objective is to (a) identify policy options for sustainable development of secondary education, (b) provide an evidence-based foundation for discussion and partnership, and (c) provide an explicit rationale and policy framework for increased support to secondary education by the Bank and other external development partners.

The book focuses on secondary education: the level after primary and before the tertiary level, addressing the education of youth from about ages 12 to 18 and usually covering grades 7 through 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 (Johanson and Adams 2004). Where appropriate, the book discusses the linkages between general secondary education, the world of work, and strategies for skills development.

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 in which the human capital foundation is inadequate to support higher growth. Competitiveness in tomorrow's economic environment will require an equitably accessible basic education of eight or nine 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 cost per student is high. The system as currently financed and managed will be unable to respond to social demand for places in secondary schools or to meet labor market demand for skilled people.
- 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 costs 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 acceptable quality. The main elements would be
 - 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 in which 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 reform.
 - Meaningful expansion of secondary education must be based on the effective implementation of quality improvement at the primary level.
 - Multilateral 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 sectorwide approaches and based on comprehensive sector development plans.

METHODOLOGY AND ORGANIZATION OF THIS BOOK

This book draws extensively on the thematic studies commissioned as part of the SEIA initiative and other documents 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 summarizes the rationale for and the objectives of the SEIA initiative as well as the process that produced many of the findings cited in this report. Chapter 2 reviews the current status of junior and senior secondary education in SSA, summarizing historical trends, achievements, and the formidable challenges ahead. Chapter 3 reviews the

contribution of secondary education to economic and social development in SSA. Chapter 4 reviews the way secondary education developed in other parts of the world.

The book then reviews the principal areas for which 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).

Chapter 9 provides an overview in the form of an agenda for reform based on the analysis presented in the preceding chapters, as well as the preconditions and strategies that need to be in place for successful implementation. The book 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 Sub-Saharan Africa.

NOTES

1. Throughout this book, secondary education refers to the schooling of the age group of roughly 12- to 18-year-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, International Standard Classification of Education definitions for schooling cycles are used.

2. The completion rate is calculated by dividing the total number of nonrepeaters in the last grade of JSE or SSE by the total number of children of official graduation age.

3. Adjusted for seven years of education.

4. In only six countries—Botswana, Cape Verde, Lesotho, Namibia, South Africa, and Swaziland—is the Gender Parity Index for secondary education greater than that for primary.

5. Cape Verde, the Seychelles, and South Africa have junior secondary enrollment ratios of 100 percent or more; Botswana, Mauritius, and Namibia have ratios between 80 percent and 100 percent. At the senior secondary level, the highest ratios are in the Seychelles (103 percent) and South Africa (78 percent).

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

7. Memorandum from the President on "Proposed Bank/IDA Policies in the Field of Education," October 1963 (World Bank 1971, 13).

8. The SEIA study initiative is financed by the World Bank's Africa Region Human Development Department the Norwegian Education Trust Fund, the Irish Education Trust Fund, the Dutch Trust Fund, and the French and Japanese governments.

9. All SEIA reports and articles resulting from the workshops and regional conferences are available at <http://www.worldbank.org/afr/seia>.

Mapping the Challenge

In the middle of every difficulty lies opportunity.

—Albert Einstein

Progress toward widespread completion of junior secondary education (JSE) as the terminal level of education for most students, combined with the gradual expansion of senior secondary education (SSE), is well under way in much of the developing world (De Ferranti et al. 2003; World Bank 2005b), but has begun only recently in Sub-Saharan Africa (SSA). This chapter reviews how this process is beginning to take shape in that region. It summarizes the achievements and challenges based on UNESCO Institute for Statistics (UIS) data for 2003/2004, World Bank-supported education Country Status Reports (CSRs),¹ and analyses² extracted from these and other data sources, including those carried out in the framework of the Secondary Education in Africa (SEIA) initiative. Key data on secondary education in SSA are presented in appendix C. The different contexts and organizational arrangements for secondary education mean 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

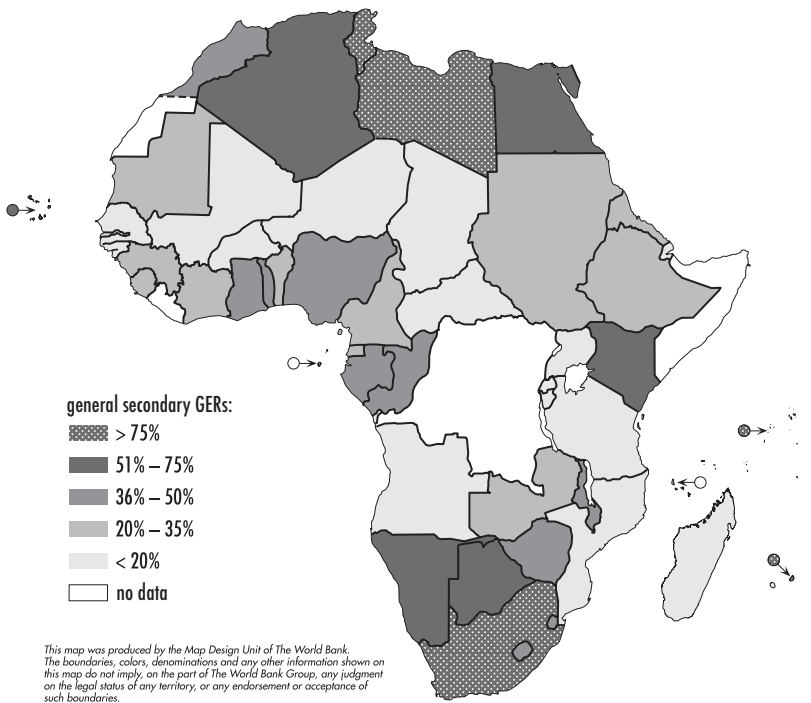
Secondary education participation rates in SSA are lower than in any other region (figure 1.1), with access highly biased against the poor. This low rate constrains the ability of governments to pursue development

strategies that promote equitable sharing of the benefits associated with economic growth and social cohesion.

LOW ENROLLMENTS

In SSA, 22 countries have compulsory JSE (the lowest proportion of countries of any region), but 10 of these fall well short of this target (UIS 2005). For example, in the Central African Republic, Madagascar, and Mauritania, junior secondary enrollment ratios are still less than 30 percent. Yet, secondary education participation is increasing rapidly almost everywhere. In 1990–91 the secondary gross enrollment ratio (GER) in SSA was only 19.1 percent on average and less than 7 percent in Burkina Faso, Burundi, Mali, Mozambique, Niger, and Tanzania. Since 1990, enrollment in secondary education in SSA has grown faster than in primary education; between 1998 and 2003, it has grown faster than in any other region of the world (table 1.2). By 2004, the secondary GER had reached 30 percent. Because the region started from a very low base, it still lags far behind other regions in secondary education participation. Of the relevant age groups, less than one in two children was enrolled in junior secondary school and less than one in four in senior secondary school. Almost half of those not enrolled are in the Democratic Republic of Congo, Ethiopia, Nigeria, and Tanzania (Lewin 2006). Moreover, the differences between countries remain significant (figure 2.1). Botswana, Cape Verde, Mauritius, Namibia, the Seychelles, and South Africa enroll more than 80 percent of the population of the relevant age in junior secondary schools, while Burundi, Burkina Faso, the Central African Republic, Niger, and Rwanda enroll less than 20 percent.

There are also significant differences in the development of JSE and SSE. For example, the junior secondary GER in Burkina Faso is similar to that in Rwanda, but the senior secondary rate in Burkina Faso is only 60 percent of that in Rwanda. Senior secondary enrollment ratios in Burundi are two times higher than in Mozambique, despite similar ratios at the junior secondary level. Some of the highest relative differences between enrollment ratios are found in Burkina Faso, Equatorial Guinea, Mozambique, and Niger, where senior secondary ratios are less than 40 percent of those at the junior secondary level. Senior secondary enrollment ratios are more than 60 percent of the junior secondary ratios in Mauritania, Nigeria, and Rwanda, at relative low secondary enrollment levels. In South Africa and the Seychelles, the ratios are at some of the highest enrollment levels in the region (UNESCO 2006).

Figure 2.1 General Secondary GERs 2003/04 or Closest Year

Source: UNESCO BREDIA, based on UIS (2006a).

The rapid increase in enrollment at the junior secondary level is driven primarily by the large increases in the number of students reaching the last grade of primary school. The primary gross intake rate³ increased from 88 percent in 1999 to 105 percent in 2004, while the survival rate to grade 5 remained stable during that period at about 73 percent.⁴ In addition, access to JSE 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 percent. At the same time, however, the transition rate from junior to senior secondary education declined from 72 percent to 60 percent (UNESCO BREDIA 2005) reflecting increased selectivity in the face of rapid growth in the number of junior secondary graduates.

Technical and 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 percent of total secondary enrollment is in technical and vocational schools. Countries with per capita gross national income (GNI) of less than \$700 generally have lower participation rates (fewer than 200 per 100,000 inhabitants) although the correlation between GNI and enrollment in technical education is not

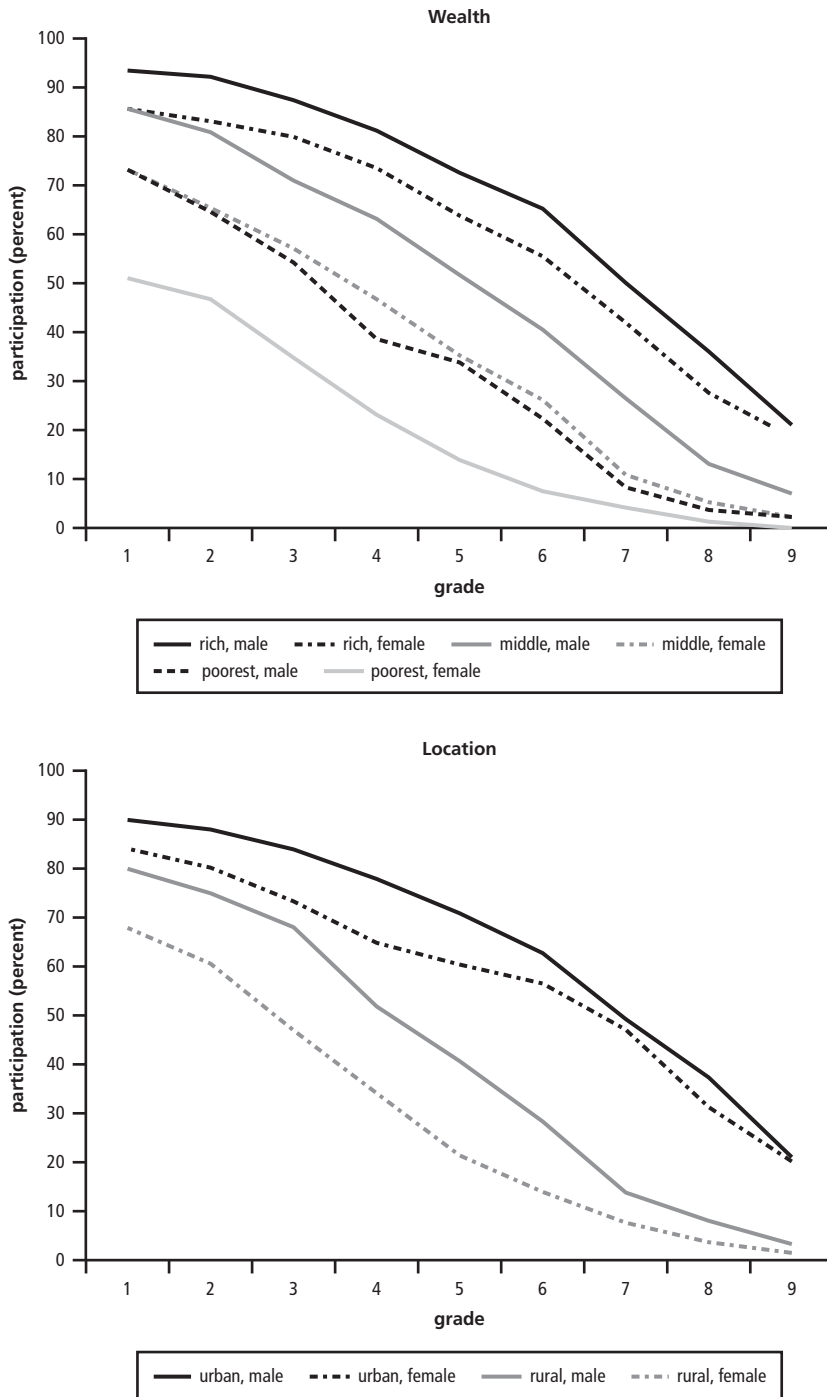
very strong (UNESCO BREDA 2005). However, variations are significant, ranging from fewer than 50 participants per 100,000 inhabitants in Niger and Senegal, to more than 1,000 in Botswana, Cameroon, and the Republic of Congo and 2,155 in Mauritius. In most countries, the share of TVE in secondary enrollment has fallen sharply since 1990. In Botswana, the proportion declined from 8 percent to 3 percent, in Cape Verde from 16 percent to 5 percent, and in Gabon from 14 percent to 7 percent. In Uganda, demand for places in junior secondary farm and technical schools has fallen to less than 1 percent 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). Issues with relevance, quality, and high cost in a period of tight public finances all contributed to this underenrollment in TVE (Atchoarena and Delluc 2001; Johanson and Adams 2004).

INEQUITIES IN PARTICIPATION

Gender differences at the secondary level are significant (figure 2.2). The Millennium Development Goal to reach gender equity in secondary education by 2005 was not reached. The regional average gender parity index⁵ at the junior secondary level is 0.84; at the senior secondary level it is 0.89. Gender disparities at the junior secondary level are particularly high in Benin, Côte d'Ivoire, Ethiopia, Guinea, Mali, and Togo where fewer than 40 percent of new entrants are girls (UIS 2005). But the causes vary. The disparity in Benin and Ethiopia, the two countries with the greatest gaps, is entirely the result of disparities in access and retention in primary education. In the other countries (the Republic of Congo, for example), gender inequity in access to secondary education mainly reflects 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 the primary level is so much higher that more boys than girls move into secondary education.

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 2005) suggest that improvements in gender equity at the primary level can result in improvements in 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 (the Republic of Congo, Eritrea, and Niger) the improvements will be slight unless deliberate policy action reverses past trends. In general, progress toward gender equity in secondary education is closely associated

Figure 2.2 Education Participation of 15–19 Age Group by Wealth, Gender, and Location in SSA



Source: Lewin (2008), based on DHS data.

with progress toward the Education for All 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 percent (Lewin 2008).

Both supply and demand factors affect girls' enrollment in school (see table 2.1). Nearly all of these factors affect poor girls most, in particular those living in rural areas. The cumulative effect of disadvantage at the primary level, as well as the obstacles to performance and retention at the secondary level, result in a secondary gender parity index 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 percent, compared with 10 percent for boys (Sutherland-Addy 2008)—and low participation in math and sciences.

Table 2.1 Factors Affecting Gender Disparities in Secondary Education

Demand side	Supply side
<ul style="list-style-type: none"> • Social and cultural factors <ul style="list-style-type: none"> ◦ Behavior and the choices of parents and pupils affected by traditional values ◦ Girls' education seen as incompatible with religious or traditional values ◦ Boys' education favored over girls' education • Economic factors <ul style="list-style-type: none"> ◦ Poverty ◦ Direct and indirect costs (school fees, uniforms, textbooks, transportation, and so on) ◦ Higher opportunity costs and lower rate of return (girls are needed for household or labor tasks) • Family factors <ul style="list-style-type: none"> ◦ Parents' low level of literacy and education, hence low perception of the importance of girls' education ◦ Early marriages and pregnancies ◦ Orphans ◦ Girl-headed households • Other factors <ul style="list-style-type: none"> ◦ HIV and AIDS 	<ul style="list-style-type: none"> • Political factors <ul style="list-style-type: none"> ◦ Policy priorities that focus disproportionately on primary education and put emphasis on access and enrollment instead of retention and completion ◦ Budget constraints and fiscal austerity programs with negative impact on the education sector ◦ Lack of incentives for girls' access to primary and secondary education ◦ Political instability ◦ Inconsistent educational policies • Bureaucratic factors <ul style="list-style-type: none"> ◦ Formal commitments to gender objectives become weaker as they travel down the bureaucratic chain • Institutional factors <ul style="list-style-type: none"> ◦ School may not be gender sensitive, with lack of gender awareness among teachers ◦ Lack of female teachers ◦ Safety issues (gender-based violence including sexual violence and corporal punishment) • Infrastructure factors <ul style="list-style-type: none"> ◦ Long distances to schools ◦ Remote areas with no schools ◦ Lack of sex-segregated sanitary facilities • Contextual factors <ul style="list-style-type: none"> ◦ Poor quality of education programs ◦ Education systems that are poorly contextualized to local learning needs

Source: Sutherland-Addy 2008.

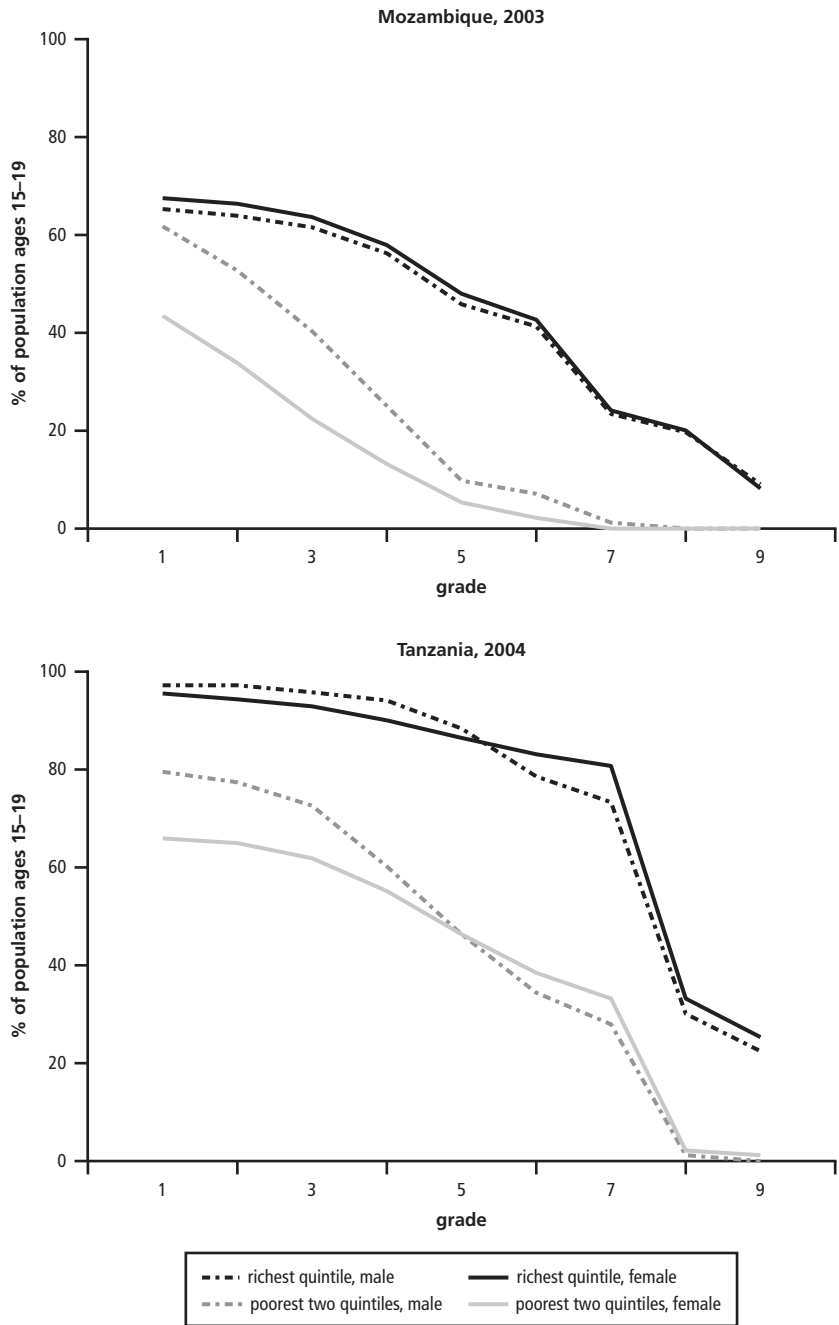
Poverty and rural residence are even more strongly associated with low enrollment in secondary education (figure 2.2). As with gender, the root cause is usually in the educational disadvantage of rural and poor students at the primary level. Relatively few poor children reach the last grade of primary; of those that do, few manage the transition to secondary successfully. The processes through which the poor are left without access to secondary education vary 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 true. For example, Demographic and Health Survey data (figure 2.3), reflecting the situation in the 1990s, show that in Tanzania, of the poorest 40 percent of students in the final grade of primary, only about 2 percent manage to enter secondary school following a highly selective exam. In Mozambique, however, the poor drop out of the education system much more gradually.

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

For those poor children who 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 costs are often unaffordable. Where scholarships are available, they may be poorly targeted. Secondary schools frequently are located in larger towns and cities or are boarding schools, carrying costs that poor, rural parents can ill afford. Boarding schools constitute the majority of public secondary schools in many low-enrollment countries (for example, Rwanda, Uganda, and Tanzania) and a substantial minority of places in many others (Ghana and Kenya). Even when located in rural areas, the schools cater disproportionately to urban children. Opportunity costs for students of secondary school age can be significant. Moreover, societal pressures and tradition often militate against poor children who want to continue their education at the secondary level (The TRANSE Group 2008).

Equity also plays a role in access to secondary TVE programs. Females are seriously underrepresented, making up less than 15 percent of TVE enrollment in Eritrea, Ethiopia, Malawi, Namibia, Niger, and Uganda. Young women tend to be concentrated in programs that prepare them for service sector jobs typically occupied by women, such as hair dressing,

Figure 2.3 Attainment of Secondary Education by Gender and Wealth



Source: Edstats.

health care, and hotel work. Young men mainly enroll in industrial sector specialties such as mechanics and electrical and civil engineering. Poverty and rural residence also create disadvantages in access to TVE programs. Most institutions are 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 and learning environment is not structured to effectively support students who 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 (the TRANSE Group 2008).

INADEQUATE RELEVANCE AND QUALITY

Concerns about the performance of secondary education go beyond those surrounding the level and equity of participation. The most important concern involves the relevance of program content for the effective preparation of young people for participation in an economy and society certain to see dramatic change over the next decades. Additional concerns surround 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 elite traditions of academic schooling; they are unsuited to the demands of mass systems and inappropriate for a society and a labor market that have dramatically changed (Lewin 2008). Most curriculum change has been limited to isolated changes in specific subjects or the addition of new subjects to an existing curriculum; only rarely has reform attempted a comprehensive redesign of the curriculum to respond to changes in the economic and social environment and the evolving composition of the expanding student body (Bregman and Bryner 2003). In addition, implementation of curriculum reform in the classroom has usually been difficult and the effect on student learning far less than expected. The reasons are well known. Some reforms have been designed without adequate assessment of classroom and school-level realities, implications for 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 inhibit the teaching of new content and the use of different instructional methods.

Predictably, many teachers continue to use outdated pedagogies and are driven by the requirements of high-stakes selection examinations. Science and technology are taught under conditions in which effective instruction is almost impossible (Ottevanger, van den Akker, and de Feiter 2007). Attempts to introduce vocational (or “practical”) subjects in schools in SSA have largely failed (Lauglo 2005). There is little evidence that such programs do not prepare students well for working life and citizenship in societies with rapidly evolving social and economic structures (Lewin 2008; Leyendecker, Ottevanger, and van den Akker 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—are needed to prepare a good number of students for further education in tertiary level institutions and many others for direct entry into the world of work and continued learning. The specialized and advanced nature of programs at this level and the associated high costs pose important challenges for staffing and resource mobilization.

Formal public technical and vocational programs at the secondary level have focused mainly 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, and have become supply driven and insulated from employers’ expectations. The economic stagnation of the 1980s devastated programs that served primarily the public sector; programs and institutional arrangements often have changed little since they were established in the 1970s; cuts in development budgets have curtailed investment; and facilities and equipment have become outdated and underutilized. Reductions in recurrent budgets have affected the qualifications, pay, and motivation of teachers. Investment—including that funded by donors—has 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 innovation 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 Program of Analysis of Education Systems (PASEC) and Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) have focused on primary education-level achievement. At the secondary level, the Trends in International Mathematics and Science Study (TIMSS)⁶ 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.

Table 2.2 provides data from the 2003 survey for the African countries that participated, as well as for some comparators. Students from SSA performed poorly when compared with other participating countries. The average score of the best performer, Botswana, at 365 and 366 points in math and science, respectively, out of 800 points is well below the international average of 467 (math) and 474 (science) points. In fact, the results for the SSA 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

Table 2.2 TIMSS (2003), Average Scale Score
(*grade 8 students, selected countries*)

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

Sources: Mullis et al. 2004; Martin et al. 2004.

the level of achievement of Singaporean students of average proficiency. These results are particularly worrying because the secondary education systems in these three SSA countries are among the more developed in the region and the performance of students in many other countries may be even lower. It is noteworthy, however, that in all three SSA countries girls performed as well as or better than boys on the math test; in science, only in Ghana did boys outperform girls by a substantial margin—15 percent.

Many of the performance problems at the secondary level have their roots in 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 countries have effective strategies for teaching languages to students who enter primary school speaking an African language and who 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 who graduated from grade 6 were able to achieve only 34 percent in French language and 25 percent in writing on a standardized criterion-referenced assessment. Similarly in Uganda, the average grade 6 graduate scored only 24 percent for English reading and writing against an intended average standard of 75 percent; only 15 percent of the graduates were able to achieve that standard (Verspoor 2006).

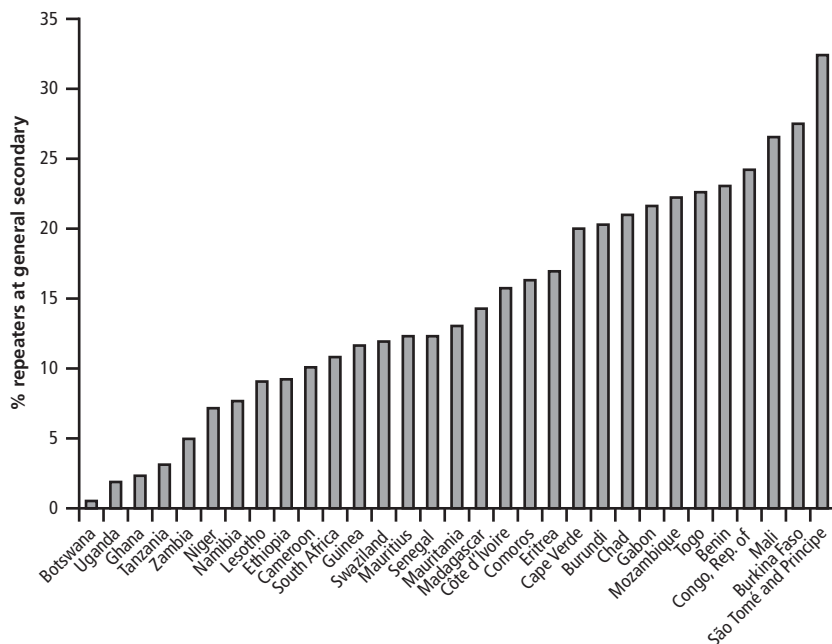
Similar quality issues are a concern at the senior secondary level. Curricula are typically overloaded and closely linked to university entrance requirements (Bregman and Bryner 2003). Few students are well prepared for higher education; they are particularly weak in math and science and are often insufficiently proficient in the language of instruction. In Tanzania, the older generation of University of Dar es Salaam 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 to establish meaningful interactions with their students (Cooksey, Levey, and Mkude 2001; Teferra and Altbach 2003).

Many universities find it difficult to recruit students who can demonstrate that they have acquired the knowledge and skills necessary for successful higher education. In Nigeria, the effective pass rates of senior secondary examinations between 1998 and 2001 averaged below 40 percent in all major subjects apart from Nigerian languages: in mathematics, 37.3 percent of the students passed; in chemistry, 17.0 percent; and in 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 was less than 20 percent of the candidates taking humanities and social science course work, with pass rates in math (66 percent) being the lowest of all subjects (Liang 2002). In Benin, at the senior secondary level only 9 percent of students chose the math and physics stream, 15 percent chose literature, and 74 percent chose biology and life sciences (Ottevanger, van den Akker, and de Feiter 2007). In Madagascar, achievement and interest in science are low. Between 1975 and 2004, the percentage of students enrolled in scientific subjects in SSE decreased from 61 percent to 30 percent. Those who did follow the science track performed poorly on the science baccalaureate (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 generally regulate entry and progression in secondary education. Some selection examinations include more than 12 subject areas and others only four or five core subjects. Although there are exceptions, most 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 percent, lower than in primary education but higher than in any other region. This average conceals, however, considerable variation (figure 2.4). Repetition rates in Botswana, Uganda, Ghana, and Tanzania are less than 5 percent, while they exceed 25 percent in Mali, Burkina Faso, and São Tomé and Príncipe. This finding supports Eisemon's (1997) argument that repetition may reflect systemic and distinct subregional "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 a student's performance and is, in fact, often a precursor to dropping out. In the high repetition countries it is a source of inefficiency that countries can ill afford.

Figure 2.4 Rates of Repetition in Secondary Schools in SSA

Source: Calculations Pôle de Dakar based on UIS 2006a.

Often secondary education, including public technical and vocational education and training (TVET), is poorly aligned with labor market needs and the number of completers exceeds the current requirements of the modern sector by a large margin (Brossard and Amelewonou 2005; UNESCO BREDIA 2005). In Cameroon, unemployment levels were 12.6 percent among those with primary education and 34.4 percent among those with a secondary education or higher (Eloundou-Enyegue et al. 2004).⁷ In Mauritania, the unemployment rate in 2004 for people who were between 25 and 35 years old and who completed SSE was 19 percent; for those who did not complete but attended secondary school—regardless of completion of JSE—the rate was 27 percent (Mauritania CSR). However, where an economy is growing and where there is a dynamic informal sector, as in Mauritania, Tanzania, and Uganda, for example, returns to secondary education are higher than to primary education, and unemployment statistics often reflect a temporary search period (see chapter 4 for a more extensive discussion).

Many secondary technical schools are “poor cousins” to the academic secondary schools. Many students enrolled in technical schools aspire to enter tertiary institutions; in fact, few succeed. 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 percent of those attending vocational training centers found work upon completing their training. In that same year in Mali, 44 percent of secondary technical school graduates were employed after three years; in 1997 in Madagascar, 45 percent had found a stable job after one year (Johanson and Adams 2004).

HIGH COSTS, LIMITED RESOURCES

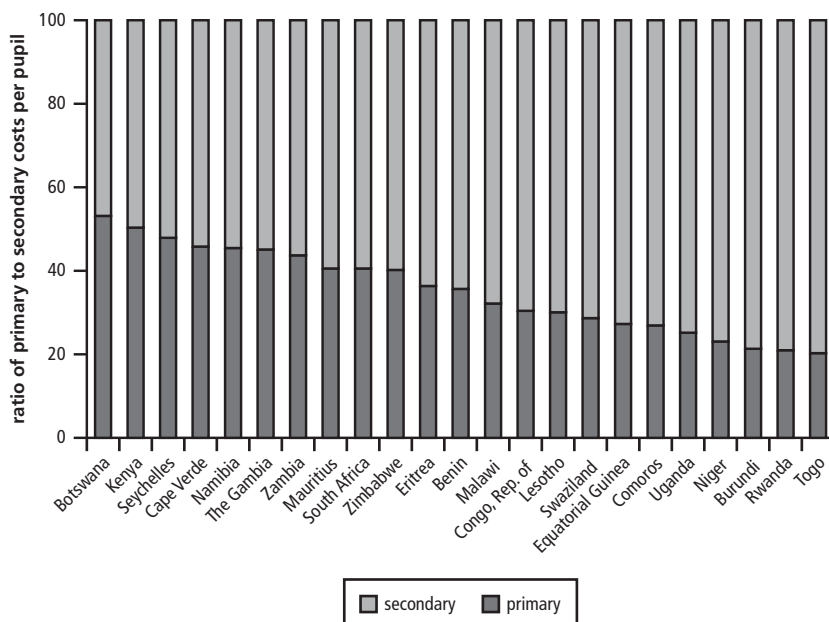
Secondary education as currently provided is expensive. The per student cost as a percentage of per capita gross domestic product (GDP) in almost all SSA countries exceeds the per student cost in World Education Indicator (WEI) and Organisation for Economic Co-operation and Development (OECD) countries (table 2.3). It is also proportionally much more expensive than primary education. In OECD countries, per student secondary education costs are about 1.35 times the per student cost of primary education; in SSA, this cost is typically 3 times or more (figure 2.5). No country with this kind of cost multiple has been able to provide mass access to secondary education.

Public expenditure on secondary education as a share of total expenditure on education varies considerably between countries (figure 2.6) but typically, relatively modest amounts are allocated to secondary. In several SSA countries with substantial commitments to universalizing primary education, 50 percent or more of recurrent expenditure is allocated to primary schooling.⁸ In Tanzania, secondary absorbs less than 10 percent, while primary accounts for 65 percent or more. In Malawi, Burkina Faso, and the Central African Republic, secondary absorbs less than 20 percent, while primary accounts for 55 percent or more. Benin allocates 27 percent to secondary education and 51 percent to primary.

Table 2.3 Per Student Secondary Education Public Expenditure as Percentage of GDP Per Capita, Selected Countries, 2001 or Closest Year

Country	Year	Percent	Country	Year	Percent
Benin	1998	98	Niger	2001	59
Chad	2003	50	Niger	2002	58
Cameroon	2001	91	Rwanda	2001	59
Côte d'Ivoire	1999	98	Senegal	2001	63
Kenya	2003	161	Tanzania	2002	23
Ethiopia	2001	35	Zambia	2000	51
Mali	2004	105	WEI avg.	1999	21
Mozambique	1999	20	OECD avg.	1999	25

Sources: CSRs, Africa Region, World Bank, 2001–06; for Kenya, World Bank 2004d; UIS-OECD 2003; for per capita GDP, WB World Development Indicators.

Figure 2.5 Ratio of Primary to Secondary Costs Per Pupil

Source: Lewin 2008.

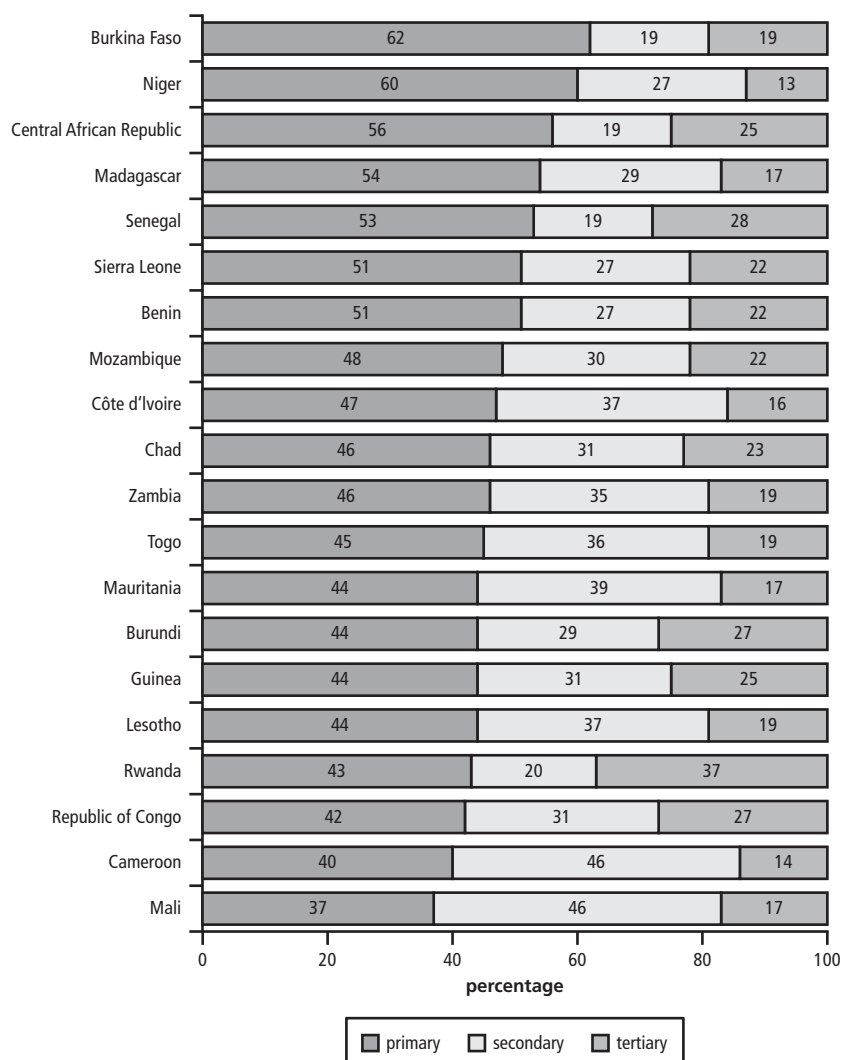
Cameroon, Mali, and Swaziland, however, allocate more than 40 percent of their education budgets to secondary education.

Expenditure on higher education exceeds expenditure on all of public secondary education in several SSA countries. In Rwanda in 2004, 37 percent of public education resources were allocated to tertiary institutions and about 20 percent to all secondary schooling. Throughout the 1990s, Malawi allocated nearly twice as much to higher education as to all secondary schooling (Lewin 2008). TVE absorbs a minor share of education spending—from 0.5 percent in Ethiopia to 12.7 percent 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 involve a rebalancing of budget allocations between tertiary and secondary education.

IMPACT OF FUNDING SHORTFALLS

To respond to the increased demand for secondary places while constrained by resources, countries have spread the same resources over a larger number of students (see table 2.4), attempted to mobilize private

Figure 2.6 Share of Current Expenditure on Education by Level, 2003 or Closest Year



Source: CSRs (see appendix A).

Table 2.4 Average Annual Growth (Percent) in Secondary Students and Teachers in SSA

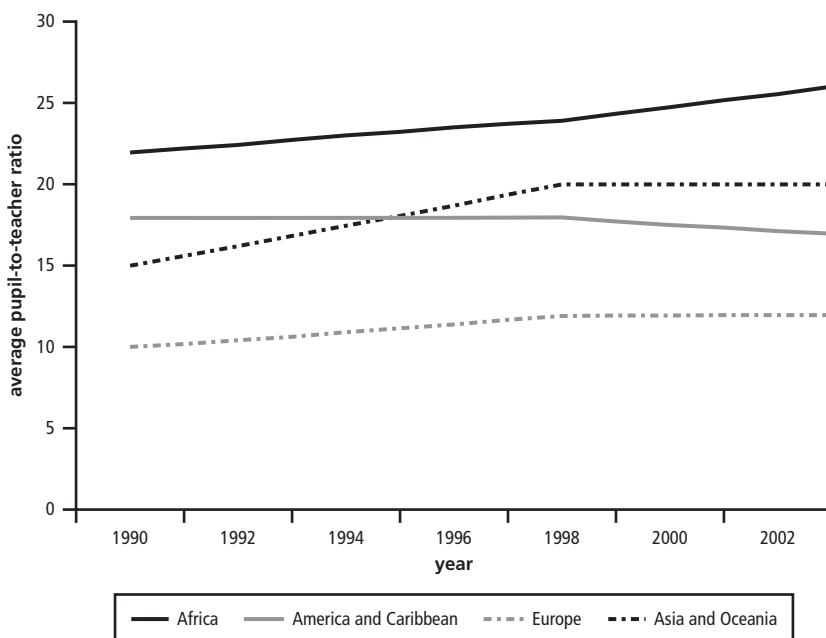
	1991–96	1996–2000	2000–04
Students	4.8	6.6	7.5
Teachers	2.9	5.3	4.3

Source: UIS 2006b.

funding, or most often, both. As a result, essential inputs are sometimes in short supply, resulting in increased class sizes; shortages of textbooks, instructional materials, and supplies; poorly stocked libraries; and double- or triple-shift use of facilities. As government funding stagnates, parental contributions are an increasingly important complement to public funding.

Figure 2.7, which shows the average pupil-to-teacher ratio (PTR) and its evolution since 1990 for different regions, further illustrates the effect of the constraints on public funding on the staffing of schools. The SSA regional average is higher than any other⁹ and increased continuously during the 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 and Oceania, 17 in Latin America and the Caribbean, and 12 in Europe. However, these averages hide considerable variation: in Singapore, Japan, and Hong Kong (China), for example, class sizes are more than 30—large in comparison with many other high-income countries, but much lower than in the recent past. In the Republic of Korea, classes in junior secondary education averaged more than 55 students in 1995 (Woessmann and West 2002). In Japan, average class size was 32 in

Figure 2.7 Average Pupil-to-Teacher Ratio in Secondary Education by Major Region, 1990–2003



Source: Brossard and Amelewonou 2005.

2005, but close to 40 until 1985 (Japan Ministry of Education, Culture, Sports, Science and Technology 2005).

In the absence of reform in teacher deployment policies, the consequence of the rising PTR in SSA has been, in many countries, increased class sizes, with potential adverse consequences on the effectiveness of instruction. In Mali, for example, the GER in secondary education increased from 9 percent to 23 percent between 1990 and 2004, while the PTR increased from 13 to 38. Similarly in Guinea, the GER rose from 9 percent in 1990 to 28 percent in 2004, but at the cost of deterioration in the PTR (13 in 1990 and 43 in 2004). In both cases, the GER increased more than twofold (and even threefold in Guinea) while the PTR grew by a factor of three or even more in Guinea. PTRs of this magnitude actually result in class sizes of 50 or more because the number of hours that pupils receive instruction is lower than the number of teacher working hours, resulting in class-to-teacher ratios that exceed 2.0 in some countries. Under these conditions, teacher productivity measured by student learning is almost always low: African teachers may teach large classes, but they typically do so with limited instructional materials and their teaching load—student contact hours per week—is 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 Ministries of Education cannot afford to pay in sufficient numbers. Several countries—Mozambique, Rwanda, and Tanzania—have been forced to shorten the duration of preservice 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 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 percent of the cadre and can account for as much as 50 percent. In Benin, 70 percent of the teachers fell in this category in 2002.

Instructional quality and effectiveness are further jeopardized by severe shortages of textbooks (box 2.1). A recent review covering 19 countries in SSA (Read et al. 2008) found that in urban areas only 20–40 percent of students had access to textbooks in core subjects. Estimates of availability of books in noncore subjects ranged from 1 book

BOX 2.1 TEXTBOOKS IN ZAMBIAN SCHOOLS

The current provision of books at the high school level is deplorable. Observations made during field visits suggest that at its most generous, a book-to-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 segment. History, geography, and English literature books all lacked sufficient local relevance while many science textbooks (biology, for instance) 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.

for 8 students (Uganda and Kenya), to 1 for 40 (Zambia), up to 1 for 100 (Mozambique). In rural areas, few students (less than 5 percent was a typical estimate) in any country had access even to core subject textbooks. For most schools, particularly for low-cost and 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 a few 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.

Shortages of classrooms and specialized facilities often add to the problems. Many countries have introduced multiple-shift schooling in urban areas, with two different schools using the same facilities. Since 2004 in Mozambique, for example, the number of students enrolled in schools with double shifts—often offering evening sessions in a triple shift—has increased dramatically (box 2.2). Although 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 5:45 p.m. to 9:55 p.m. 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 percent. In 2005, 32 percent of junior secondary and 42 percent of 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 have only five classes of 45 minutes five days a week, compared with six 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 percent of the students of each grade repeat or drop out each year, and completion rates are very low.

Fees for evening classes are higher than for day courses, which may range from 30,000 to 320,000 Mozambican meticaís (Mt) per year in junior secondary and from 40,000 to 457,000 Mt in senior secondary (26,000 Mt = US\$1). The amounts charged by public schools are negotiated with the communities and the provincial education authorities.

Source: Lobo 2006.

HIGH LEVELS OF PRIVATE FUNDING

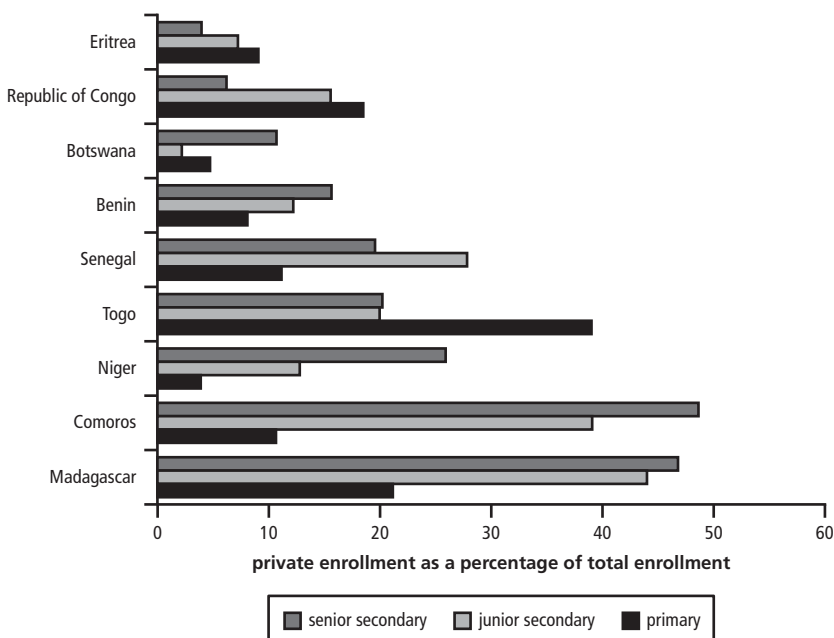
It is not surprising that, driven by excess demand and concerns about the quality of instruction, social values, and safety in government schools, many parents enroll their children in private schools. Private schools vary greatly: some are high-cost, elite schools; others are traditional, church-sponsored 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 Kenya, fees range from a high of 500,000 Kenya shillings (KSh) (\$6,850) per year for nongovernment, for-profit schools to less than KSh 5,000 (\$68.50) in some of the nongovernment, nonprofit schools. The UIS estimates that 14 percent of the secondary students in SSA are enrolled in private institutions (UNESCO 2006). In reality, this proportion is likely to be significantly higher because many private schools are not registered and government records are incomplete. Figure 2.8 shows the extent of officially registered private enrollment in selected countries.

The private school alternative is receiving more consideration from parents as out-of-pocket costs—official government tuition and boarding fees; contributions to school management committees or boards of governors; costs for textbooks, learning materials, and school supplies; transportation; and clothing—rise. In public secondary schools in Kenya, Tanzania, Uganda, and Zambia, more than half the total costs per student are financed through fees and other parental contributions (Lewin 2008).

For example, in 2001, senior secondary school fees paid by parents in Ghana for the first year of public boarding school totaled 1,469,000

Figure 2.8 Average Private Enrollment in Selected SSA Countries as a Percentage of Total Enrollment, 1999–2004



Source: UIS 2005.

Ghanaian cedis (\$162) and 284,000 cedis (\$31) for the first year of day school. In Kenya, tuition fees in government schools range from KSh 26,000 (\$356) per year for national schools, to KSh 10,000 (\$137) for district schools. In Benin, enrollment fees in public junior secondary schools vary between 5,000 CFA francs (\$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 paid directly from parental contributions. In other countries (for example, for the night classes in Mozambique [box 2.2], for the Academic Production Units in Zambia [box 2.3], and for students who

BOX 2.3 ACADEMIC PRODUCTION UNITS (APUs) IN ZAMBIA

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

APUs have had a positive effect on access by enabling many pupils who were not selected for high school to continue their educations. The quality varies, but is perceived to be weak. This perception is not surprising because these pupils have not done as well academically as regular pupils, they come from 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 teaching load (about 50 percent of what is officially expected) for teachers in the morning high schools helps teachers manage their double teaching duties. The ability to earn a salary supplement through the APU classes often means that undue emphasis is given to these classes. 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.

Sources: CIDT 2005; Bennell, Bulwani, and Musikanga 2007.

have not been admitted to the “official secondary school”) parents pay extra fees for classes that operate in government school buildings taught by government teachers aiming to supplement their salaries.¹⁰

The review of textbook provision in 18 countries in SSA by Read et al. (2008) found that secondary textbooks were entirely financed by parents in 11 countries, entirely financed by governments in 5 countries (although not always adequately), and financed by governments in 2 countries with funding levels that assumed significant parental contributions. Textbooks are a significant part of the parental cost burden, often the second largest required parental cost in junior secondary school (after fees). Textbook costs are often 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, up-front payment of an annual textbook and library fee is a condition of acceptance and enrollment). As a result, there is a growing tendency to economize on the costs of textbooks by parents. This approach leads to unacceptably low levels of textbook availability in many schools and 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) estimated that in Kenya, households contributed more than 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 equivalent to \$200 to \$300 represents a heavy financial burden, even for middle-income families. In many countries, fees and private costs often make it impossible for the few poor children who complete primary education to enroll in secondary school (Lewin 2008), further skewing participation toward wealthy households.

It comes as no surprise that in several countries, the share of private enrollment in secondary education is stalling or declining. As the economy in Kenya stagnated, private enrollment decreased from 15 percent in 2001 to 9 percent 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 percent in 1997/98 to 40.4 percent in 2001/02 (Rwanda CSR).

The expansion of private education is obviously constrained. In response, several governments have attempted to establish partnerships

BOX 2.4 PRIVATE TUTORING

Parents are increasingly using private tutoring to enhance the chances of their children passing the secondary entrance examination and improving their performance once admitted. Teachers welcome the opportunity to increase their incomes. Private tutoring is quite popular, yet it is hard to accurately estimate household expenses for it, and it is usually not included in estimates of private education expenditures. The limited data 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 percent receiving tutoring. In a Dar es Salaam school, 70 percent were receiving the extra help. In Zimbabwe, a nationwide survey of grade 6 pupils reported that 61 percent received extra lessons (World Bank 2005b). In Kenya, a 1997 national sample of 3,233 Standard 6 pupils found that 68.6 percent received tutoring (Bray 2003).

In Nigeria, half of secondary school students' households spent, on average, 2,417 Nigerian naira (\$20) on extra lessons in 2003/04. 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 tutoring has a long history, a survey showed that 56 percent of students in secondary form 2 were receiving tutoring. The proportions rose to 98 percent in forms 3 and 4 and to 100 percent in forms 5 and 6. Another survey, of 2,919 grade 6 students, reported that 78 percent received extra lessons. In Tanzania, one survey reported that about half of the students benefit from outside tutoring, which poorer students cannot afford (World Bank 2004c).

Private tutoring can benefit both teachers and students, but it also has 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 tutoring also favors students who can pay for the extra courses, creating inequalities by excluding the poor and less privileged.

with the private sector (Verspoor 2008). Some provide financial support that allows students to enroll in private schools (demand-side financing). Other countries have established 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, governments provide grants-in-aid to private providers (often churches) or, as in Malawi, matching grants for school development to communities. In some countries for example, Somalia and the Democratic Republic of Congo, public provision and financing have virtually disappeared and private providers are responsible for the delivery of education services. It is clear that, with few exceptions, governments will not be able to be the sole source for financing and provision of secondary education. The crucial policy questions to be addressed are what the most critical role of the government is, and how public resources can be deployed and leveraged most effectively for secondary education development.

Nongovernment 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 percent; and in Zambia, 82 percent. Data from Cameroon, Côte d'Ivoire, Ghana, and Zimbabwe confirm the importance of private nonprofit 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 costs and taxes can be considerable, and access to and acquisition of land can be 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; 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 as shown in figure 2.5 and in table 2.5 for a sample of 17 countries. On average, unit costs at the junior secondary level are about three times, and at senior secondary level six times, greater than at the primary level. The reasons originate in a combination of lower PTRs, higher salary costs, boarding subsidies, and larger numbers of nonteaching support staff. Nonteaching costs at the secondary level can account for as much as 40 percent of total costs per pupil. Managing the public expenditure

Table 2.5 Unit Cost Per Student and Composition of Education Spending in Selected Countries
(percentage of per capita GDP)

Level		Teacher salaries as a multiple of GDP per capita	Recurrent cost other than teachers as a percentage of total cost by level	Unit costs as a percentage of GDP per capita
Primary	Average	4.6	27.4	11.4
	Range	[2.4–6.8]	[15.0–43.0]	[4.0–20.0]
Junior secondary	Average	6.6	37.4	31.2
	Range	[3.6–13.1]	[24.0–56.0]	[13.0–64.0]
Senior secondary	Average	9.3	39.5	63.4
	Range	[3.8–19.8]	[18.0–53.0]	[22.0–157.0]

Source: Mingat 2004.

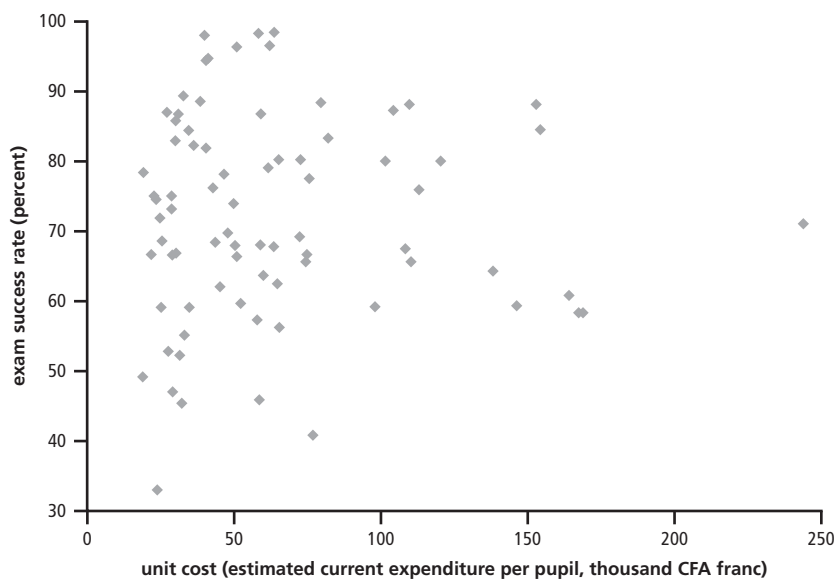
burden of secondary education is thus a key policy challenge as countries aim to broaden access.

TVE is even more expensive on a per student basis than general secondary education. The ratio of TVE spending per student to spending on 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 as, and often more than, academic subjects (Lauglo 2005).

Although financial constraints are real and secondary education and training costs more than primary, it does not follow that a choice must be made between quality and quantity. What the available resources are spent on and how efficiently they are used clearly are as important as the level of resources available. Figure 2.9 illustrates the weak relationship between costs per student and junior secondary examination results in Chad. The findings are similar for almost every country for which data are available. The implication is that there is considerable scope to finance increased enrollment in secondary education through efficiency gains. This finding will be discussed 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; conversely, the higher the level of spending per student, the fewer the number of students who can be enrolled. Figure 2.10 shows the relationship between the secondary GER and the costs per student expressed as a percentage of GDP per capita in selected low- and middle-income countries

Figure 2.9 Cost Per Student and Results in Junior Secondary Government Schools in Chad, 2003



Source: Brossard and Amelewonou 2005.

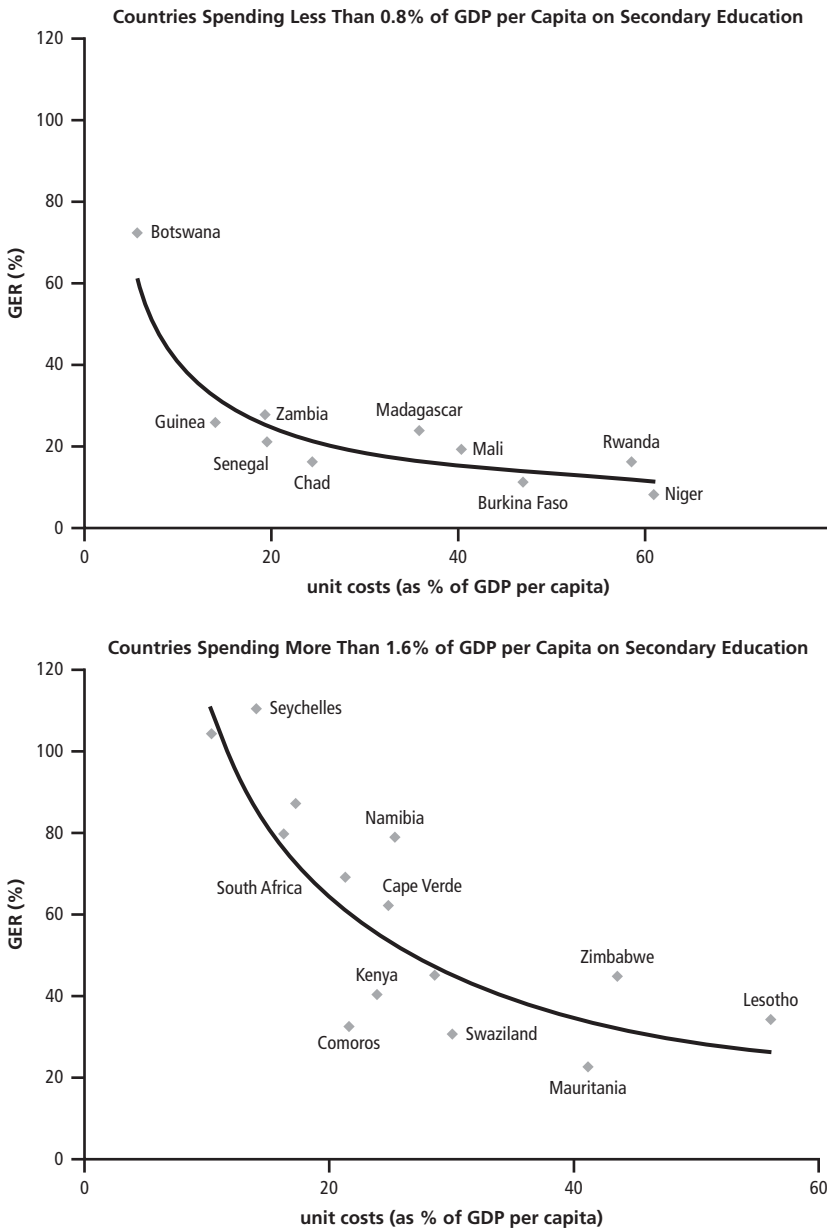
in the region. In countries where the secondary GER is above 70 percent, the secondary-to-primary unit cost ratio is almost always less than 2:1. The higher the ratio, the lower the GER is likely to be. A high ratio makes it more difficult to expand access to secondary education without jeopardizing the learning environment.

CONCLUSION

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

- *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*

Figure 2.10 Trade-Offs Between Unit Costs and Participation



Source: Brossard and Amelewonou 2005.

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 quality varies and their financial condition is often precarious.

- *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 it remains largely inaccessible to rural populations, with girls at a particular disadvantage because of 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, the 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.* Within-country variations in per student costs are large and usually unrelated to learning outcomes. Teacher deployment is often wasteful and ineffective. In several countries, teacher salaries are out of line with national resource availability; in others, they are insufficient to motivate teachers. 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 costs impede enrollment of financially disadvantaged students.
- *Private providers account in most countries for more than 10 percent of enrollment,* but they offer programs that vary widely in quality. Unsubsidized private schools are affordable only by 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, as well as to 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 SSA. Simply expanding the existing system is not an option if quality and relevance are to be improved. In most countries, per student costs are at levels that preclude rapid expansion of publicly provided secondary education. Any reform will need to take account of the constraints on public resources available for secondary education. These

constraints require that countries reflect on the priorities for public financing of secondary education, consider options to broaden the financial resource base, improve the efficiency of resource deployment, and enhance arrangements for management and governance. Most significant, policy decisions will need to reflect the importance of secondary education development and the justification and priorities for public financing.

NOTES

1. The CSRs consulted are listed in appendix A to this book.
2. Data analyses from work by Brossard and Amelewonou (2005), Lewin (2008), Mingat (2004), and UNESCO BREDA (2005) underpin much of the discussion in this chapter. References to technical and vocational education and training issues is largely based on Johanson and Adams (2004).
3. 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.
4. Survival rate to the last grade of primary is defined 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).
5. The gender parity index for a particular group is calculated as the number of girls divided by the number of boys.
6. TIMSS 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 International Education Association 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 and the fourth in 2007.
7. 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 percent, but it exceeded 30 percent in major cities.
8. Cross-national data on expenditure patterns are incomplete and degraded by different classification systems between countries.
9. The much larger proportion of students in JSE in SSA, where PTRs typically are higher than in SSE, explains in part the higher PTR in SSA.
10. The case studies of Benin, Ghana, and Zambia in Lewin (2008) provide more detailed information.

Secondary Education and Development in SSA

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 Carroll

The role of education and human capital in promoting the growth of economies and improvement 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. Microeconomic 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 countries' economic growth performance. Findings of the two approaches have traditionally been inconsistent. Microeconomic evidence suggests that the private returns to education are substantial (Psacharopoulos and Patrinos 2002), and the impact on social outcomes are significant. However, growth researchers have had great difficulty finding statistically significant and economically plausible impacts of educational variables in global growth regressions (Glewwe, Maiga, and Zheng 2007; Ndulu and O'Connell 2007; Pritchett 2001).

New patterns have emerged in the findings of both types of analysis that are beginning to reconcile microeconomic and growth evidence through better measurement of educational attainment and greater care in statistical procedures. Most important, attempts to move beyond the traditional measurement of human capital by using the number of years of schooling completed or enrollment ratios and to assess, instead, the effect of the quality of education and the distribution of educational opportunities on countries' economic growth performance have begun to bear fruit. Such analyses are of considerable interest for this book because

they affect the role of secondary education and may trigger reexamination of current resource allocation priorities. The benefits of secondary education are acknowledged to extend beyond purely economic factors because the benefits also affect health, fertility, democratic participation, and social cohesion. These, in turn, contribute to accelerated economic growth through their impacts on productivity and political stability, and they help create a virtuous circle of economic development and progress in human well-being.

This chapter reviews the contribution of secondary education to economic and social development in Sub-Saharan Africa (SSA). It summarizes findings on the private returns to secondary education, reviews findings on the contribution to economic growth, and discusses the impact on health and social behavior. After presenting evidence on the importance of the quality and distribution of learning opportunities, the chapter examines the implications for secondary education policy in SSA and summarizes 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 incomes. 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 Psacharopoulos (1973, 1985, 1994), and Psacharopoulos and Patrinos (2002) found a pattern of falling returns to education by level of economic development and level of education.¹ For SSA, they report an average return of about 12 percent for an additional year of schooling—in line with what is observed elsewhere in the world. These studies have had considerable impact on policy direction and investment decisions in the developing world, notwithstanding criticism that their conclusions rely heavily on dated studies and unreliable data, and that more careful Mincerian estimations of returns² to education reveal modest effects and different patterns.

INCREASING RETURNS BY LEVEL OF EDUCATION

Appleton (2000), in a review of 28 studies in SSA since 1980, found a mean Mincerian return to education of 5 percent for primary schooling, 14 percent for secondary schooling, and 37 percent for tertiary education. In a review of empirical evidence from several countries in SSA, including South Africa, Keswell and Poswell (2002) found low returns (less than 10 percent) to primary education and increasing returns to each additional

year of education. Recent World Bank Project Appraisal Documents and Country Status Reports (CSRs)³ also found returns that increase with the level of education and with the acceleration of economic growth. Thus, private returns to secondary education exceeded those of primary education, often by a substantial margin (box 3.1).

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 a complete junior secondary education made 163 percent more, and one with a complete senior secondary education earned 181 percent more (World Bank 2006e).

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

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 2006c).

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

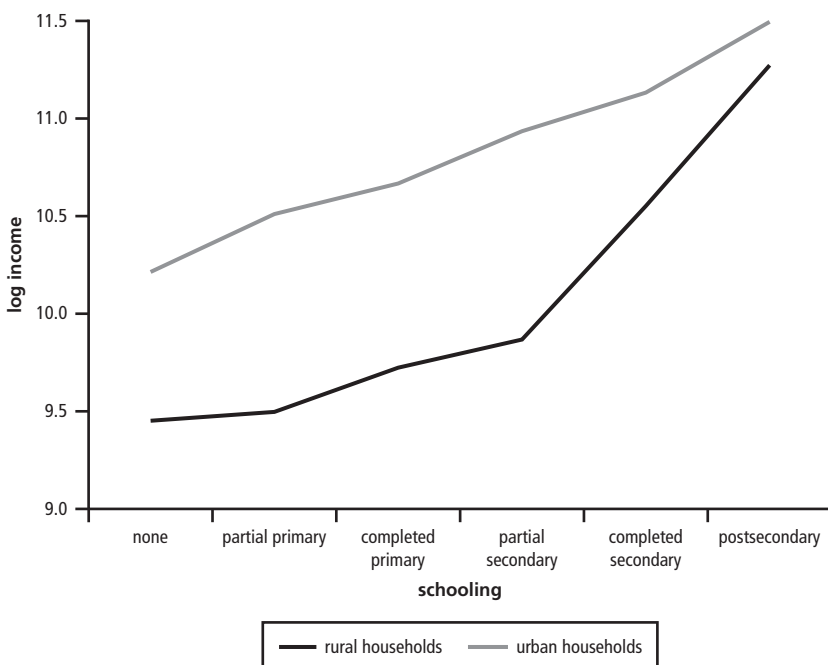
Mozambique. For male workers outside agriculture, returns to primary education range from 14 percent to 24 percent; returns to junior secondary education range from 23 percent to 40 percent; for senior secondary from 60 percent to 74 percent. For female workers and workers in agriculture, returns are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

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

Senegal. The return in the modern sector to junior secondary education (18 percent) exceeds that of primary education (11 percent), senior secondary (14 percent), and tertiary education (0.1 percent); returns are higher in the informal sector (29 percent, 27 percent, and 29 percent, respectively) than in the modern sector (UNESCO BREDIA 2005).

Similarly, the World Bank report “Youth in Africa’s Labor Markets” (2006e, 2006f) analyzes the impact of education on household earnings⁴ in Burkina Faso (figure 3.1) and finds that (a) urban households at all levels of education report higher earnings than rural households, with the gap narrowing at higher levels of education; (b) although the relationship

Figure 3.1 Household Earnings and Schooling in Burkina Faso



Source: World Bank 2006d.

between schooling and earnings is well approximated by a linear term in urban areas, in rural areas the return to schooling increases markedly once some partial secondary education is obtained. Likewise, a 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 percent and median of 12 percent. He found only seven estimates of the effects of senior secondary schooling, with a mean of 16 percent and a median of 14 percent. In this review, the pattern of higher returns also holds for self-employment; the returns associated with an extra year of education are estimated at 7 percent at the primary level and 12 percent at the secondary level. In many countries, returns for females are lower than for males—in the modern sector in Mozambique, returns to education for females are often 30 percent 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 Oyelere 2005). Similar low returns were found in Ghana by Glewwe (1991). The economic stagnation in Nigeria since 1990 and in Ghana during the 1970s and the 1980s may explain these very low returns. Appleton (2000) explains the high rates of return to secondary education in Kenya as compared with Tanzania in the 1980s by the fact that the Kenyan formal labor market at that time was much more developed than that of Tanzania. A further explanation for the quite different conclusions of the recent studies is that Psacharopoulos' analyses included many studies based on data collected before 1980 and—perhaps more important—that returns to education in Africa have come down since the 1960s and 1970s when education was scarcer in Africa and economic conditions were more buoyant.

Evidence on the returns to training is ambiguous. Analyses in Mozambique (World Bank 2006a) found wages of technical and vocational education and training graduates about 40 percent higher than those of graduates of general secondary education at the same level of education. In Senegal, a return of 20 percent was reported for technical education (UNESCO BREDIA 2005). In Ethiopia, training increased the employment probability by 20 percent in rural areas and by 25 percent in urban areas (World Bank 2006e). Yet, the number of training graduates is small and the studies typically did 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 2007). In the informal sector, traditional apprenticeship is still the overwhelming mechanism for skill development for new entrants. The strengths of traditional apprenticeship are its practical orientation, self regulation, and self financing. It reaches those who lack the educational background needed for formal training and is generally cost effective (Johanson and Adams 2004).

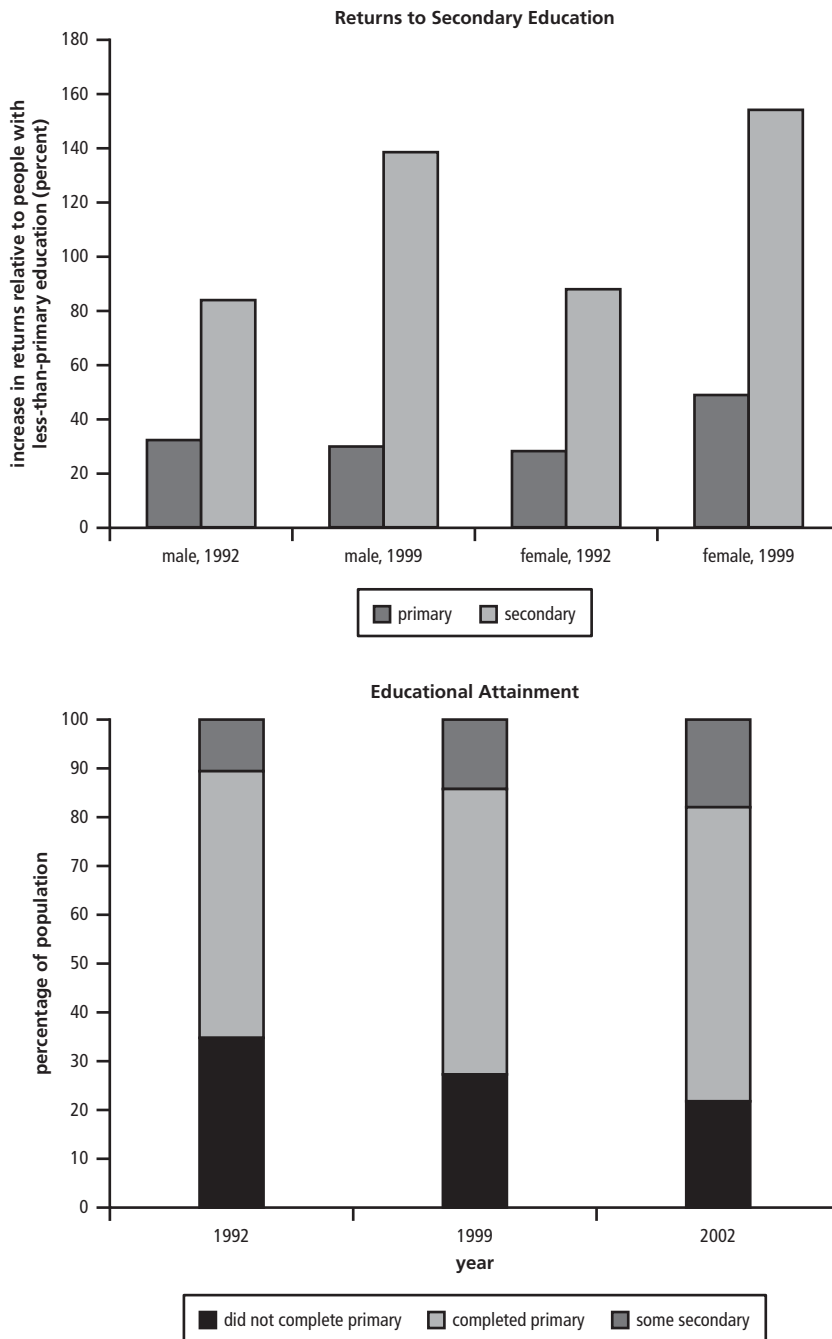
RISING RETURNS IN GROWING ECONOMIES

Although standard economic theory predicts declining returns to education as the supply of educated people increases, some evidence indicates that over time the returns to education have been on the rise, particularly for postprimary education in growing economies. In Uganda, cohort analysis indicates that between 1992 and 1999, the returns to secondary education compared with 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 with more than 10 years of education and 115 percent for female workers with the same level of education. In agriculture, the increase during the period was only about 10 percent (World Bank 2006a). Both Mozambique and Uganda have experienced sustained economic growth since 2000, annually averaging 6 percent and 8 percent, respectively. In Ghana, Canagarajah and Mazumdar (1997) found a rise in the returns to education, particularly postprimary, between 1987 and 1991, possibly reflecting the successful implementation of an economic recovery program in the late 1980s.

INCREASING UNEMPLOYMENT

Despite potentially high private returns to education, many youngsters in SSA are not able to capture them because job opportunities remain limited in many countries.⁵ The International Labour Organization (ILO 2004) estimates that unemployment of youth (ages 15–24) between 1993 and 2003 increased 32.5 percent. In 2003, more than 18 million youth in SSA were unemployed, representing an unemployment rate of

Figure 3.2 Returns to Secondary Education Are High and Rising Faster than Educational Attainment in Uganda



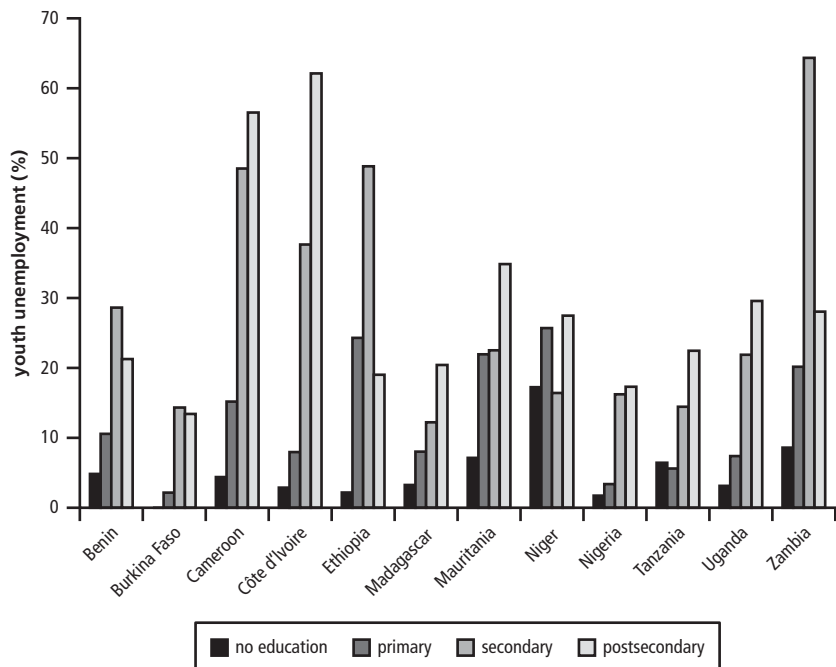
Source: World Bank 2006d.

21 percent. The regional average hides, of course, important country variation in youth unemployment rates. In countries like Mozambique and Kenya, with high urban unemployment, the unemployment rate can exceed 30 percent. At the same time, countries such as Burkina Faso and Uganda, with large rural sectors, have relatively low youth unemployment rates.⁶

In general, although higher levels of education are associated with easier transitions to work, for youth in Africa, this trend 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 attainment. In 8 of the 12 countries in figure 3.3, the unemployment rate is higher among youth with at least some schooling than among those with no schooling. This may be caused by the fact that, as suggested by research in Ethiopia (World Bank 2006f), the more educated youth are, the higher their reservation wage and expected returns to job search.

Most youth lack relevant skills and experience when they begin work. As a result, when they get a job, they often engage in low-productivity work

Figure 3.3 Unemployment for Youth by Educational Attainment in Selected Countries in SSA



Source: World Bank 2006d.

while developing the skills needed to move on to better jobs. Research in Burkina Faso (World Bank 2006f) suggests that most youth, females as well as males, enter the labor force in 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 are men with no education. Clearly, education has a positive effect on careers, even if the portal of entry is similar for the majority of workers.

Yet, where rates of economic growth, especially in the modern sector, are low and the rate of increase in the number of school leavers with post-primary education exceeds it, youth typically face severe difficulties finding jobs. 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 exacerbated in many countries by skill mismatches. In Ethiopia, 21 percent of wage job vacancies posted with employment services remained unfilled between 1997/98 and 2001/02 (World Bank 2006e). According to the Ministry of Labor and Social Affairs, this gap 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 relatively unbalanced structures that give insufficient emphasis to the lower levels, but output at higher levels exceeds labor market demand although the skill composition does not match available job openings (see, for example, Mauritania CSR). In addition, labor shortages for jobs requiring strong math, science, or technical skills often coexist with an oversupply of graduates with humanities qualifications.

These factors suggest that youth, including youth who have continued their educations beyond the primary level, are highly vulnerable to the effects of economic stagnation. For many youth, the transition from school to work is difficult. However, there is also evidence that when economic growth and job creation are sustained, youth with secondary educations can enter the job market successfully. In relatively fast-growing countries with historically low secondary enrollment, 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 who did not complete secondary education did not fare as well: only about half were in wage employment 10 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, 368) points out that “the belief that expanding education promotes economic growth has been a fundamental tenet of development strategy for at least 40 years,” even going 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 enrollment rates in the 1960s as explanatory variables for 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 numerous studies that investigated the link between education and economic growth. Many of these found a significant impact for secondary education, including a threshold effect suggesting that secondary education was associated with an acceleration of economic growth. Key findings are summarized below:

- The Organisation for Economic Co-operation and Development (OECD 2000) showed that over the period 1971–98, economic performance and human capital were positively correlated in OECD countries. Improvement in human capital, approximated by the average number of years of schooling in the working-age population, was one of the key factors tied to the growth of OECD countries during that period. Overall, the OECD study concluded that the estimated average long-term effect on gross domestic product (GDP) of one additional year of education in the population ages 15–64 was around 6 percent.
- Bloom, Canning, and Chan (2006) found that an additional year of general schooling in the adult population can increase the rate of growth by 0.6 percent.
- Mankiw, Romer, and Weil (1992) found a large impact from education. Their secondary school variable (percentage of the working-age population enrolled in secondary school) ranged from 0.4 percent to 12.1 percent. The results suggest that a change of about 6 percentage points, say from 3 percent to 9 percent, will lead to an increase in the rate of economic growth of about 3.1 percentage points (Glewwe, Maiga, and Zheng 2007).

- Barro and Lee (1994) concluded that the average years of (male) secondary schooling are significantly and positively related to economic growth.
- Barro (1999) found that once thresholds are passed, school attainment at the secondary and higher levels for males ages 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 by 0.7 percent per year, a very large effect for slow growers. This impact is mediated predominantly through improved capabilities to absorb technological advances.
- Regressions by Barro and Sala-i-Martin (2004), based on a newer data set with more observations and presumably better data, also found a positive and statistically significant effect for male secondary education.
- UIS-OECD (2003) found in its analysis of WEI⁷ countries a pattern that suggests 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 senior secondary and tertiary attainment are important for human capital to translate into steady growth.
- Loayza, Fajnzylber, and Calderón (2002) estimated for the Latin America and the Caribbean region that if the increasing trends in secondary enrollment continue throughout the decade, it would contribute about 0.4 percentage points to the growth rate of GDP per capita. This compares with about 0.25 percentage points resulting from a continued increase in trade openness, and about half that amount from continued financial deepening (cited in World Bank 2005c).
- An in-depth analysis in the Country Economic Memorandum for Guatemala (World Bank 2005c) highlighted secondary education as a key contributor to economic growth (box 3.2).

These results are, however, far from universal. Pritchett (2001) finds in his analysis 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 such analyses. Similarly, in O’Connell and Ndulu (2001), measures of educational attainment and enrollment performed very poorly in ordinary least squares regressions incorporating demographic measures and life expectancy rates, and their limited availability dramatically reduced the size of the African subsample. Several other papers raise questions about the estimation methods and interpretation of the findings of significance of the human capital variable.⁸

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, it is 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 Country Economic Memorandum (CEM; World Bank 2005c) used the findings of a large cross-country growth model, which relates economic growth to 12 key explanatory variables for 78 countries, to analyze the determinants of past growth trends in Guatemala and to prioritize future areas of attention. It showed that increases in education were the main driving force behind total factor productivity growth during the past 30 years. Quality-adjusted labor input explained 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 by level of education suggested that secondary education made the largest contribution (21 percent) to growth over the period 1950–2002, followed closely by primary education. Projecting an active policy intervention scenario, the CEM found 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 2005c.

The findings on the positive impact of secondary education are reinforced by Borensztein, De Gregorio, and Lee (1998), who found that the productivity advantages latent in foreign direct investment (FDI) are subject to human capital threshold effects. They found that the growth contribution of FDI exceeds that of domestic investment only when the host country's average secondary school attainment exceeds 0.45⁹ years (for the male population of working age). This level is above that of many African countries. Within Africa, Lumbila (2005) found a similar threshold effect using secondary enrollment rather than attainment rates: returns to FDI were significantly higher in countries with secondary enrollment rates exceeding 25 percent. He concluded that countries with relatively advanced human capital have the required absorptive capacity to allow FDI to have a greater impact on growth, because FDI transfers advanced technology that requires educated workers. FDI has a smaller impact on growth in countries where human capital is less developed.

On balance, the evidence presented in this section suggests that secondary education can make a significant contribution to economic growth. It has done so in East Asia and in Latin America. It should be able to do so in Sub-Saharan Africa, but often does not. Using the Mankiw, Romer, and Weil (1992) data, Glewwe, Maiga, and Zheng (2007) analyzed the contribution of education to economic growth in SSA (table 3.1) and suggest that skills learned per year of schooling are lower in SSA than in other parts of the world. The problems seem to be particularly acute in the English-speaking countries. This evidence suggests

Table 3.1 Impact of Education on Economic Growth in SSA Countries

Variable	Mankiw, Romer, and Weil (1992) 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 (population growth)	-1.745*** (0.416)	-1.441 (1.123)	1.411 (1.743)	-0.740 (1.046)
Log (capital investment)	0.697*** (0.133)	0.595*** (0.164)	0.479*** (0.351)	0.517** (0.264)
Log (educational 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	0.680

Source: Glewwe, Maiga, and Zheng 2007.

Note: Figures in parentheses are standard errors.

* significant at 10 percent level.

** significant at 5 percent level.

*** significant at 1 percent level.

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 matter is further discussed in a later section of this chapter.

IMPACT OF SECONDARY EDUCATION ON SOCIAL OUTCOMES

The various aspects of the human resource have powerful development interactions.¹⁰ 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 impacts on fertility. Secondary education can promote social cohesion, help build social capital, and lay the foundation for responsible citizenship. Junior and senior secondary schools need to prepare graduates for participation in society and the economy, which 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. However, secondary education also has a positive effect on a number of noneconomic 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 types of training, such as about HIV/AIDS and awareness and prevention of sexually transmitted diseases, are particularly important for adolescents.

Women's education encourages behavioral changes beneficial to their health. For example, studies in Chad, Côte d'Ivoire, Guinea, and Niger show a positive correlation between the number of years of schooling and (a) taking vitamin A during pregnancy; (b) taking antenatal classes and antenatal preventive health care; (c) choosing assisted birth with qualified personnel—a doctor, midwife, or nurse; and (d) increasing the degree of women's knowledge about HIV/AIDS and how to protect themselves against it (table 3.2).

Educated women are also 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 percent for uneducated mothers, to 31.0 percent for mothers who completed primary school, to more than 50 percent if mothers continued schooling until the senior secondary level.

Table 3.2 Maternal Health Behavior by Level of Education in Four SSA Countries
(percentage of mothers)

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 of AIDS	
	Chad	Côte d'Ivoire	Guinea	Guinea	Chad	Guinea	Niger	Chad	Niger	Chad
0	10.6	83.0	69.7	77.1	35.6	34.9	11.5	10.5	3.1	5.1
2	16.1	88.0	77.1	86.9	55.2	45.9	13.2	17.5	3.6	6.6
4	20.9	91.0	82.9	92.7	69.5	56.9	17.8	25.3	4.0	7.8
6	23.7	93.0	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	9.0
10	21.3	95.0	92.9	98.7	82.0	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.

Note: — = not available.

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 percent of children of uneducated mothers suffer from growth retardation; this figure declines to 36 percent if the mother completed primary school, and to 25 percent if she completed secondary. A similar relationship emerges between the mother's level of education and her children's risk of inadequate weight (table 3.3). The education of girls and women translates into lower child mortality rates and better family health

Table 3.3 Mother's Level of Education and Child Health
(percentage of children)

Years of schooling of mother	Full inoculation schedule (%)	Taking vitamin A during pregnancy (%)	Anthropometric status of children under age 5				Children born alive who are dead before age 5 (%)	
			Insufficient weight	Weight (kg)	Slow development	Waist (cm)	Niger	Chad
	Chad	Chad	Guinea	Chad	Guinea	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	26.0	57.5	22	11.0	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	43.0

Source: UNESCO BREDA 2005.

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 since 1970 has been accompanied by a corresponding shift in demographic patterns. Compared with 1990, the population of those ages 5–14 has started declining in several countries, such as Brazil, Jamaica, Thailand, and Tunisia, and has been stabilized in Argentina, Indonesia, and Uruguay (UIS-OECD 2003). There is robust evidence that the fertility effect is particularly pronounced for girls who have completed several years of secondary education (see, for example, UNESCO 2003b).

Only recently has the demographic transition gotten under way in some Sub-Saharan African countries. The total fertility rate is two times higher in SSA than in other developing countries, on average (5.1 children per woman compared with 2.8), and the rate of demographic dependence¹¹ is 87 percent compared with 58 percent in the developed world.

Data from Cameroon, Chad, Guinea, and Niger (table 3.4) show that educated girls (a) get married and have children later than other girls if they extend their education into secondary school (there is little difference between uneducated women and those who completed primary school), (b) tend to have their children further apart, and (c) more

Table 3.4 Mother's Level of Education and Fertility

Number of years of education	Mother's age at first 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	7.0	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	2.20	43	12	5.8	4.1	4.6
8	—	18.9	2.22	—	—	6.3	—	4.4
10	18.8	19.7	2.25	52 ^a , 47 ^b	17	7.2	3.8	4.0
12	18.7	20.8	2.27	63 ^a , 57 ^b	15	8.8	3.9	3.5

Source: UNESCO BREDIA 2005.

Note: — = not available.

a. General education.

b. Technical education.

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 4.8 children on average, this figure decreases to 4.0 children when she pursues secondary education until the 9th grade, and to 3.5 children if she reaches the last year of secondary schooling (grade 12). 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 2003b). High levels of female education may thereby have contributed to rapid economic growth.

HIV/AIDS

All over the world, youth are especially at risk for sexually transmitted diseases. People ages 15–24 have the highest reported rates of HIV and sexually transmitted infections. According to United Nations Children's Fund (UNICEF 2005), people ages 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 newly infected with HIV in 2003 were 15–24 years old; in Africa, an estimated 1.7 million people ages 10–24 are infected with HIV every year (World Bank 2006e). Sub-Saharan Africa is the hardest hit region. Among young people ages 15–24, 6.9 percent of women (range: 6.3–8.3 percent) and 2.1 percent of men (range: 1.9–2.5 percent) were living with HIV by the end of 2003. Of the young people infected, 75 percent are women and girls. There is a pronounced difference in infection levels between women and men among young people ages 15–24. A review of HIV infection levels among 15- to 24-year-olds compared the number of young women living with HIV with the number of 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 education,¹² 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, Waddell, and Chandiwana 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, and more motivation to remain healthy and invest in the future. Although there is violence against girls in schools, the school environment is usually a safer environment than the one out-of-school girls are confronted with.

In much of SSA, public knowledge about HIV transmission routes is still low. Generally, women are less well-informed about HIV than are men; as are women in rural areas, compared with those in cities and towns. This is the case even in the 10 countries where more than 1 out of 10 adults is infected. In 24 SSA countries (including Cameroon, Côte d'Ivoire, Kenya, Nigeria, Senegal, and Uganda), two-thirds or more of young women (ages 15–24) 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 percent 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 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 3.3). 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. Higher levels of education are associated with reduced risk of HIV infection. Countries' education sectors have 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 most at risk—and help them make informed choices related to sexual behavior and adopt attitudes that are tolerant and supportive of those infected.

Realizing this potential is not easy, however. The literature on the contribution of education to the battle against HIV/AIDS is not overly optimistic on the effectiveness so far of 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 show encouraging results. Although the impact occurs slowly and it is significant, it is not large. The result can be reinforced with an

BOX 3.3 EDUCATION CAN PROTECT WOMEN FROM HIV/AIDS

An analysis of demographic and health 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 the following:

- Women with a postprimary 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 were 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 2002a.

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 encompasses 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 that underpin a society—it is the glue that holds them together.¹³ Historically, public investment in

education 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 socioeconomic 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 crucial instrument for this public purpose. It deals with adolescents at a critical moment of their lives and aims not only to provide them with the necessary knowledge and skills to live and work in an advanced technological society, but also to foster social cohesion and transmit the cultural and ethical values necessary for active participation in a democratic society. The latter challenge is one that secondary schools in SSA cannot ignore if they want to contribute effectively to development. An important aspect of the social capital-building function of secondary education is its creation of opportunities for social mobility, thus ensuring that the benefits of economic development are spread equitably among the population.

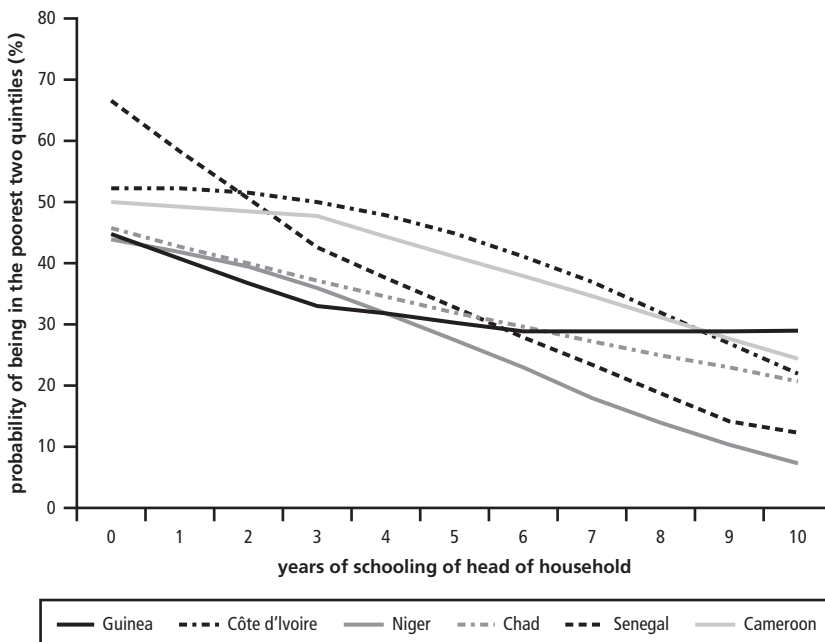
An illustration of the importance of social cohesion is provided by Easterly and Levine (1997). They investigate why economic growth in SSA has been the lowest of all regions of the developing world. They begin by regressing rates of economic growth (GDP per capita) on initial GDP per capita, log of 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 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 percent for those with some primary education to less than 10 percent. 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 do the nonpoor (Di Gropello 2006). This analysis appears to also be the case in SSA, probably because the poor are less likely to attend high-quality schools, their modern-sector social networks are less developed, and their

Figure 3.4 Head of Household's Level of Education and Probability of Belonging to the Poorest Two Quintiles



Sources: UNESCO BREDA 2005; Pôle de Dakar.

attitudes and behavior are 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

The economic and social benefits that secondary education delivers to individuals and to societies vary widely. 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 education is 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 within countries (see, for example, the discussion in chapter 2 on learning achievement). A school year in a country with low-quality education overestimates the amount of human capital produced compared with 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 years of schooling) and the growth of GDP could be explained by differences in the quality of education.

Barro (1991) introduced the pupil-to-teacher ratio as 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 finding is consistent with much research that has consistently found the pupil-to-teacher ratio to be 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 with other developing countries. This suggests that other factors are at play, including those associated with a more open and export-oriented economic environment.

Hanushek and Kimko (2000) analyzed the impact of the quality of schooling directly when they used the information about international differences in mathematics and science from Trends in International Mathematics and Science Study data. They found 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.¹⁴ They conclude that “labor force quality has a consistent, stable, and strong relationship with economic growth” (Hanushek and Kimko 2000, 1203).

In a review of the evidence on the impact of education quality on economic growth, Hanushek and Woessmann (2007, 2) conclude that “educational quality—measured by what people know—has powerful effects on individual earnings, on the distribution of income, and on economic growth.” In fact, they found that differences in learning achievement matter more in explaining cross-country differences in productivity growth than differences in the average 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 allow them to participate in the economy in a meaningful way, much of the investment 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 who make it to primary school, few make it into junior secondary education or beyond. The inequities get larger with the higher 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 the unequal distribution of opportunities to learn at the primary level. Even when 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, from which the poor are largely absent, results in a highly inequitable distribution of public education expenditures.

The inequalities in the distribution of human capital resulting from the inequities in access and quality of instruction adversely affect not only social cohesion but also economic growth performance (World Bank

Table 3.5 Inequalities in the Duration of Education According to Income Quintile, Population Ages 5–24, 2000

	Educational attainment	Q1 (20% poorest)	Q2	Q3	Q4	Q5 (20% wealthiest)	Total	Q5 less Q1
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
	Junior secondary	5.7	9.9	15.2	21.8	47.5	100	42
	Senior secondary	1.9	4.1	4.0	21.8	72.6	104	71
	Tertiary	0	0	2.5	17.0	80.5	100	81
The 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
	Junior secondary	5.3	15.2	17.3	25.7	36.6	100	31
	Senior secondary	1.0	9.5	13.1	28.9	47.5	100	47
	Tech. and tertiary	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
	Junior secondary	14.7	13.9	17.3	19.1	35.0	100	20
	Senior 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	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
	Junior secondary	4.9	3.9	2.7	4.3	84.1	100	79
	Senior sec/tertiary	0.2	2.0	2.2	6.5	89.1	100	89

Source: UNESCO BREDIA 2005.

2005a). They are indicative of an 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. The adverse impact of inequalities on economic growth is confirmed by an increasingly robust body of research

evidence. Thomas, Wang, and Fan (2001) found 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, Birdsall (2006) summarized evidence showing that the level of initial human capital and the distribution of these assets have a significant impact on GDP per capita. And, important for the poor, initial inequalities in the distribution of land and of human capital have clear negative effects that are almost twice as great for this group as for the population as a whole.

Dollar and Gatti (1999) found, 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 percent of females having secondary education—coefficients on both male and female secondary attainment are insignificant. The more developed economies in the sample exhibit 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

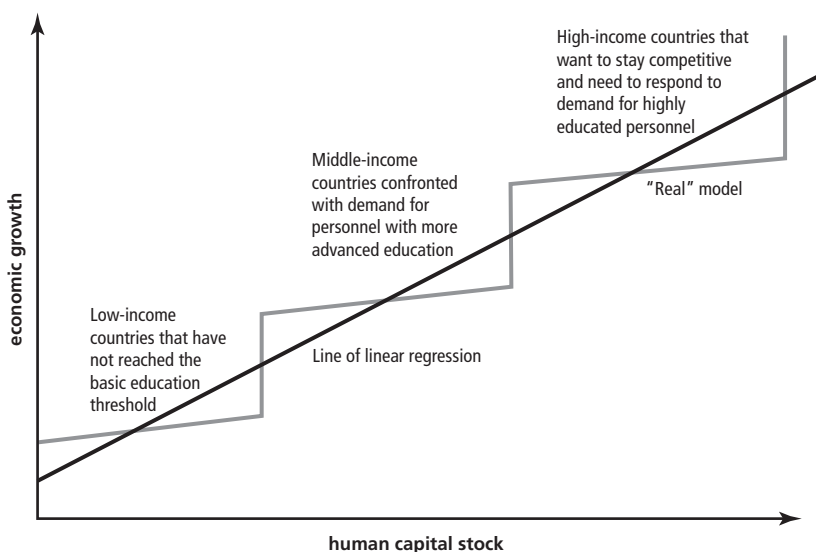
The evidence above suggests that secondary education will often produce considerable private returns and contribute to economic growth. In Sub-Saharan Africa, however, returns are mixed and the contribution to growth has not been comparable to that in other regions. This reflects, in part, the region's disappointing growth performance, which in many countries has been adversely affected by problems of governance and geography. Other likely important parts of the explanation are the effect of the poor quality of education and persistent inequities in the distribution of educational opportunities and human capital assets. These factors have undoubtedly had an adverse effect on the growth performance of many African countries. In fact, countries risk becoming caught in a low-equilibrium trap, where the education system, in the face of increasing enrollment and constrained financial resources, is incapable of producing the personnel necessary to increase the productivity of labor or

adopt and adapt technological innovations. This failure, in turn, precludes the mobilization of the resources necessary for a meaningful increase in the human capital base of the economy.¹⁵

Berthélemy (2006) and Berthélemy and Arestoff (2004) argued that the relationship between the human capital of an economy and its growth rate is strongly nonlinear and is characterized by thresholds and “convergence clubs.”¹⁶ Similarly, Ndulu and O’Connell (2007) cite research that found significant economic threshold effects for education in the growth process. The findings of Barro (1999); Borensztein, de Gregorio, and Lee (1998); OECD (2000); and Lumbila (2005) on human capital thresholds for FDI were mentioned above. The nonlinearity of the relationship between human capital and economic growth may be an additional explanation for the difficulty of finding robust empirical evidence.

Berthélemy’s “real” model is one in which countries remain trapped in a low-level equilibrium until they pass a threshold that allows them to move up to a level where their human capital becomes more productive and its contribution to growth increases (figure 3.5). This process is one that might be 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 may be holding them in a low-level equilibrium trap. Other countries, in SSA and other regions, may face

Figure 3.5 Illustrative Relationship Between Human Capital and Economic Growth



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

thresholds at different levels of education. Birdsall and Londoño (1997) and De Ferranti et al. (2003), for example, argued that in the Latin American region there is a 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) argued that the strong correlation between schooling and growth performance in Argentina, Chile, Malaysia, and Uruguay suggests that overcoming thresholds at high levels of senior 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 United States in the middle of the 20th century was based on 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 light of the growth in the human capital stock in Europe and East Asia (see chapter 4).

Porter (2002) 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. Some countries in SSA remain largely subsistence economies dominated by family consumption and small local markets. Many others are starting the transition from factor-driven economies to investment-driven economies.¹⁷ Human capital, particularly secondary education, is a critical factor in this process (World Bank 2005b). Participation in a global economy increasingly driven by technological progress will require sustained increases in educational attainment to support 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 6- or 7-year primary education; extending the basic education cycle to 9 or 10 years and making it broadly accessible would seem to be essential for building the human capital necessary to adopt and adapt new technologies and attract FDI.

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 in which the economy is growing, there may be increasing returns to education, and returns to secondary education are often higher than returns to primary. Where rates of economic growth, especially in the modern sector, are low and growth in the number of school leavers with postprimary education exceeds that low economic growth, many will 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 the following:

- *A minimum threshold level of “education stock” is needed in the workforce.* With educational attainment lower than four years, and with less than 30 percent of the youth having completed junior secondary education, the foundation for development remains weak in much of SSA. Economic growth in the old and in the newly industrial countries accelerated only at a much higher level of human capital development.
- *Simple increases in enrollment are not sufficient* to capture economic growth benefits. Increased enrollment will need to be accompanied by investment and policies that result in improvements in quality and that ensure students acquire the cognitive skills needed for productive work in an increasingly complex economy.
- *Continuous investment in the improvement of human capital is needed* because the minimum threshold is not stable over time. When countries start on their economic growth paths, the minimum threshold needed to sustain growth increases, as their economies make the transition from subsistence rural economies toward different levels of industrialization and service-based economies. This process is accelerating as globalization increases and as countries become more integrated into a skill-intensive global economy. Therefore, the minimum threshold is higher for today’s low-income countries than it was for today’s industrial countries and even higher than it was for the high-performing Asian economies in the 1970s and 1980s.
- *Inequities in education service delivery must be addressed* to ensure that students from poor and rural backgrounds, especially girls, will have access to acceptable-quality opportunities to learn.

The competition for growth driven by FDI is fierce. It is global but also pan-African. Those countries with higher secondary participation will, with other factors being equal, attract more FDI. The low-enrollment

countries risk being left behind in SSA as well as globally. The implications for the education development strategy are threefold:

- *The provision of learning opportunities and universal completion of six years of primary education* is a necessary condition, but it is no longer sufficient 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 can concurrently strengthen the resource base for education and training.

Crossing the human capital thresholds and moving to higher levels of economic performance will 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 increase allocations to education to ensure broad access to quality basic education and development of further education and training opportunities that will be consistent with the demands of growing modern manufacturing and service sectors of the economy. But in many countries, the additional resources will be available only as economic growth accelerates and public and private resources for educational development become more plentiful. In these environments, improvements in the efficiency of use of available resources will be a key factor driving secondary education development.

While the potential benefits of a nonincremental increase in a nation’s human capital driven by investment in secondary education are substantial, they are not automatic. Realization of benefits is critically dependent on effective macroeconomic and institutional policies. A good investment climate lets the private sector expand, helps trade flourish, and supports economic expansion. Mitigating market and policy failures responsible for rigidity in the labor market and its segmentation will enhance employment opportunities. Strong institutions—stable political systems, secure property rights, efficient financial systems, honest and accountable

public officials—are crucial productive assets. Only in these environments are ambitious education investments feasible and justified.

The nature of education policy still matters. Policies that accommodate demand pressures without paying attention to quality and relevance can lead to a vicious circle of declining quality, languishing growth of human capital, growing inability to increase productivity of capital and labor, stagnating public and private resources, and increasing declines in educational quality. Similarly, policies that ignore the imperative of an equitable distribution of educational opportunities carry within them the seeds of social conflict and reduced growth performance. However, in a positive environment, investments in secondary education can help accelerate economic growth where the macroeconomic and political conditions create a favorable foundation.

NOTES

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

2. These returns measure the percentage increase in wages associated with an additional year of schooling and are 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 assumption can be interpreted as the proper private return to schooling. Social rates of return incorporate the cost of education and sometimes externalities that cannot be estimated through individual wage equations.

3. The CSRs consulted are listed in appendix A of this book.

4. The econometric analysis of the return to schooling in Burkina Faso focuses on average household income and schooling levels, and it aggregates the data at the household level by looking at the relationship between the household per capita income and the average household educational attainment. Although most analyses of returns to education in the literature use individual wages or salaries and education level, the focus on household income results from the fact that relatively few Burkinabes report earnings from formal paid employment.

5. This section of the chapter draws heavily on data and discussion in World Bank (2006e).

6. Traditional labor market concepts such as jobs, employment, unemployment, participation, wages, and earnings are difficult to apply to Africa. These concepts need to be adapted to the realities of a labor force that is mostly working in family businesses (either as owners or unpaid family workers), with 50 percent working in agriculture, mostly at subsistence levels, and two-thirds living in rural areas.

7. The World Education 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 WEI program include Argentina, Brazil, China, Chile, the Arab Republic of Egypt, India, Indonesia, Jamaica, Jordan, Malaysia, Paraguay, Peru, the Philippines, the Russian Federation, Thailand, Tunisia, Uruguay, and Zimbabwe.

8. See for a further discussion, Glewwe, Maiga, and Zheng (2007).

9. In a country where 10 percent of the male population of working age has partially completed secondary school, and out of this group only 30 percent completed six years of secondary school with the remaining only completing the first three-year cycle, the secondary school attainment is $(0.1 \times [3 \times 0.7 + 6 \times 0.3] + 0.9 \times 0 = 0.39$.

10. This section draws heavily on the evidence presented in chapter 1.2 of UNESCO BREDIA (2005).

11. The demographic dependency rate is the ratio of the nonworking population (under age 15 and over age 65) to the working-age population.

12. In Uganda it appears that rates for those with primary education were nearly double those for people with secondary (AIDS Information Centre, Kampala, 2000). Time series data now show that rates of infection have fallen fastest for those with secondary schooling, and not at all for those with no primary education (UNESCO 2004).

13. See <http://go.worldbank.org/K4LUMW43B0>.

14. Hanushek and Kimko 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.

15. For a discussion of the nature and causes of the African poverty trap, see Sachs et al. (2004).

16. Groups of countries where economic performance tends to converge.

17. Factor-driven economics derive their competitive advantage from low-cost labor or access to national resources. Investment-driven economies are ones in which efficiency in the production of standard products and services is the source of competitive advantage.

Lessons from International Experience

Learning from experience is a faculty almost never practiced.

—Barbara Tuchman

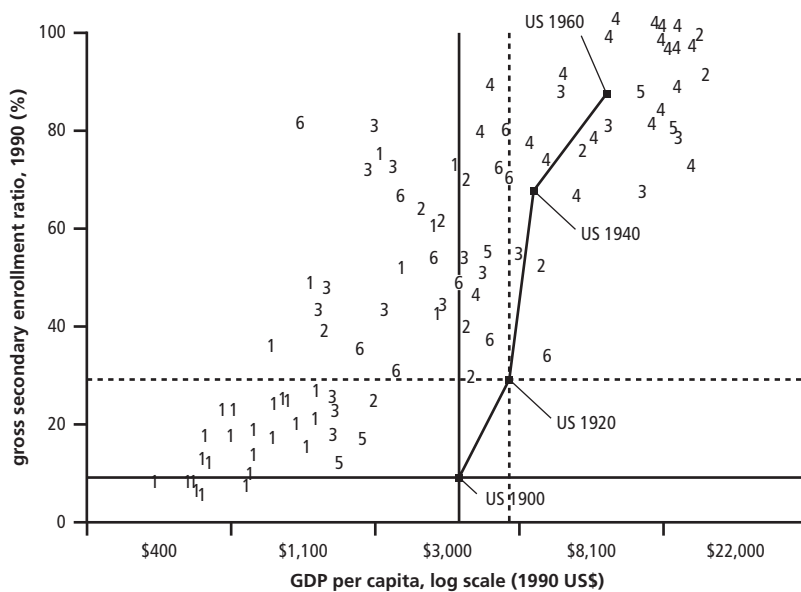
Previous chapters underscored the importance of secondary education for social and economic development in Sub-Saharan Africa (SSA) and the severe shortcomings in quality, quantity, and efficiency of its current provision in many countries. Few countries will be able to access the development benefits associated with secondary education without radical systemic reform. The case for reform rests on the need to transform a system originally designed to train a small elite cadre of officials for the colonial administration into one that can respond to the aspirations of the many students who want to continue their education after completing primary schooling and one that concurrently serves national development. This transformation requires not only changes in the way systems are financed and resources are used, but also changes in what is taught and the ways in which instruction is delivered and systems are 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 will be essential; but to make a meaningful contribution to national development objectives, increases in enrollment must happen without jeopardizing improvements in quality and relevance.

The secondary education development challenge is particularly daunting in SSA because it is occurring comparatively early in SSA's economic development process. Figure 4.1 shows that at gross domestic

Figure 4.1 Investing in Human Capital



Source: Goldin 2001.

Note: Numbers represent the geographic locations of countries: 1 = Africa, 2 = Central and North America and the Caribbean, 3 = Asia, including the non-African Middle East, 4 = Europe, 5 = Oceania, and 6 = South America. Enrollment rates and GDP per capita are plotted for the United States for 1900, 1920, 1940, and 1960. Data for all other countries are plotted for 1990.

product (GDP) per capita lower than the United States had in 1900, most African countries have higher secondary enrollment rates than the United States did then. These enrollment levels are an almost inevitable response to the development demands of a society that is infinitely more complex and skill intensive today than it was a century ago. At the same time, it brings to the fore the fiscal burden inherent in the rapid development of secondary education. Strategies that were successful in the industrial countries or even in other developing regions can provide African policy makers with ideas and lessons, but they cannot be transplanted. The search for strategies that effectively respond to specific national conditions thus becomes an imperative that few African countries will be able to ignore. In the African context, strategies will need to recognize the need to (a) pursue policy reform options that explicitly recognize constraints on public and private resources and are explicitly designed for efficient resource use and allocation, and (b) implement curriculum reform simultaneously with financial and management reform. After reviewing international experience with secondary education development, this chapter will draw lessons that policy makers in SSA might consider.

SECONDARY EDUCATION DEVELOPMENT IN OTHER REGIONS

By the start of the 20th century, most of today's industrial countries had made considerable strides in providing basic education for children up to age 14. The United States was close to universal enrollment in a nine-year elementary program. Basic education programs were more limited in coverage and were shorter in most European countries. In France, half the children born in 1900 left school by age 13. In England in the early 1940s, 90 percent of students left school by age 14 (Gillard 2007). In Sweden in 1930, only 15 percent of the adult population had education beyond the sixth grade. In Finland, as late as 1960, only 12 percent of the population ages 15–64 had completed secondary or higher education.

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

THE UNITED STATES

Around 1900, the United States had reached universal primary enrollment for 7- to 13-year-olds. But secondary (high school) enrollment remained reserved largely for the elite. Only 6 percent of the adult population had completed high school; high schools (grades 9–12) enrolled 650,000 students, representing about 10 percent of 14- to 17-year-olds, with about 10 percent of 17-year-olds obtaining a high school diploma. By 1940, this situation had changed dramatically (figure 4.1). Enrollment had increased more than 10-fold to 7 million or 75 percent of 14- to 17-year-olds; 50 percent of 17-year-olds obtained a high school diploma and 25 percent of the adult population had completed 12 years of education (Snyder 1993; US Census Bureau 1993). Goldin (2001, 75) argued that the new industrial economy 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.

This move toward mass secondary education 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 percent local, with only 20 percent provided by the state government. By 1940, local districts still raised 70 percent of the funding for education. Teacher salaries, varying between 1.0 and 1.5 times GDP per capita (1910–20) and the cost per student enrolled (10 percent of GDP 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 United States resembled those of many of today's low-income countries: the pupil-to-teacher ratio was between 34:1 and 37:1 (1880–1910) and students attended about 100 days per year (1910).

Goldin (2003) noted that the spread of what was known as the “high school movement” followed the spread of economic development through the United States, starting from the towns in New England to the rich agricultural areas of the Midwest and the western states, but much more slowly in the South, where economic development was lagging. Critical in this process was the decentralized decision making in some 130,000 separate school districts in the United States around 1920, which included tens of thousands of fiscally independent communities large enough to have their own high schools. Even in states without an overall majority of voters supporting 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 them and were ready to pay for them. These districts implicitly competed with one another to attract residents by offering secondary schooling opportunities.

The increase in high school enrollment was accompanied by improvements in the learning environment: by 1940, students were attending for an average of 150 days a year, pupil-to-teacher ratios had declined to about 27:1, cost per student enrolled increased to 15 percent of GDP per capita and teachers' salaries had increased to about 2.5 times GDP per capita. Total expenditure on primary and secondary education increased from 1.3 percent to 2.2 percent 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. Thus, vouchers and public funding for private schools are being introduced. The egalitarian, nonelitist system is seen as lacking standards and accountability. In response, 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

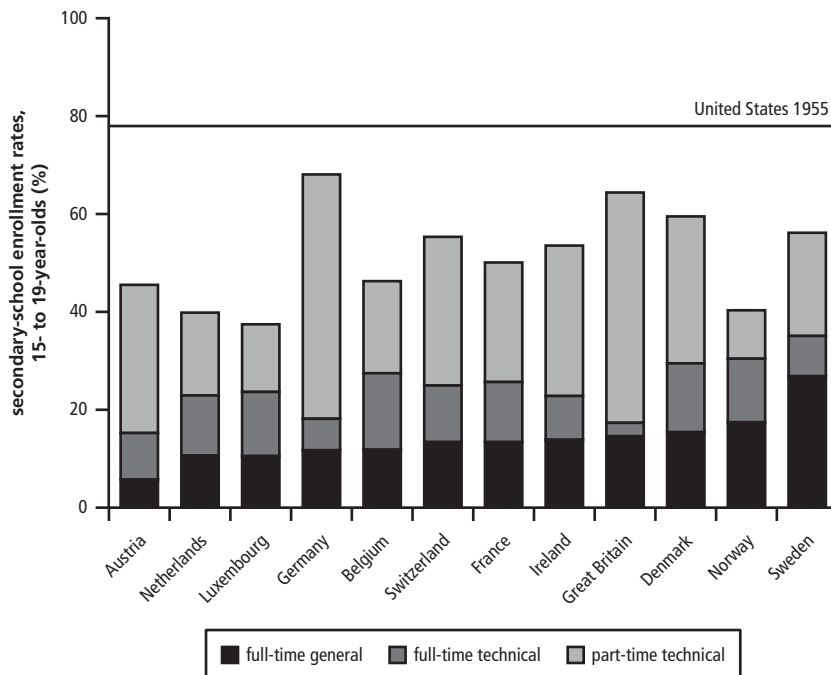
inequities and most states now have equalization plans. Large schools and consolidated districts are thought to cause bureaucratic inefficiency and disengagement of students, parents, and communities from the education process. Charter schools, schools-within-a-school, and specific targets for “adequate yearly progress” toward state-defined performance standards are responses to these concerns.

EUROPE

While most European countries achieved universal enrollment in primary education for pupils up to age 13 a little later than the United States, the growth of secondary enrollment took place substantially later. In 1955, the secondary enrollment rate in the United States had increased to 80 percent, while in much of Europe it was still below 20 percent (figure 4.2). Even if full-time and part-time technical education are included, only Germany and the United Kingdom had enrollment rates above 60 percent.

Although different systems have different characteristics, the development of education systems beyond the primary level in Western European countries, including England, had a number of common features. In many countries, a triple system was created (see box 4.1). A first subsystem,

Figure 4.2 Secondary School Enrollment Rates in Europe, 1955



Source: Goldin 2001.

BOX 4.1 SECONDARY EDUCATION IN ENGLAND

As in most of continental Europe, England established a meritocratic but class-based education system. For many years, the system was locally managed with little central government involvement. While most of continental Europe started to decentralize the management of education in the 1980s, the trend in the United Kingdom was to centralize control over the education system. Until 1944, national government participation in education had been minimal. There was no Ministry of Education and local education authorities were responsible for the provision of education.

Educational opportunities for working class children were limited. In 1926, schools were divided into junior and senior stages, and an examination (known as 11+) was introduced to select a 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 of modern secondary schools that replaced the senior elementary cycle, secondary technical that catered to students who failed the 11+ exam, and grammar schools for selected pupils who intended to extend their studies beyond the O level. Working-class children were very much underrepresented in grammar schools. In the 1960s, the 11+ examination was abolished, and grammar schools and modern schools were gradually amalgamated in comprehensive schools that accepted students without regard to ability. Independent (private schools) throughout the 20th century catered to the children of the elite.

Sources: Briseid et al. 2004; Gillard 2007.

upper primary schools, focused on the “three Rs” and targeted the majority of the population in rural areas and unskilled workers in industry. A second subsystem, which in some countries eventually merged with the first, provided modern secondary education that led to entry into 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 relied heavily on manual labor. The

BOX 4.2 SECONDARY EDUCATION IN FRANCE IN THE FIRST HALF OF THE 20TH CENTURY

Before World War II, the *lycées* in France educated only a tiny minority of the nation's children; schools were not crowded, and classes were small. 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 certifiés* 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 also 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 1967.

third, more academic, subsystem was geared toward the needs of the small elite that would continue on to higher education (Briseid et al. 2004). The European academic systems were extremely 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 those in England, had centralized bureaucracies and financing. It was only in the 1960s—after Europe had recovered from World War II 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 and international competitiveness led to increased involvement of the national government in education management in the second half of the 20th century.

Starting in the 1950s, many European countries introduced comprehensive schooling models and policies that allowed rapid expansion of enrollment. 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 percent of the schools are private (although publicly funded), but in Finland only about 5 percent are private. Most private schools are religious or have an alternative pedagogical philosophy. Most private schools receive public subsidies or contributions from business, especially for technical vocational programs.

The differences from the experience in the United States are striking. Until the 1960s, there were separate systems 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 employ them as civil servants.¹ Provision, however, was more open—parents could usually choose among schools. At the senior secondary level, technical and vocational programs were much more common.

Most countries today offer a common core curriculum through junior secondary education and postpone guiding students toward 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 Organisation for Economic Co-operation and Development (OECD) framework of key competencies (box 4.3). Streaming, tracking, and having school diversification are common, but with considerable differences between countries in organization and structure. In several countries,² half or more of students are enrolled in technical or vocational courses. This enrollment reflects in part a historical legacy, but it also is the consequence of the commitment to provide education opportunities to all youngsters up to age 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

The growth and transformation of the education and training systems in the high-performing Asian economies³ during the 1960s and 1970s was dramatic. The number of years of education that 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

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 as preparation for entry into a more flexible and mobile workforce with a lifelong-learning perspective. Junior secondary education is designed to provide foundation skills and competencies on which to build further learning. Senior secondary education 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 socioeconomic needs and job market demands, thus raising achievement levels and reducing the gaps between different groups. Currently, reforms at the secondary level continue to focus on the renewal of curricula along with various structural and managerial reforms.

Curricula. The emphasis is on the application of knowledge and the learning of cross-curricular skills rather than on the reproduction of knowledge; this emphasis requires the promotion of key competencies—knowledge, skills, attitudes, and values—in particular:

- Using language, symbols, and text interactively with knowledge, information, and technology
- Working in groups or teams, and managing and resolving conflict
- Acting autonomously, with consciousness of the big picture, in pursuit of personal life plans and projects, and an awareness of rights, interests, limits, and need.

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

Structural and organizational reform. 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 age 16, more than 80 percent of students continue learning either in formal senior secondary schools or in vocational training institutions, which most often combine applied learning with apprenticeships.

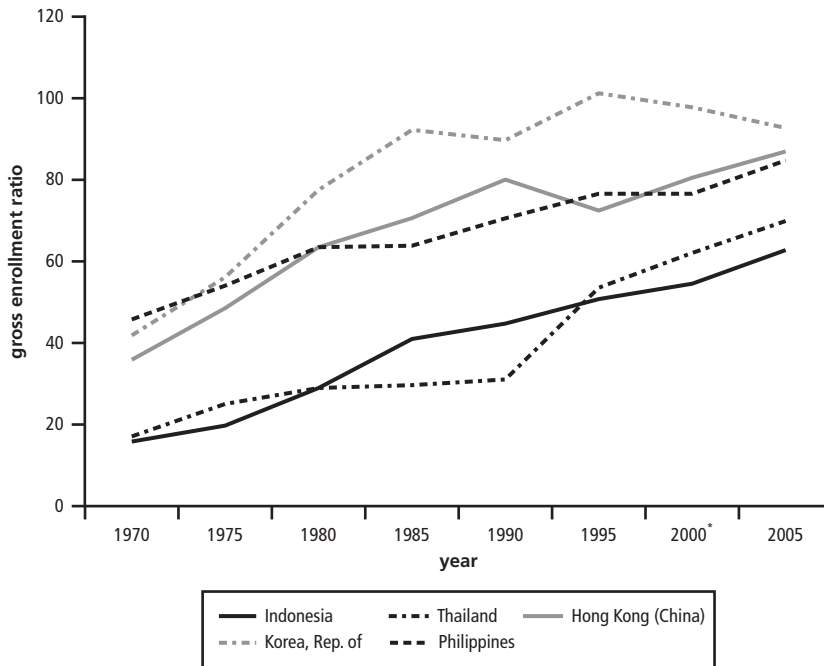
Cost effectiveness. Management and governance of education systems have been decentralized, thereby allowing secondary schools to become autonomous and to make context-specific decisions regarding programs, curricula, and even financing. Standards for performance have been developed and formula-funding mechanisms have been implemented, thus 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 proactively encouraged by governments. This also includes the use of distance learning, ICT, and courses adapted for second-chance students and adults.

Sources: OECD 2005; Bregman and Simonnet 2004; Briseid et al. 2004.

education (355 percent increase in real expenditures between 1970 and 1989 in the Republic of 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 (China), Korea, and Singapore had already achieved universal primary education, and even Indonesia had a primary enrollment rate above 70 percent.

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. The Republic of Korea, for example, increased its secondary enrollment rate from 35 percent in 1970 to 90 percent in 1990. The rapid increases in secondary enrollment 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 percent 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 (compared with 46 percent in

Figure 4.3 Secondary Gross Enrollment Ratio (percent) in Selected Asian Countries, 1970–2005



Source: Edstats.

*or closest year

1970). Thailand had a primary enrollment rate of 83 percent in 1971, and a secondary enrollment rate of only 14 percent, with only 2,000 secondary schools, which were limited to a select few in the population. By 2005, however, the enrollment ratio for junior secondary education was 86 percent, and it was 60 percent for senior secondary.

In *The East Asian Miracle*, the World Bank (1993a) identified 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 determinants of East Asia's success.

GDP growth of 7–10 percent from 1960 to 1970 increased the resources available for education, as well as real wages and the return to education. Population growth declined, thereby 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 being unable to meet

BOX 4.4 THE SINGAPORE EXPERIENCE

Since independence 40 years ago, Singapore has made remarkable economic progress underpinned by a continuously improving human capital resource. In 1965, the school system was underdeveloped and fragmented with several different languages used as the medium of instruction, with an overly academic curriculum, no technical schools, and no unified system for teacher preparation. Program content was poorly articulated with labor market needs and did not respond to the urgent need to strengthen social cohesion between the island's three 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 be built only on sustained economic growth. Investment in education was an essential element of this strategy, complementing investment 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 interethnic solidarity in the civics, social studies, and history curricula; and 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 (which continues to govern education policy today: for example, secondary teachers are expected to teach more than one subject, double-shift use of facilities continued until 2000, and a large number of diploma-level teachers are employed at the primary level)
- Commitment to rigor and standards by keeping O- and A-level terminal examinations comanaged with Cambridge Board.

Source: S. Gopinathan, (National Institute of Education, Singapore), personal communication, April 2007.

education expenses.⁴ Resource allocation took full advantage of these favorable conditions. The share of education as a percentage of GDP increased in the high-performing Asian economies between 1960 and 1989 from 2.5 percent to 3.7 percent.⁵ Most important, public investment in education was allocated with considerable attention to 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, parents pay 50 percent of the cost of senior secondary education, which has allowed the government to target a large proportion of its secondary education resources to 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 SECONDARY EDUCATION DEVELOPMENTS IN THE REPUBLIC OF KOREA

In 1960, the Republic of Korea was a low-income country with a GDP per capita equivalent to that of African countries such as Ghana. By 2000, its economy was ranked 12th in the world; GNP per capita stood at US\$13,980, while Ghana's was less than \$300. In 1965, Korea had reached universal primary education; by 1990, secondary enrollment had increased to 90 percent from 35 percent in 1965. Between 1970 and 1995, the average years of schooling almost doubled, from 5.74 years to 10.25 years. 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 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 that 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 achievement. 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 public subsidies and tax exemptions encouraged private provision. As of 2000, private secondary schools enrolled 20 percent of the students in junior secondary education, and 55 percent in senior secondary education. In 2005, 42 percent 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, Korea combined centralized financing with 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 rapidly expanding access and quality can be achieved simultaneously. Economic and social demand for education in Korea's rapidly growing economy helped the country achieve its education goals; however, government direction and leadership were essential to ensure equity.

Sources: Lee 2006; World Bank 2005b; Kim 2002.

The emphasis on education as a key element of national development policy continues 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 percent of the working-age population is literate, and more than 98 percent of children of primary school age attend school. The country's efforts are now focused on achieving universal junior secondary education, which has resulted in an 84 percent participation rate of junior secondary school-age children in 2004–05, a transition rate from primary to junior secondary of 98.5 percent, and a rate from junior to senior secondary of 77.1 percent. Vietnam's average annual GDP growth increased from 5.9 percent during 1985–94 to 7.0 percent during 1994–2004.

Table 4.1 Linking Education and Economic Development in the Republic of Korea

• Elementary and secondary education (1960s)	→ Labor-intensive light manufacturing
• Vocational and technical high schools (1970s to 1980s)	→ Capital-intensive heavy and chemical industries
• Expansion of higher education (1980s to present)	→ Electronics, high-tech knowledge industries

Source: Lee 2006.

East Asian countries had a vision for economic development and for what that required for education development. This vision evolved with economic development and was closely related to the increasing complexity of the economy as each country moved from manufacturing simple products to heavy industry and to today's knowledge-based production and services industries (table 4.1).

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. However, the emphasis on education's role in development goes well beyond economic issues. Education has been assigned a key role in nation building, including building the moral values and national cohesion required to make a multi-ethnic society work. For example, while many African countries today—40 to 50 years after independence—consider their curriculum content too reflective of colonial heritage and not adapted to national realities, Singapore, Korea, and more recently, Vietnam “renovated” their curricula almost immediately after independence to help schools serve overarching economic and nation-building goals.

LATIN AMERICA

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 late in the past century, large numbers of poor students did not complete basic education while others, mostly from the upper and middle classes, were able to attend high-quality, publicly subsidized universities.

In the past 50 years, considerable progress was 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 percent of nine-year-olds are enrolled in school. Enrollment

rates since 1960 increased from 60 percent to 88 percent at the primary level, from 36 percent to 72 percent at the secondary level, and from 6 percent to 27 percent 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 in 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, 129) call “massive deficits in net enrollments in secondary school.” Compared with a sample of 116 countries, the net secondary enrollment ratio in Latin America is 16 percentage points below 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 systems, several countries in Latin America followed an “unbalanced” approach to education development: although most adults still have primary education or less, 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. In addition to the gap in participation in secondary education, there is a serious gap in what students learn as measured on international tests such as the Trends in International Mathematics and Science Study and the Program for International Student Assessment. The underinvestment in secondary education constrained increases in educational attainment in the region and limited increases in labor productivity and technological upgrading. This problem 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 industrial countries or even in other developing regions. Yet, international experience provides important lessons for countries in SSA as the education transition processes intensify. The most important lesson to reflect on, perhaps, is that the reform objectives are unlikely to be reached, or might not even 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 resources necessary to fund secondary education at an

BOX 4.6 SECONDARY EDUCATION REFORM IN BRAZIL

Brazil's educational structure has two cycles of basic education: elementary, covering grades 1–4, and junior secondary, covering grades 5–8; and it has senior secondary, covering grades 9–11. Inequities have always been large. High technology, industrial, and service sectors have produced living standards in the south that are close to European levels. By contrast, Brazil's northeastern 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 percent of the children in the rural northeast were enrolled in junior secondary education (grades 5–8) compared with 33.5 percent 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. These reforms led to significant improvements in access: the gross enrollment ratio in basic education (including junior secondary) increased from roughly 97 percent to above 112 percent. At the senior secondary level, gross enrollment reached 60 percent, up from 34 percent. Nonetheless, serious problems of equity, efficiency, and quality persisted: in 1996, for every 100 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 they took another 4 years to complete the 3 years of senior secondary schooling. Consequently, although gross enrollment secondary rates were high, net enrollment rates were very low, especially at the senior secondary cycle (30 percent). Low quality of schooling resulted in high drop-out and repetition rates of the poorest students.

Since 1996, Brazil has noticeably improved its secondary education system, especially the junior 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 enrollment increased by 6 percent at the junior secondary level. A similar program for senior 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 increased attendance among children ages 10 to 15 by up to one-third.

Since 1996, the central government has also taken 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.* This constraint is addressed through summer school, monetary graduation incentives, accelerated instruction programs, learning cycle approaches, flexible promotion based on academic credit mechanisms, and other programs designed to improve efficiency.
- *Lack of assessment data.* The government reopened the National Institute for Educational Research, which now implements national educational assessments of student performance through the Basic Education National Evaluation System and an exit examination that tests graduates on the senior 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 lowest income quintile.

Source: Di Gropello 2006.

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 do well in secondary school. Secondary schools that simply provide remedial teaching for primary school completers cannot be expected to produce graduates whose knowledge and skills respond to the demands of growing and modernizing societies. Education for All goals and secondary education development objectives are therefore inextricably tied to one another.

The US, European, East Asian, and Latin American 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 early acceleration of secondary enrollment, 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 restraints on public spending on higher education. Conversely, Latin American countries demonstrate how a deficit in secondary education development and 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 subsectors 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 the process must be fully sequential, but it does imply that policy and public resource allocations must shift upward gradually.
- *How resources are spent is as important as the amount.* The role of government must be clearly defined, policy choices must be pragmatic and evidence based, and public resources must be used efficiently and allocated to inputs with the most cost-effective impact on learning.
- *Government direction and leadership are important* to accelerate and sustain progress and ensure equity; yet, decentralization and local autonomy

hold 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, to nurture community support, and to ensure that secondary education responds effectively to the expectations of local communities and national leaders.
- *A coherent vision of the role and contribution of secondary education* to economic development, social progress, and the building a democratic society must underpin strategy and policy; simply responding to social demand is not enough.

On occasion, countries have successfully flouted the consensus suggested by international experience to respond to specific national conditions. For example, at the time of its independence in 1968, Botswana was one of the poorest countries of the world with an annual per capita income of about US\$80. Virtually all professional senior positions in the country, including in education, were held by expatriates. Going against much international opinion, Botswana chose to focus its initial human resources development efforts on secondary and tertiary education and to work backward to lower levels. Though not totally neglecting lower levels, 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 capital base that has allowed the country to reap the benefits of its natural resources and to 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 enrollment 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 enrollment created pressure to develop the secondary school system. From 1963 to 1973, primary enrollment rose from about 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

BOX 4.7 INCREASED ACCESS AND IMPROVED QUALITY IN ZIMBABWE

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

- Parents and community built the school infrastructure, and government provided assistance to ensure safety standards and materials, including prefabricated pillars and roofing.
- Parents paid and controlled fees for construction, furniture, learning materials, and payment for additional teachers; they also ran the schools and ensured attendance.
- Government provided and paid for teachers at the fixed teacher-to-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 time, the number of secondary schools expanded from fewer than 200 to more than 1,600, the majority of them built by parents. Enrollment increased from less than 200,000 to more than 800,000.

One primary school out of five 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, a community would undertake 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 that were close to their homes and that cost an average US\$50 per student each year rather than the traditional boarding schools that cost an average US\$250 per student. Only 4 percent of communities were unable to respond to this partnership system and had to be provided for, generally by commissioning a nongovernmental organization or church to assist them.

To ensure that education was relevant, of acceptable quality, and yet affordable, the Ministry of Education did the following:

- 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, pupils could perform a weekly experiment. Teachers received training through radio and audiocassettes.
- 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 US\$0.20 per copy, using newsprint and comic book-type illustrations. Because there were many underqualified teachers, textbooks were written making use of distance teaching methodologies.
- Established a compulsory core curriculum consisting of English, African language, science, 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, former Minister of Education, Zimbabwe, personal communication, April 2006.

Africa with the highest secondary gross enrollment ratio, 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 Francophone countries in West Africa,

but private community involvement in primary education allowed the government to allocate a larger share of the education budget to secondary education.

NOTES

1. In Europe during the beginning of the 20th century, primary and secondary teachers were relatively better paid than 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 made 990 francs (Desbrousses and Peloille 1980). In 1939, the base teacher's salary was 16,000 to 40,000 francs, and a senior teacher (*agrégé*) received 26,000 to 50,000 francs.

2. Finland, France, Germany, the Netherlands, Norway, the United Kingdom.

3. This discussion is largely based on chapters 1 and 5 of *The East Asian Miracle* (World Bank 1993a), which analyzed the economic performance of seven high-performing East Asian economies: the four tigers—Hong Kong (China), the Republic of Korea, Singapore, and Taiwan—which had been rapidly expanding for decades; and three newly industrializing economies—Indonesia, Malaysia, and Thailand. More recently, China has undergone similar rapid economic growth and massive investments in education.

4. There is a strong and statistically significant negative correlation between basic education enrollment and the level of income inequality (Clarke 1992). At primary and secondary level, Schultz (1988) found income elasticity of enrollment of 0.31 and 0.43. This finding implies that the positive effect on school enrollment of lower income inequality can be quite large (World Bank 1993a).

5. Although less than in Sub-Saharan Africa, where it increased from 2.4 percent to 4.1 percent over the same period.

Financing Secondary Education

Can anybody remember when the times were not hard and money not scarce?

—Ralph Waldo Emerson

Expanding access, ensuring equity, and at the same time improving quality and relevance is the triple challenge faced by secondary education systems throughout the developing world. Responding to these challenges calls for broad reforms everywhere, but perhaps more so in Sub-Saharan Africa (SSA) than in any other region. As noted earlier, secondary education development in SSA is taking place at a time when 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 governments to mobilize public resources. Moreover, a slowly and unevenly emerging demographic transition, often with fragile economic growth, makes 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 deployment and mobilization of resources 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 use thus adds a further challenge—one that will determine the extent to which progress in the others 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 per student

costs preclude any significant expansion of secondary education, unless countries are ready to accept significant deterioration 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). Changes may include

- Increasing the efficiency of resource deployment in secondary education, resulting in reductions in the cost per student;
- Reorganizing the way junior secondary education (JSE) and senior secondary education (SSE) are provided;
- 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, nonsalary expenditures, boarding policy, infrastructure provision, and the structure of service delivery—may affect total resource requirements. Finally, the chapter examines how secondary education in much of SSA is being financed through a web of public and private resources, and concludes with a summary of the challenges and financing options countries may wish to consider. It is 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

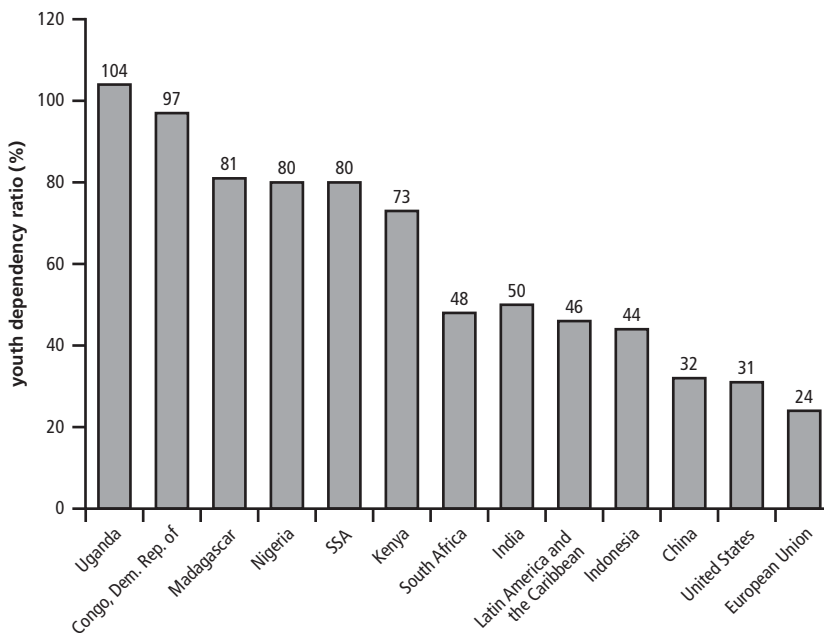
The growth in enrollment in secondary education is a function of the growth of the number of children in each age cohort, the proportion that complete the primary course, the percentage of these who are admitted into secondary education, and their progress through the secondary system. The demand pressure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

MORE PRIMARY SCHOOL GRADUATES

The size of the school-age cohorts is growing on average about 2 percent per year, varying between negative 1.4 percent and positive 5 percent

(Lewin 2008). If secondary enrollment rates remain at their 2002 levels, enrollment will increase by about 35 percent by 2015, solely attributable to the increase in the size of the cohorts of young people. But the increase in primary completion rates¹ that can be expected if the efforts to expand access and retention as part of the Education for All (EFA) and Millennium Development Goal (MDG) programs are successful will have an even stronger impact, resulting in an additional increase in the number of primary school graduates of 145 percent by 2015. The demographic and completion factors together could increase the number of young people completing primary school by more than 2.7 times, from 7.8 million in 2001 to 20.7 million in 2015² (Mingat 2004). Lewin and Sayed (2005) point out the important influence of demographic factors on the financial burden of schooling, which results from the very high ratio of school children to the workforce that generates the income from which the cost of education must be paid, directly or through taxes. This dependency ratio³ is 104 percent in Uganda, 97 percent in the Democratic Republic of Congo, 81 percent in Madagascar, 48 percent in South Africa, and 80 percent for SSA as a whole. (In the European Union, the United States, and China, this ratio is 24 percent, 31 percent, and 31 percent, respectively, as shown in figure 5.1).

Figure 5.1 Youth Dependency Ratio in Populous Countries and Regions, 2005



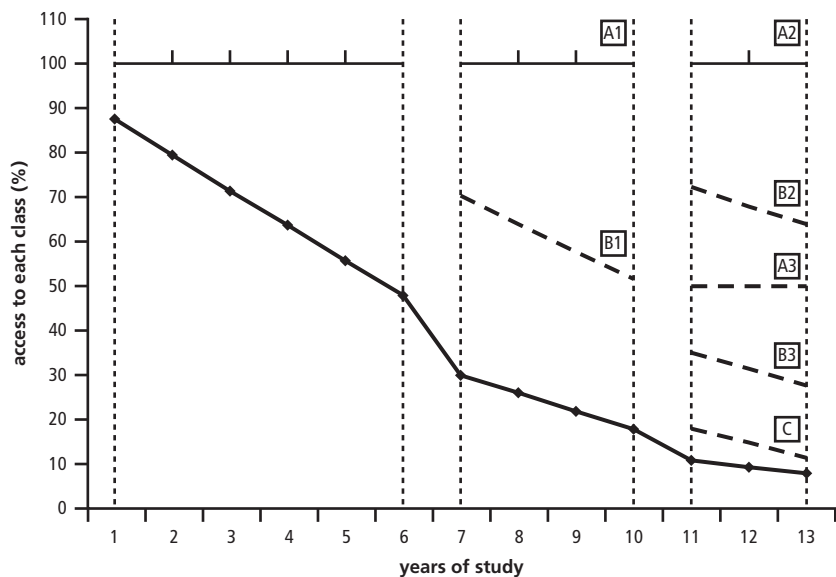
Source: SEIA estimates based on World Bank population data.

EFFECT OF HIGHER TRANSITION RATES

The growth in enrollment 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, and drop-out and repetition rates.

Mingat (2004) models possible scenarios with different transition rates for secondary expansion using 2001 data for a sample of 10 countries,⁴ as shown in figure 5.2. The solid line shows that for the base year parameters, the enrollment rate declines from about 88 percent in grade 1, to less than 50 percent by grade 6, to 20 percent by grade 10, and to 8 percent by grade 13. Scenario A1 illustrates 100 percent completion and transition to junior secondary. Scenario B1 indicates junior secondary participation on the basis of current transition rates but 100 percent completion of primary. Scenarios A2 and A3 represent 100 percent transition from the last year of junior secondary to senior secondary and 100 percent completion. Scenarios B2 and B3 maintain the current rate of transition and completion in senior secondary education for different levels of completion of junior secondary. Scenario C reflects a policy decision to constrain access to senior secondary education. On this basis, Mingat (2004)

Figure 5.2 Scenarios for the Expansion of Enrollment in Secondary Education with Different Transition Rates



Source: Mingat 2004.

calculates the levels of enrollment resulting from 100 percent primary access for different levels of secondary enrollment. He finds that at existing primary to secondary transition rates (63 percent) and 100 percent enrollment in primary, the number of students in junior secondary school would be 3.7 times the number in the base year. Universalizing access would imply multiplying enrollment in junior secondary education by a factor of 6 on average, ranging from 2.4 in Togo to 18.1 in Niger, and in senior secondary by a factor 12, ranging from 5 in Togo to 41 in Niger.

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

- If junior secondary education is to become universal, the total number of primary places needs to be increased by more than 30 percent by 2015 in about 70 percent of the countries in the data set. In some low primary enrollment countries, the number of places will need to increase by more than 80 percent.
- Only 12 countries are likely to universalize junior secondary if the maximum sustainable rate of increase in junior secondary enrollment is 10 percent a year (Botswana, Cape Verde, Ghana, Lesotho, Mauritius, Namibia, São Tomé and Príncipe, the Seychelles, South Africa, Swaziland, Togo, and Zimbabwe); if the maximum rate is set at 5 percent, only five will achieve this goal (Botswana, Cape Verde, Mauritius, the Seychelles, South Africa).
- 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 constant transition rates unless junior secondary enrollment grows an average of 10 percent per year to 2015.
- Rates of growth in secondary enrollment above 10 percent will most often be difficult to sustain. Capital and recurrent expenditures will rise if growth rates exceed 10 percent, unless efficiency gains are found that result in lower costs per student.
- Feasible transition and growth rates will depend on country prioritization of increased access at primary and secondary levels, resources available, effectiveness of implementation of policy reforms, and costs of expansion; yet, in some countries, achievable targets for junior secondary education that are in balance with other sector priorities might have to be set at gross enrollment rates (GERs) of lower than 100 percent.

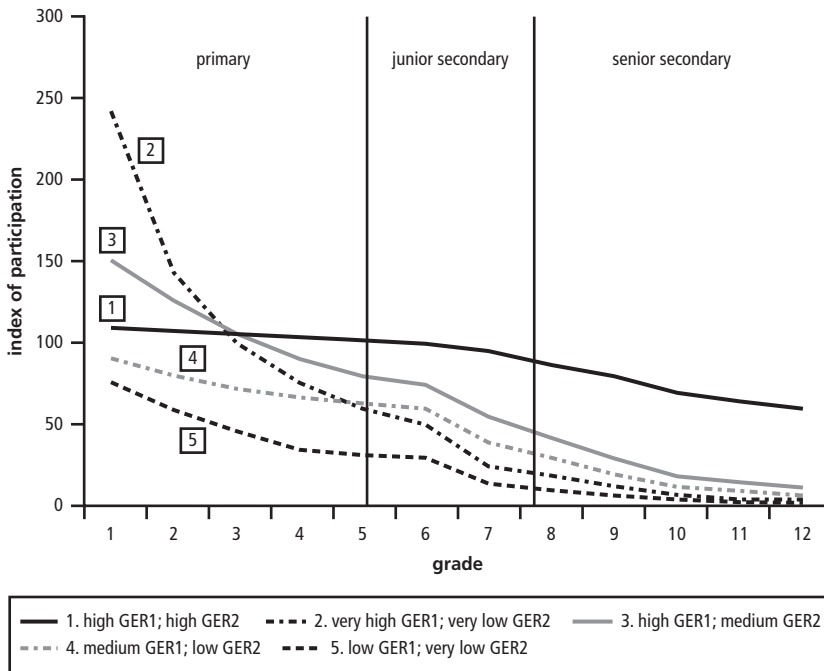
POLICY CHALLENGES: FIVE DIFFERENT SCENARIOS

The summary findings from these analyses hide the extent to which different initial conditions result in very different enrollment challenges. 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, resulting from differing current primary enrollment and completion rates. In some countries, the number of primary school completers in 2015, assuming the EFA target of 100 percent completion is reached, will be less than two times the current level: Uganda (1.7), Ghana and Togo (1.8), Kenya and Malawi (1.9). In others, the number is projected to increase more than four times: Ethiopia (4.1), Sudan and Guinea-Bissau (4.2), Chad and the Central African Republic (4.4), Burundi (4.6), Mali (4.9), Angola (5.0), Burkina Faso (5.6), and Niger (7.9). Projected junior and senior secondary enrollment varies even more, depending on initial conditions and assumptions about transition. Given this large variation in primary enrollment rates, expected increases in the numbers of primary graduates, and current enrollment capacity in secondary education, the policy priorities for education development and the place of secondary education in those priorities will differ dramatically between countries.

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

- The first group comprises Botswana, Mauritius, Namibia, the Seychelles, South Africa, Swaziland, and Zimbabwe. All these countries have high primary GERs (between 95 percent and 114 percent) and relatively low repetition and drop-out rates through the end of junior secondary education. Participation at the senior secondary level exceeds 50 percent, except in Namibia and Swaziland. Countries in this group typically have low levels of over-age enrollment. Most of the enrollment growth this group faces is related to population growth, which is generally low.
- The second group also has high primary GERs (103 percent to 140 percent) but much lower secondary GERs (25 percent or less with the exception of Equatorial Guinea). This group comprises Equatorial Guinea, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, and Uganda. In these countries, primary intake rates are high and enrollment has expanded rapidly, but primary completion rates have remained low because very high drop-out rates persist. If all enrolled in grade 1 reach grade 6, the number of primary school completers will double in most countries in six years. Without major policy reform, it will be difficult, if not impossible, to hold transition rates into junior

Figure 5.3 Enrollment Patterns in SSA



Source: Lewin 2008.

Note: GER1 = primary gross enrollment ratio; GER2 = secondary gross enrollment ratio.

The age-specific enrollment 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.

- secondary in these countries constant, because population growth remains high and retention is improving, resulting in rapid growth in the number of students reaching the end of primary.
- The third group also has primary GERs greater than 100 percent, but these countries have lower primary drop-out rates than the second group. Consequently, more children reach the end of primary to make the transition to junior secondary education, where GERs are 30–40 percent. The group includes Benin, Cameroon, Lesotho, Nigeria, and Togo. High school-age population growth rates will drive future expansion of the primary system. With appropriate reforms, it should be possible to enroll more than 50 percent of school-age children through junior secondary.
 - The fourth group has low primary GERs (between 80 percent and 90 percent) and all have low rates of junior secondary enrollment. Comoros, Republic of Congo, Côte d'Ivoire, The Gambia, Ghana, and Zambia make up this group. They take in about 90 percent 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 that do not undermine efforts to universalize primary education.

- The fifth group has primary intake rates well below 100 percent, significant drop-out rates, and high growth rates of the school-age population. All have primary GERs below 85 percent. Junior secondary GERs are well below 30 percent in most. The group includes Burkina Faso, Burundi, Chad, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Mali, Niger, and Senegal. Unless entry rates increase and drop-out rates come down, the expansion of junior secondary will be constrained by the small output of successful primary completers.

Different strategies will be needed in different countries to reflect these variances in initial conditions. No single strategy would be appropriate for all of SSA. Table 5.1 summarizes the policy challenges that countries in each of these groups will have to address as they strive to balance the

Table 5.1 Priorities for Secondary Education Development

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

Source: Adapted from Lewin (2008).

Note: GER2J = gross enrollment ratio in JSE; GER2S = gross enrollment ratio in SSE.

demands of secondary education with other priorities in the education sector. As efforts to increase primary entry rates and completion rates become successful, countries in groups 4 and 5 may come to resemble those in group 2. Group 3 countries are closer to universalizing primary education and may face a lesser challenge in expanding secondary enrollment to keep pace with increased primary output. Three points are worth highlighting:

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

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

FINANCIAL REQUIREMENTS

Ultimately, the most important determinant of growth in secondary enrollment 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 the current level of public expenditure per student in most SSA countries precludes significant increases in secondary participation rates, especially because parents in the lower income brackets cannot afford the direct and indirect costs of secondary education. The basic arithmetic is straightforward and summarized next.

THE COST OF EXPANSION

In countries where the secondary GER is less than 15 percent (for example, Burkina Faso, Burundi, Tanzania), increases in secondary level participation to, say, 60 percent without reforms would require a quadrupling of allocations to secondary education, which could absorb resources approaching half the public education budget. This expenditure level is unachievable,

especially where there are EFA and Fast Track Initiative (FTI) commitments to protect spending on primary education and to ensure preparation of acceptable quality for further learning.

Lewin (2008) illustrates the magnitude of the financial requirement for secondary education expansion by estimating the funds needed to reach various enrollment targets on the basis of cost per pupil as a percentage of gross national product (GNP) per capita, the number of pupils in the age group as a proportion of the total population, and the desired enrollment rates. Lewin uses typical SSA values for pupil-to-teacher ratios (PTRs), teachers' salaries, nonteachers' salaries, and nonsalary expenditures as a percentage of GNP. On this basis, to increase the primary GER to 110 percent (a level necessary to ensure universal enrollment and completion with 10 percent repetition), and to meet targets of 100 percent GER for JSE and 50 percent for SSE, recurrent expenditures on education would need to be about 8.4 percent of GNP, of which more than half (4.5 percent of GNP) would have to be allocated to secondary education. This percentage greatly exceeds current allocations to secondary education (about 2 percent) and is unlikely to be feasible in many countries. If the per student cost could be reduced to about 20 percent of GNP per capita at junior secondary and 40 percent GNP per capita at senior secondary, the same result could be achieved for a recurrent expenditure on secondary education of slightly less than 3 percent of GNP. This cost is, however, still 50 percent more than current allocations and would require that, in most countries, more than 50 percent of total recurrent education spending be allocated to secondary education. Thus, many countries might have to consider lower targets in the short term.

Table 5.2 shows the resource requirements to meet targets for a junior secondary GER of 60 percent and a senior secondary GER of 30 percent.

Table 5.2 Secondary Expansion Scenario, with GER Targets of Primary 110 Percent, Junior Secondary 60 Percent, and Senior Secondary 30 Percent

Indicator	Primary	Junior secondary	Senior secondary	Other ed.	Total
Pupil-to-teacher ratio	44.0	30.0	20.0		
Teacher salaries (% GNP per capita)	4.6	6.6	9.3		
Nonteaching salaries (% GNP per capita)	0.4	1.5	2.7		
Nonsalary expenditure (% GNP per capita)	0.4	1.5	2.7		
Teacher salaries as percentage of total recurrent	85.0	69.0	63.0		
Total unit cost (% GNP per capita)	12.0	32.0	74.0		
Percentage of education budget on higher education and other education				20.00	
Percentage of GNP needed	2.43	1.73	1.54	1.14	6.84

Source: Lewin 2008.

Without policy reforms, and assuming that 20 percent⁵ of the education budget is allocated to higher education and other smaller subsectors, these targets would require an allocation of more than 35 percent of total recurrent education expenditures to secondary education, as well as allocations equivalent to more than 6.8 percent of GNP for the total education budget—nearly 3 percentage points more than the 2001 SSA average of 3.9 percent (Lewin 2008).⁶ The average for developed countries is lower (5.1 percent). These targets thus seem unrealistic for SSA countries, for which the FTI benchmarks for total government revenue (excluding grants) range from 14 to 18 percent of GDP (Bruns, Mingat, and Rakotomalala 2003). Scenarios that result in resource requirements closer to current levels, about 4.8 percent of GNP, target GERs of 60 percent and 30 percent for JSE and SSE, respectively, and call for lower values for the cost per student as a percentage of GNP—20 percent for junior secondary and 40 percent for senior secondary—and a reduction of the share of higher education and other sectors to 15 percent of the education budget.

This type of analysis provides a sense of the magnitude of the challenge; however, it does not illustrate the considerable variation between countries noted earlier, which also applies to financing issues.

COUNTRY-SPECIFIC PROJECTIONS

Mingat (2004) tackles this issue by projecting resource requirements by country for a sample of 10 countries for 2015⁷ (table 5.3). His analysis is based on two hypotheses for the growth of enrollment: (a) maintaining the transition rate between primary and junior secondary education and between junior and senior secondary at current levels; and (b) gradually increasing the primary to secondary transition rate so that it reaches 100 percent by 2015, while maintaining the transition rate between JSE and SSE at current levels. To these enrollment scenarios, he adds assumptions about the cost per student expressed in units of per capita GDP: (a) the unit cost for junior and senior secondary in each country remains fixed at 2001 levels, (b) the unit cost for junior secondary education in one scenario is fixed at 20 percent of per capita GDP (a value situated in the lower third of the distribution) and at 40 percent in another, and (c) the cost per student in SSE is fixed at 40 percent of GDP per capita in a first case and at 80 percent (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 implies an allocation by 2015 of 1.7 percent of GDP to junior secondary education and of 1.1 percent to SSE, for a total of 2.8 percent

Table 5.3 Recurrent Expenditure by 2015 on Secondary Education: Different Scenarios

Country	First secondary cycle						Second secondary cycle						
	Scenario (a): Maintenance of 2001 primary to secondary transition rates			Scenario (b): Primary to secondary transition rate = 100% in 2015			Scenario (a) plus maintenance of 2001 junior to senior secondary transition rate			Scenario (b) plus maintenance of 2001 junior to senior secondary transition rate			
	2001 UC (as percentage of per capita GDP)		UC at 20% of per capita GDP	2001 UC (as percentage of per capita GDP)		UC at 40% of per capita GDP	2001 UC (as percentage of per capita GDP)		UC at 40% of per capita GDP	2001 UC (as percentage of per capita GDP)		UC at 40% of per capita GDP	UC at 80% of per capita GDP
	2001 UC (as percentage of per capita GDP)	UC at 20% of per capita GDP	UC at 40% of per capita GDP	2001 UC (as percentage of per capita GDP)	UC at 20% of per capita GDP	UC at 40% of per capita GDP	2001 UC (as percentage of per capita GDP)	UC at 40% of per capita GDP	UC at 80% of per capita GDP	2001 UC (as percentage of per capita GDP)	UC at 40% of per capita GDP	UC at 80% of per capita GDP	
Togo	1.47	1.33	2.66	1.80	1.64	3.28	0.42	0.50	1.00	0.52	0.61	1.22	
Cameroon	2.04	1.29	2.59	3.62	2.29	4.58	0.66	0.71	1.42	1.18	1.27	2.54	
Mozambique	0.92	0.85	1.70	1.48	1.37	2.75	2.06	1.15	2.29	3.91	2.17	4.34	
Benin	1.41	1.85	3.71	1.76	2.32	4.64	0.68	0.66	1.33	0.86	0.83	1.67	
Senegal	0.81	1.10	2.20	1.52	2.07	4.15	1.02	0.58	1.17	1.93	1.10	2.20	
Mauritania	2.06	1.04	2.08	3.69	1.86	3.73	0.80	0.94	1.89	1.36	1.61	3.22	
Rwanda	1.61	0.68	1.36	3.88	1.64	3.27	1.40	0.87	1.75	3.33	2.07	4.14	
Madagascar	1.71	1.28	2.56	2.72	2.04	4.08	0.94	0.59	1.17	1.47	0.91	1.82	
Mali	1.97	1.09	2.19	2.95	1.63	3.26	1.81	0.58	1.17	2.70	0.87	1.74	
Niger	2.96	1.21	2.42	4.49	1.83	3.66	1.22	0.31	0.62	1.85	0.47	0.94	
Average	1.70	1.17	2.35	2.79	1.87	3.74	1.10	0.69	1.38	1.91	1.19	2.38	

Source: Mingat 2004.

Note: UC = unit cost.

of GDP; this allocation compares with 2001 averages of 0.75 percent, 0.67 percent, and 1.42 percent,⁸ respectively. Thus, assuming the EFA goal of universal primary completion by 2015 is reached, the influence of “no change” in transition rates is at least a doubling of the share in GDP of public expenditures on secondary education. Increases in transition rates and increases in the cost per student would add to the challenge, while reductions in the cost per student could help mitigate it. A combination of the high cost per student scenario, universal access to junior secondary education, and unchanged transition rates would require 6.12 percent of GDP, more than four times the current share and 50 percent more than the current share of public expenditure for the whole education sector.

The averages mask significant differences between the 10 countries in Mingat’s sample. In Senegal, unchanged transition rates and costs would require an allocation of 1.83 percent of GDP to secondary education, compared with 0.63 percent currently. Maintaining the junior secondary unit cost at current levels and reducing the senior secondary unit cost to 40 percent of GDP per capita (four times the primary level) would reduce the secondary education cost to 1.39 percent 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 percent of GDP on secondary education. But if the cost per student could be reduced to 20 percent of GDP per capita for junior secondary education and to 40 percent for SSE, the same enrollment goal could be reached with an expenditure of 1.52 percent of GDP, compared with 0.59 percent currently.⁹

Countless scenarios could be constructed while using different assumptions about transition rates and unit costs. But two points stand out:

- Initial conditions, in particular the primary completion rate, are critically important because they determine the rate of increase in primary graduates seeking admission to junior secondary. Countries that are already close to the goal of universal completion (Togo, for instance) will find it easier to increase transition rates and to expand secondary enrollment than those that are 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 might make it difficult to maintain primary-to-junior secondary transition rates at current levels.
- The 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 might find it difficult to expand access to secondary education without policy reforms designed to reduce the cost per student.

Many countries are facing difficult choices and trade-offs between the depth of policy reform, progress toward expanded access to secondary education, and the ability to delivery it at an acceptable level of quality. In many instances, enrollment in the short term will have to be set at less than 100 percent for JSE and 50 percent for SSE.

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 GNP per capita, the ability of the government to raise revenue, and the share of education in the budget, as well as by the efficiency of use of teachers, which is indicated by the PTR and class-to-teacher ratio. In a few countries, teacher salaries are too high for secondary education to expand rapidly without jeopardizing the quality of instruction through excessive class sizes and the absence of resources for essential nonsalary items; in others, teacher salary levels are so low that they adversely affect teacher motivation, force teachers to work in second jobs, and cause serious absenteeism. But in most countries, the more important challenge is efficiency of teacher utilization.

TEACHER UTILIZATION AND DEPLOYMENT

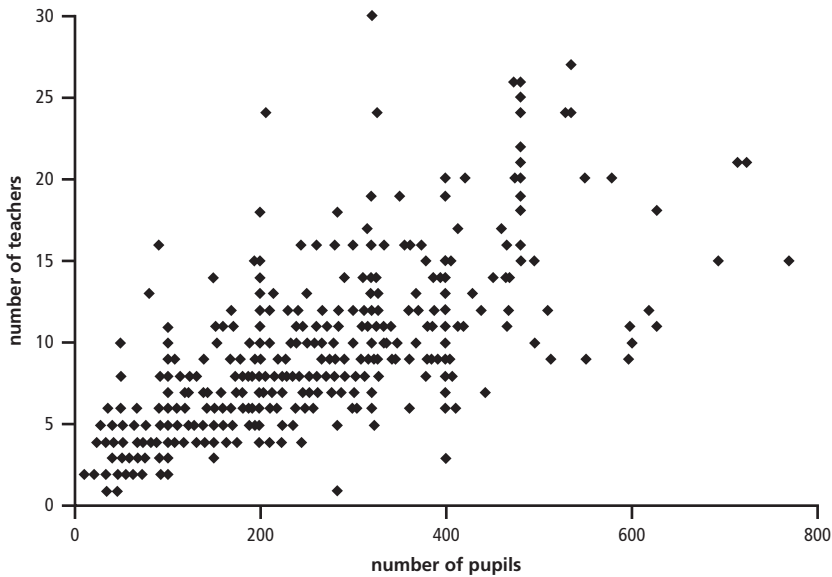
The total salary budget and the effectiveness of these expenditures are determined as much by policies governing the use and deployment of teachers as they are by the level of salaries. Inefficiencies in teacher use can increase the cost per student by causing PTRs and teaching loads to be unnecessarily low. UNESCO Institute for Statistics (UIS) data report PTR 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 important, within countries. National secondary PTRs

Table 5.4 Determinants of Teacher Cost, 2001

Indicators	Primary	Junior secondary	Senior secondary
Pupil-to-teacher ratio	44.0	30.0	20.0
Teacher salaries (% GNP per capita)	4.6	6.6	9.3
Nonteaching salaries (% GNP per capita)	0.4	1.5	2.7
Nonsalary expenditure (% GNP per capita)	0.4	1.5	2.7
Teacher salaries as percentage of total recurrent	85.0	69.0	63.0

Source: Lewin 2008.

Figure 5.4 Disparities in Teacher Allocation in Junior Secondary Schools, Malawi, 2001



Source: Malawi CSR.

vary from 14:1 in the Seychelles and Comoros at the low end to 46:1 in Malawi and 54:1 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, the cost per pupil is likely to be undesirably high.

Within-country differences also can be very large. In Zambia, for example, 22 percent of secondary schools have PTRs below 15:1 and 60 percent below 20:1. In Ghana, 42 percent of senior secondary schools have ratios below 15:1 and 21 percent below 10:1 (Lewin 2008). Figure 5.4 indicates the dispersion in teacher allocation among schools in Malawi. A reduction in the often random variation between schools in PTR is important for reducing 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 percent of secondary teachers are underutilized, teaching on average fewer than 15 hours a week (Liang 2002). In Zambia, typical teaching loads are estimated to be between 15 and 20 periods per week, compared with 36 periods for pupils (Bennell, Bulwani, and Musikanga 2007). In Kenya, teaching loads averaged 13 hours per week for secondary (grades 6–12)

Table 5.5 Teaching Loads (Hours per Week) in Selected OECD and WEI Countries, 2003

Country	JSE	SSE	Country	JSE	SSE
Ireland	22.3	22.3	Jordan	22.5	22.5
New Zealand	24.8	25.0	Malaysia	19.5	19.5
Scotland	23.5	23.5	Paraguay	21.4	24.1
United States	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	Russian Fed.	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, Arab Rep. of	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	21.5
Jamaica	25.0	25.0			

Source: UIS-OECD 2005.

teachers (Rajkumar and Onsomu 2004). Field research by Mulkeen et al. (2007) in six SSA countries¹⁰ found that teachers taught on average 14 class periods per week. In Madagascar and Guinea, teachers surveyed taught between four and eight class periods per week. In Uganda, secondary school teachers typically teach no more than three periods a day; with a school timetable of seven periods, which results in a teacher-to-class ratio that exceeds two (Lewin 2003). In several OECD and World Education Indicators (WEI)¹¹ countries, teaching loads are much higher (table 5.5).

Mulkeen et al. (2007) further show the extent to which teacher deployment at the secondary level is complicated by teacher specialization. Teachers are typically specialists in one or two subjects, and shortages frequently occur in specific subject areas, such as science and mathematics, while others are oversupplied. The researchers find that in Ghana, 40 percent of teachers teach fewer than 18 periods (and almost half of those teach fewer than 11) while about 20 percent 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 enrollment 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 efficient operation. In Kenya, for example, 650 schools (out of a total of 3,800) enroll fewer than

25 students in Form 1 (Rajkumar and Onsomu 2004). In Ghana, 16 percent of senior secondary schools have enrollments of fewer 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 a week, by sharing teachers between neighboring schools, or by establishing 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 22:1 but the average class size is 39 (CIDT 2005). The financial implications can be substantial. In Kenya, for example, a comprehensive reform of several aspects of the teacher deployment policy would allow secondary enrollment to be increased by 50 percent without increasing the number of teachers (box 5.1).

BOX 5.1 INCREASING THE EFFICIENCY OF TEACHER USE IN KENYA

A 2004 World Bank study projected that it would be possible to increase secondary enrollment (grades 9–12) by 50 percent without increasing the number of teachers by

- Increasing the official teaching load to 25 from 18 hours a week,
- Using part-time teachers for subjects that are taught only a few periods a week,
- Increasing class sizes from an average of 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.

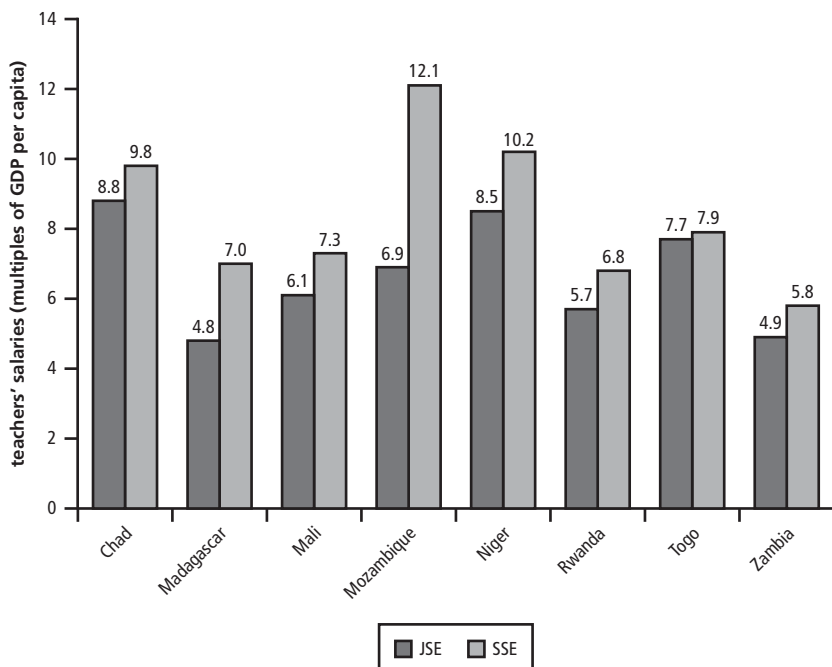
Source: Rajkumar and Onsomu 2004.

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 the primary level, to 6.6 times per capita GDP at the junior secondary level, to 9.3 times per capita GDP at the senior secondary level. The variation around the average is considerable. In Mozambique, the salary of a qualified junior secondary teacher is 13.1 times, and senior secondary teacher with a masters degree 27.2 times, GDP per capita.¹² In the Democratic Republic of Congo, however, these multiples are 3.6 and 3.8. Figure 5.5 provides data for selected countries in SSA for junior and secondary education.

Where teachers' salary levels are a very high multiple of GDP per capita, those levels effectively preclude the expansion of the system at a reasonable level of quality. In these countries, limiting increases in teachers' salaries or recruiting teachers with lower formal qualifications might be unavoidable. Lewin (2008) estimates that a reduction in teachers' salaries from the current SSA averages to 3.5, 4.5, and 6.0 times GNP per capita for primary, junior secondary, and senior secondary, respectively, could

Figure 5.5 JSE and SSE Teachers' Salaries as Multiples of GDP Per Capita, Latest Available Dates (1998–2004)



Source: SEIA estimates based on education sector reviews in CSRs and on World Development Indicators.

generate savings equivalent to 25 percent of the overall education budget, and it could allow the enrollment of many more children without increases in total expenditures. Moving salary levels to these kinds of ratios would generate even greater savings in countries that currently have above-average salary levels.

Discussion of such changes in teacher remuneration policy often raises understandable concerns about the quality of instruction. However, little empirical evidence supports the relationship between teacher salaries and student performance in secondary education in SSA. But at the primary level, research findings from several countries indicate that 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 do perform even better than other students (see Michaelowa and Wechtler [2006] for a summary review).¹³ In most countries—Senegal, for example—these jobs do attract many applicants with strong general education qualifications. In fact, faced with few prospects for modern sector employment, many secondary school graduates 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 percent of the primary teachers are paid by parent teacher associations (PTAs) and work for a salary equivalent to one-third of GDP per capita or less, sometimes as little as 9 percent.

But in many countries, salaries are low and many teachers work additional hours to supplement their salaries. In Lusaka, Zambia, upper basic (grades 8 and 9) teachers employed at “open schools”¹⁴ receive about 2,500–4,000 Zambian kwacha (K) (US\$0.56–\$0.90) per lesson. High school teachers are normally paid K 4,000–5,000 (US\$0.90–\$1.00) per Academic Production Unit (APU) lesson.¹⁵ At schools in Chongwe District, these teachers are paid K 1,000–3,500 (US\$0.22–\$0.78) per lesson¹⁶ (Bennell, Bulwani, and Musikanga 2007). Teachers in open secondary schools are paid up to K 2,500 (US\$0.56) per lesson in addition to their normal salaries. 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 the differential found in other regions. The average teacher salaries of 6.6 times GDP per capita in junior secondary and 9.3 times GDP per capita in senior secondary are, respectively, 1.4 and 2.0 times the

Table 5.6 Beginning Secondary Teachers' Salaries as a Multiple of Primary Teachers' 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, Arab Rep. of	1.00	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 2003.

average salary at the primary level in the same countries. Table 5.6 illustrates the point for a number of mainly middle-income countries.¹⁷ Similarly, in industrial countries there is usually not much difference between primary and secondary salary levels for teachers. On average, the starting salary of junior secondary teachers 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 or more.

The indicative framework proposed by Bruns, Mingat, and Rakotomalala (2003) for primary education suggests a teacher salary of 3.5 times GNP per capita, reflecting the reality that in low-income 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-to-secondary salary ratio is applied to the FTI benchmarks, teachers' salaries of 4.75 times GNP per capita for JSE and 6.25 times GNP per capita for SSE would result.

MANAGEMENT OF SALARY COST

Countries will have to establish teacher pay systems that are in line with national resources. Such systems 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) noted that many of the more promising interventions cost more than governments are willing (and often able) to pay; and policy changes are often controversial and politically difficult to implement in the face of opposition from teachers unions. The main strategies countries are adopting are summarized next:

- *Hiring contract teachers outside the civil service scale.* Several methods are being used to contractually hire teachers. In many countries (Chad, Kenya, and Mali, for example) school management committees or

PTAs directly employ teachers, often at rates considerably below official salary schedules. In other countries, governments are hiring teachers as contract workers rather than as civil servants, often at salaries significantly below the formal salary scale. In Mali, contract teachers and nonpermanent teachers represent 11 percent of the staff in junior secondary schools and 28 percent at the senior secondary level. In Benin, 72 percent of the teachers in public secondary schools are contract or temporary teachers. Senegal and Burkina Faso are implementing similar policies. Even without formal policies, many countries are hiring untrained contract teachers; in Uganda, they represent 15 percent of the secondary teaching force. Experience in these countries suggests, however, 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 preservice training.* Shortening training usually allows the recruitment of teachers at a lower starting point in the civil service pay scale. Mozambique, for example, now trains teachers for junior secondary education in a one-year program after secondary education, instead of a three- or five-year program. This strategy also reduces the cost of training a teacher and concurrently 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.* The assignment of primary teachers to secondary grades typically happens in countries with long (eight years or more) basic education cycles. Examples are Kenya with an eight-year cycle and Zambia with a nine-year cycle. Sometimes, however, such reassignments are forced by growth in secondary enrollment, exceeding the national capacity to train and employ teachers. For example, secondary teacher shortages have forced Mozambique into a situation where 80 percent of the teachers in junior secondary were initially trained as primary school teachers.
- *Granting salary increases that are less than growth in nominal GDP.* Reduction in salary increases 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 the Seychelles fell by 45 percent 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 that do not fully reflect real growth in GDP and government revenue.

In sum, teacher salary and deployment policies are a central part of secondary education development policy. In countries with high teacher salary to GNP per capita multiples, the impact of mitigating salary increases can be substantial. Lewin (2008) models a scenario for increasing the junior secondary gross enrollment ratio to 60 percent (from the current 26 percent). Without reform, such growth would result in an increase in expenditure on JSE from 0.75 percent of GNP to 1.75 percent. Reforms would result in teachers' salaries at 4.5 times GNP (instead of 6.6) per capita and in an increase in the PTR to 35 (from 30). The share of GNP required to finance the expanded junior secondary enrollment would decrease to 1.19 percent. That is, the gross enrollment rate could double with an increase in total education expenditures of a little more than 11 percent. Without reform, education expenditures would need to increase by as much as 25 percent to reach the same goal. Increasing senior secondary enrollment from 13 percent to 30 percent would increase expenditures on SSE from 0.67 percent to 1.57 percent of GNP. With reforms (increasing the PTR from 20 to 25 and employing teachers with salaries of 6 times GNP per capita instead of 9.3) only 0.96 percent of GNP would be required.

In practice, teacher salaries are generally not open to substantial short-term change without labor relations problems. Salaries reflect market conditions, public negotiations and compromises, and historic practice. Meaningful expansion of secondary education will most often require a combination of two factors. First, teacher productivity, measured by the number of students a teacher teaches at an acceptable level of instructional quality, needs to increase faster than salaries. Second, in situations in which teachers' salaries as a proportion of GDP are well over the levels found in high secondary enrollment countries in SSA, some adjustment is needed over a manageable time. If neither is possible, mass secondary enrollment will remain financially unsustainable.

Deployment policies affect the cost per student through class size. In the 1994/95 TIMSS,¹⁸ Hong Kong (China),¹⁹ Japan, the Republic of Korea, and Singapore were the highest performing countries for grades 7 and 8, notwithstanding class sizes that were among the largest of all participating countries: 40 in Hong Kong (China), 36 in Japan, 48 in science and 56 in math classes in Korea, and 33 in Singapore. Woessmann and West (2002) analyzed the effect of class size on student performance in 18 countries that participated in the 1994/95 TIMSS. 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 size (*ibid.*, 29).

Many African countries may wish to consider this suggestion as they reflect on ways to expand access to secondary education of acceptable quality. A teacher policy (a) 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); (b) that is deployed efficiently; and (c) that considers teaching a full load of 25–30 hours to classes of about 40 students is likely to be a key element of secondary education reform packages in much of SSA.

Country situations clearly differ, and each country will need to define a national policy framework that provides for a financially sustainable teacher salary policy and that simultaneously creates an environment conducive to instruction of acceptable quality. In many cases, this approach will require 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. Reform is often difficult, but a no-action strategy in the face of expanding enrollment could lead to the recruitment of large numbers of teachers who are untrained or underqualified or both.

The supply of teachers must also be carefully analyzed. Some countries have a surplus of secondary teachers in the labor market (Uganda and Kenya, for example, where training output has regularly exceeded the supply of new jobs); in others, shortages have been persistent (Malawi and Tanzania, for instance, where secondary output into training has been very constrained). Countries must also consider the availability of secondary school and university graduates who can be trained without 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 of training will be needed (for example, Lesotho and Tanzania). These issues are further discussed in chapter 7.

RECURRENT EXPENDITURES OTHER THAN TEACHERS' SALARIES

The share of recurrent expenditure other than teachers' salaries in secondary education is higher than in primary education (table 5.4): 31 percent

and 37 percent for JSE and SSE, respectively, compared with 15 percent for primary. These expenditures include several different cost categories, such as salaries of nonteaching staff including administrators, instructional materials and supplies, and subsidies to students. Lewin (2008) estimates that, on average, half of expenditures for other than teachers' salaries is for salary expenditures of nonteaching staff, leaving 13.5 percent and 18.5 percent for nonsalary expenditures, or about \$30 and \$95 per student.²⁰ Countries exhibit large variation in these allocations (Mingat 2004), which suggests underfunding 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 sum is likely to be insufficient at the secondary level. Effective instruction at the secondary level, especially in math, science, and information and communication technology, cannot happen without adequate textbooks, reference materials, classroom and school supplies and equipment.

Secondary textbooks, especially at the senior secondary level, are often imported and produced according to 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 are in short supply, and much learning takes place without access to any printed material (Read et al. 2008). 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 often taught under conditions that make effective teaching difficult (Ottevanger, van den Akker, and de Feiter 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. (2008) found requirements ranging from a low of 6 titles to a high of 14 titles for junior secondary. Where there are no nationally approved textbook lists, significant variations in basic requirements can occur 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 or approved textbooks and basic reference books (dictionaries and atlases) is wide, with average textbook prices four to five times greater in some countries than in others. Kenya and Tanzania have relatively low prices while Cameroon,

Côte d'Ivoire, 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. (2008) suggests that a set of books at the junior secondary level might range from \$20 in Tanzania to more than \$100 in Togo. At senior secondary, the range is from \$25 to over \$250. Atlases and dictionaries are additional.

Evidence from Ghana, Kenya, and Tanzania suggests that with careful management a cost of \$4–\$6²¹ per textbook book can be achieved; with a total of six to seven books, this would yield a total cost of about \$40 for a complete set of books, or \$10 per year assuming a four-year lifespan for each book. Even if the per student cost of secondary education came down to 0.2 times GNP per capita for JSE and 0.4 for SSE (see note 22), an allocation of 15–20 percent of the recurrent budget for textbooks and instructional materials would still allow for significant improvements in book availability. However, especially in the lowest-income countries (GNP per capita less than \$400), these improvements will have to happen in conjunction with policy reforms in publishing, procurement, distribution, and school-level utilization—discussed in more detail in chapter 7—as well as with 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 through bulk procurement and distribution to schools or, less commonly, through subsidies to schools, students, or producers. In many countries, parents are expected to purchase books but increasingly are unable to do so. They usually prefer rental or loan schemes that 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 difficult to implement. Such schemes add to the financial burden on schools that are already strapped for funding and are beset with financial management problems (box 5.2). Notwithstanding these challenges, these schemes represent the best opportunity for improving the availability of textbooks in secondary schools, especially when managed at the school level.

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 cannot afford the full complement of required books. In several countries, governments are helping to reduce the burden

BOX 5.2 TEXTBOOK RENTAL SCHEMES IN LESOTHO AND MALAWI

A successful textbook rental scheme and revolving fund for primary school textbooks operated in Lesotho from the early 1980s through 2005, when the government began providing free primary textbooks. A new scheme targeted at junior secondary textbooks was designed and approved by the Ministry of Education in 2004. Junior secondary school textbooks were provided to students on a rental basis with the rental charge fixed at 20 percent of the cost, which is based on a target book life of five years.

In 2000, Malawi introduced textbook rentals and school-based revolving funds for secondary schools with the support of a Danish International Development Agency (DANIDA) education project. The scheme was based on the provision of funds to schools to match the collection of rental fees from parents of students. Rental fees were set nationally, but individual secondary schools were responsible for collection and banking in school bank accounts and for secure maintenance of the accumulated fees. The scheme was designed in close association with local publishing and bookselling associations, and it had a stimulating effect on both parts of the local book trade. It was expected that after five years of matching fund support, schools would have accumulated sufficient funding to order replacements. Donor support ended early in 2002, but the rental scheme continued with reasonable effectiveness simply because it provided lower textbook costs and improved student access to textbooks. In 2006, 85 percent of secondary school students paid their textbook rental fees as part of the total secondary school fee. The 15 percent who do not 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 percent of the collected rental fees cannot be accounted for.

Source: Read et al. 2008.

of textbook purchases (box 5.3), with government support often specifically targeted at the poor, as in Ghana, Senegal, and Uganda. Ultimately, a comprehensive textbook policy framework will be necessary to ensure access to textbooks for all students.

BOX 5.3 EXAMPLES OF COMBINING GOVERNMENT AND PRIVATE FUNDING FOR TEXTBOOKS

- Government funding for textbooks in rural areas; parental contributions in urban areas (Senegal)
- Government funding for “core” textbooks; parental funding for “noncore” textbooks (often unintentional where government funding is only adequate to procure a few books)
- Government funding for safety net supplies; parental funding for the rest (Uganda, Ghana)
- Government or donor funding for the provision of initial book stocks; government or parents who replenish and maintain (Malawi and Lesotho rental schemes)
- Government subsidies to reduce costs to parents (Malawi from 1999 to 2002)
- Harambees from the community to purchase textbook sets for the library to assist poorer parents (Kenya)

Limiting book requirements, reducing the cost of books, implementing school-based initiatives for the rehabilitation of school libraries, rental or loan schemes, and creating used book markets will be necessary to ensure that all students have access to printed materials. These issues are discussed further in chapter 7.

BOARDING SCHOOLS

Boarding schools constitute the majority of public secondary schools in several low enrollment countries (Rwanda, Tanzania, and Uganda, for example) and provide a substantial minority of places in many others (Ghana, for instance). Elective boarding is common, especially in Anglophone SSA; it can double or triple the cost per pupil and thus can result in much lower enrollment rates. In Ghana, the 2002 annual boarding school fee (\$135) charged by secondary schools represented 60 percent of the total student cost at the senior secondary level (Akyeampong 2005). In Zambia, the total per student cost of government secondary boarding schools was four times the cost of day schools (Bennell, Bulwani, and Musikanga 2007). In striking contrast, boarding schools are virtually unknown in Francophone Africa; instead it is common for parents to make informal arrangements with family members to allow students from outlying areas to stay with

them while attending secondary school. The associated costs are borne privately but are certainly much lower than the formal fees.

Boarding traditions often are cultural, dating back to colonial times when boarding schools made sense because of the large catchment areas of the very few secondary schools that existed. Where they have lasted, they are typically perceived as providing superior schooling for the elite. Their costs, however, make them an inappropriate model for mass schooling. Where the costs are borne publicly, boarding schools 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 the not so poor). Transitioning 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 needs to include arrangements for the cost-effective operation of 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; to purchase furniture, equipment, and learning materials; and to provide supporting infrastructure. The costs associated with design criteria and specifications can vary widely but are often high. Meanwhile, rapid increases in student numbers are forcing countries toward emergency solutions. In Mozambique, for example, secondary schools are taking over primary school buildings, whose students are then forced into open air classes or multiple shift arrangements. Double or triple shifting is increasingly common in many countries, including Senegal, Guinea, and Mozambique (chapter 2, box 2.2).

The cost of infrastructure development must be managed with care. Low-cost design and construction is essential, given the number of new places needed in low-enrollment countries. Developing strategies to use buildings more intensively is important: double-shift use of a building, if well organized, can result in significant cost savings. Singapore, a high-income country, did not end double-shift use of school buildings until 2000. As long as the number of hours of effective instruction is not compromised (as it is almost always in triple-shift arrangements), double-shift use of classrooms can be highly cost effective.

Simple, standardized classroom and school designs; strategic construction of specialized facilities; and school mapping can help. But community involvement in the development of infrastructure can play the most important role, especially when the government provides technical support and recognizes the limitations to what the poorest communities can contribute. In Kenya, for example, the government rarely provides 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 varies enormously across countries and may be five or more times the cost of normal classrooms. Yet, little evidence indicates that learning gains are commensurate (Caillods, Göttelmann-Duret, and Lewin 1997). Where costs are high and many secondary schools have no specialized science teaching facilities, lower cost options should be considered. The most obvious is to designate an ordinary classroom for science teaching and to provide it with basic facilities adequate for teaching nonspecialized science. This provision 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 significant cost impacts. A long primary cycle often provides highly effective access at lower cost. It is tantamount to organizing JSE as part of basic education, separate from SSE. Kenya has an eight-year basic education cycle. Zambia has decided to transfer grades 8 and 9 to its primary schools. Madagascar is extending the duration of primary education from five years to seven. Because the cost per student in JSE averages three times that of primary education, delivering part of the junior secondary program in primary schools with cost parameters comparable to (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 restrain salary costs.

Any such reform, however, needs to be planned with considerable care and should include curriculum reforms and teacher upgrading to avoid potential negative impacts on quality. In Zambia (box 5.4), actual reform implementation has been slow, and many schools continue to offer grades 8–12 despite a government policy that aims at a system of eight years of primary and three years of high school. Conversely, the 1985 reform in Kenya toward an eight-year primary course followed by

BOX 5.4 INCORPORATING JUNIOR SECONDARY INTO BASIC EDUCATION IN ZAMBIA

The 1996 National Education Policy stipulated 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; less than 16 percent of high schools have adopted it. Many grant-aided schools want to maintain their pupils from grade 8 to 12 because 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.

Sources: CIDT 2005; Bennell, Bulwani, and Musikana 2007.

four years of secondary education is now well established, although nostalgia for the “olden days” and criticism of the fragmented and vocationally oriented secondary curriculum occasionally leads to calls to revert to the old 7-4-2-3 system (Kivuva 2002).

Ghana undertook 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 families²²) provided 17 years of pre-university education with one that provided all with 12 years, that increased the supply of essential inputs, and that reduced or eliminated public subsidies at the secondary and tertiary levels. 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 ages 15 and above had attended school, compared with 75 percent 20 years earlier. In addition, drop-out rates fell, so completion rates rose: by 2003, 92 percent of those entering grade 1 completed junior secondary school (grade 9). Junior secondary school graduates scored higher than did middle school graduates 15 years earlier, despite the latter receiving 10 years of instruction, rather than 9.²³

Open and distance education programs are parallel delivery systems that offer attractive opportunities to expand access to secondary education at reasonable cost. Self-instructional printed materials replace much of classroom instruction, and the costs for teachers and infrastructure are 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 a regular school and at half the cost per graduate.²⁴ The National Correspondence College in Zambia operated at an even lower relative cost (Murphy et al. 2002). Distance education systems designed to improve the quality of conventional education programs usually result in increasing per student costs because the costs are usually supplemental. The costs depend on the technology used, which can vary from radio instruction to educational television (box 5.5) and to computer and Internet-based learning. Radio-based instruction can be delivered at relatively low cost (\$3–\$8 per student, depending on the size of the audience). Educational television can be effective but requires a large audience to be cost effective, while computer and Internet learning has considerable up-front development, operation, and maintenance costs. While the newer computer-based technologies hold considerable promise, the potential is often not easy to realize; in resource-constrained environments in

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 were enrolled in the program in 2002. 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.

particular, 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 secondary education equivalency programs for adults as well as for instructional and subject matter support for underqualified teachers.

In many countries, the longer basic education cycle provides the opportunity to strengthen students' basic skills acquisition and to postpone the introduction of costly vocational subjects. A recent white paper by 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, 11).

It then 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 also narrowed its curriculum content to focus on these generic skills (Kivuva 2002).

THE HIGH COST OF TVET

The cost of technical and vocational education and training (TVET) institutions is usually a multiple of the cost of general secondary schools. Class sizes are often much smaller, and the cost of equipment, supplies, and specialized facilities is much higher than in general education programs. On average, per student costs in TVET are 134 percent of GDP per capita (the equivalent of the expenditure on 12 primary, 4 junior secondary, or 2 senior secondary pupils [table 5.7]). This cost difference virtually precludes massive expansion of enrollment in TVET, and it reduces the opportunity for many children to pursue secondary education. Moreover, TVET programs have been poorly linked to labor market requirements (Johanson and Adams 2004; Brossard and Amelewonou 2005).

Similarly, considerable evidence, as summarized by Lauglo (2005), shows that offering vocational subjects in secondary schools can be costly. Capital costs in Kenya for vocational subjects were up to 14 times (for a metal work program) the cost of a standard classroom. Total teaching costs (including annualized capital cost) in Ghana were up to 3 times the cost of a general education liberal arts program (mainly because of

Table 5.7 TVET Unit Cost as a Percentage of GDP in Selected SSA Countries

Country	Junior general secondary	Senior general secondary	Technical and vocational
Benin	15.8	56.2	78.0
Burkina Faso	39.0	84.0	—
Burundi	64.0	64.0	—
Cameroon	31.6	37.1	61.0
Chad	26.6	35.8	205.0
Congo, Republic of	12.7	36.8	—
Côte d'Ivoire	35.0	72.0	111.0
Ethiopia	28.2	46.8	284.0
Gambia, The	25.8	166.4	—
Guinea	13.4	17.6	140.0
Madagascar	26.7	64.4	83.0
Mali	26.5	117.1	203.0
Mauritania	39.6	33.8	188.0
Mozambique	22.6	45.5	55.6
Niger	49.0	157.0	—
Rwanda	47.4	64.3	—
Senegal	14.7	70.3	95.0
Togo	22.0	34.1	104.0
Zambia	25.3	21.7	—
Average	30	64	134
Range	13–64	18–156	56–284

Source: Brossard and Amelewonou 2005.

Note: — = not available.

recurrent costs). In Botswana, costs were up to 4 times the cost of a normal classroom. Lauglo (2005, 44) concludes:

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.

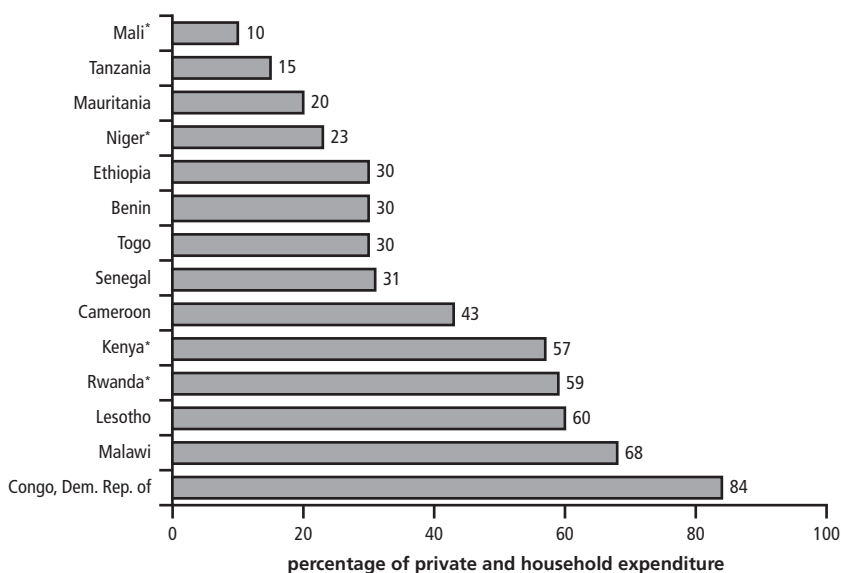
There are also real limits on the demand side. Uganda's Community Polytechnics not only are high cost but also have failed to attract significant numbers of primary school leavers and are the most recent in a line

of failed attempts at TVET. Given these experiences, in conjunction with the longer basic education programs discussed earlier, specific technical and vocational training is increasingly being postponed to the senior secondary level in formal and nonformal school settings. This is consistent with the recommendations of the review by Johanson and Adams (2004), who emphasized the importance of strong basic skill acquisition for high-quality TVET, as well as a diversity of delivery modes and financing arrangements.

FUNDING SOURCES

Parents are an increasingly important source of funding for secondary education (figure 5.6). 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 is significant. In Zambia, for instance, education amounts to about 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 (Bentaouet Kattan and Burnett 2004).

Figure 5.6 Private and Household Expenditure on Secondary Education in SSA Countries, Latest Available Dates, 1998–2004



Sources: SEIA estimates based on education sector reviews in CSRs 2001–06 (see appendix A), Lewin and Sayed 2005; World Bank 2003, Latham 2005.

*Excludes public capital expenditure.

In many countries, public and private spending are inextricably mixed because parents buy textbooks, pay fees, and build classrooms, while the government pays most teacher salaries and provides some supplies for government schools. In public schools in Uganda, Tanzania, and Zambia, more than half the total costs per student are financed through fees and other parental contributions (Lewin 2008). In other countries, the 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 the condition that the school owner build one classroom within a year for each one constructed with government funds (World Bank 2001a).

In 1996, Zambia established Academic Production Units (APUs) for students who cannot find regular places. APUs are fee-paid afternoon sessions run by teachers (who participate on a voluntary basis to supplement their income) on school premises (see chapter 2, box 2.3). In Côte d'Ivoire, much of the expansion in secondary enrollment has been accommodated by private sector enrollment of students who benefit from publicly funded scholarships (Bih et al. 2003). In Kenya, virtually all physical facilities for government secondary schools are funded by parents. In Chad, half the teachers in junior secondary schools are community teachers paid mostly by parents (Chad Country Status Report [CSR]).²⁵ In Benin, the majority of teachers in junior secondary schools are local contract teachers paid by Parent Teacher Associations (PTAs). In Zimbabwe, during the rapid expansion of secondary education after independence, parents paid for infrastructure, for part of the instructional materials, and for teachers who were hired in addition to those provided by the government (box 4.7). In the Democratic Republic of Congo, parents pay more than 80 percent of the cost in both private and public secondary schools (Democratic Republic of Congo 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 Ghana and Kenya. Fee income retained at the school level can help finance higher levels of enrollment and can support greater availability of learning materials. Diversifying sources of funding by building partnerships with private (nonprofit and for-profit) providers has allowed several countries to expand access, even under resource constraints (Vawda and Patrinos 1999).

Yet, the high level of privately borne costs is clearly a barrier to the enrollment of students from poor families. The central issue is whether

Table 5.8 Secondary Education Annual Fees in Three SSA Countries

Country and school type	Public (US\$)	Private (US\$)
Ghana (2005)		
JSE urban	2	45
JSE rural	3	—
SSE urban with hostel	13	69
SSE rural with hostel	18	—
Kenya (2005)		
National	344	
Provincial	291	66–6,618
District	132	
Cameroon (2001)		
General secondary	7	183
Urban		115
Rural		66
Technical secondary	127	273
Urban		179
Rural		100

Sources: Akyeamong 2005; Latham 2005; World Bank World Development Indicators and Global Development Finance (for exchange rates).

Note: — = no schools reporting data.

fees and other payments are affordable by poor households and what effects they will have on participation. Lewin and Sayed (2005) in a study of nongovernment secondary schools in Malawi and South Africa, relate fee levels to household income data and conclude that poverty may exclude many families from participation at the secondary level in full-cost nongovernment 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 of students. The same might be true for public schools that expect parents to make substantial fee payments. In Malawi, the effect is so strong that few outside the richest 20 percent of households can afford to participate. In Ghana, SSE is out of reach for the poorest 60 percent (Akyeampong 2005). In Uganda, “high cost” was the most important reason (70 percent) for dropping out of secondary school (Liang 2002). In both Uganda and Tanzania, those outside the top 25 percent of income will not be able to afford unsubsidized secondary schooling (Lewin 2008).

A balance has to be struck between encouraging private and community contributions to these activities, and ensuring that the contributions

Table 5.9 Public-Private Financing Schemes in SSA

Country	Mechanism
Botswana	Matching-grant schemes
Chad	Community financing
Côte d'Ivoire	Government sponsorship of students at private institutions
The Gambia	Targeted scholarships, capitation grants for all students
Kenya	Vouchers 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 scholarships for secondary school girls

Source: Latham 2005.

do not constitute an unreasonable additional burden on poor households. The balance can be achieved by charging fees, but selectively waiving them for poor households or providing direct scholarships for 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 approaches need to be developed further, but they will need to be linked to the capacity of households to support fees and contributions so as not to become exclusionary. As previously noted, where the private costs 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.

Subsidies to students through the provision of subsidized boarding or scholarships for tuition and other fees are justified to the extent that they benefit qualified low-income students. Too often they are not effectively targeted (or not targeted at all) and become a subsidy to students from better-off families that typically dominate enrollment 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 percent of secondary education expenditures are for scholarships, “disbursed with scant regard to any criteria related to performance or qualification of the candidate” (World Bank 2000, 60). Côte d'Ivoire, however, 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 the provision of scholarships will be an important element of secondary education development in many countries.

BOX 5.6 TARGETED PUBLIC SUPPORT FOR PRIVATE SCHOOLING IN CÔTE D'IVOIRE

Côte d'Ivoire has a long-standing policy of public support for private education, by outsourcing part of the 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 junior secondary schools \$200 and private senior 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—in both public and private school attendance—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 is more so for private schools.

Source: Sakellariou and Patrinos 2004.

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—reforms that result in significant reductions in unit costs²⁶—access to secondary education cannot be accelerated while maintaining acceptable quality. Several key points are important to highlight.

The *resource environment* for the development of secondary education in SSA is unlike the one faced by industrial 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 per capita.
- 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.

In most countries, the expansion of access will not be possible unless the *cost per student* comes down, which will mean considering more efficient deployment of teachers by

- Increasing PTRs, class sizes, and the contact hours of teachers while reducing teacher-to-class ratios
- Bringing, where necessary, teacher salary levels in line with the national resources available
- Reducing publicly funded boarding expenditures by limiting access provided at public expense only to poor students from remote and sparsely populated areas
- Managing the cost of infrastructure carefully
- Targeting scholarships on the basis of need and demonstrated academic performance.

These cost reduction measures will often need to be combined with policies designed to ensure an *adequate supply of inputs*, particularly textbooks, essential for a school environment to provide meaningful opportunities to learn.

Countries will need to take a hard look at the *structure and organization of the systems* 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.

More public resources will be necessary to meet the goals of rapidly expanding junior secondary education and gradually developing the senior secondary level. In most countries these resources will have to be

generated by *accelerating economic growth* and by increasing the growth of government revenue. However, only in a few countries will public efforts be enough. Governments will need to create an environment in which *public and private resources combine* to support secondary education.

Financing secondary education development will require *hard choices and trade-offs* reflected in sectorwide 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 past 10 years are not undermined by losses in quality or access
- Ensure that secondary school teachers' salaries are aligned with teachers' productivity and national resource availability
- Establish investment criteria that recognize that high-cost TVET cannot be provided to many students without denying others access to the secondary level
- Address nonfinancial constraints to growth, including teacher training capacity and lead times for developing infrastructure and learning materials.

The diversity in country conditions makes it imperative for each country to design its own national strategy for secondary education development. A careful review of policy options and the experience of other countries in the Africa region is an important first step, but it cannot substitute for a diagnosis of country-specific challenges and the identification of politically feasible and financially sustainable policy options.

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

Many options for reform will be controversial and may 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 implications is an urgent priority.

NOTES

1. The proportion of children of official graduation age who complete primary education; in practice, this proportion is calculated by dividing the total number of nonrepeaters in the last grade of primary by the total number of children of official graduation age.

2. In the 33 low-income countries (GNI less than \$885) in SSA.
3. The proportion of children ages 0–14 compared with the population ages 15–64.
4. Benin, Cameroon, Madagascar, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, and Togo.
5. Sector work indicates very wide variations in higher education allocations, from more than 40 percent to below 10 percent. Brossard and Foko (2006) find that the median allocation is situated around 20 percent. Expenditure on central and decentralized services is often not allocated by level. Allocations to subsectors other than primary, secondary, and higher education vary widely between countries. Generally, they absorb small proportions of the total education budget.
6. The UNESCO EFA Global Monitoring Report (GMR) (2005) gives a median of 3.4 percent of GNP for education expenditure across an incomplete data set. For countries with GNP per capita below \$1,500, the average is 3.9 percent. The UNESCO GMR 2006 reports a median level of expenditure of 4.6 percent.
7. Benin, Cameroon, Madagascar, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, and Togo.
8. These are the SSA averages estimated by Lewin (2008).
9. In 2002 in Niger, the cost per student in JSE was 66,344 CFA francs (49 percent of GDP per capita) and in SSE was 213,969 CFA francs (157 percent of GDP per capita) (Nigeria CSR).
10. Ethiopia, Ghana, Guinea, Madagascar, Tanzania, and Uganda.
11. See note 6, chapter 3 for a summary description of the WEI project.
12. 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.
13. This evidence mainly refers to high-cost Francophone countries; in fact, contract teachers' salaries are equivalent to or better than regular teachers' salaries in many Anglophone countries.
14. 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, Bulwani, and Musikanga 2007).
15. APUs exist in one-third of all government high schools and are officially sanctioned and regulated by the Zambian 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).
16. In 2005, US\$1 = 4,464 Zambian kwacha (World Bank World Development Indicators and Global Development Finance).
17. These are countries participating in the UIS/OECD WEI program.
18. Trends in International Mathematics and Science Study; see chapter 2, note 6.
19. Hong Kong (China) grade 8 science students were 17th out of 40 participating countries.
20. Based on per capita GNP of \$745 (current 2005 dollars, World Bank) for SSA and a unit cost of 0.3 times GNP per capita for JSE and 0.7 for SSE. If

unit costs were to come down to 0.2 and 0.4 times GNP per capita, the amounts available for nonsalary recurrent expenditures would come down to \$20 and \$55 for JSE and SSE, respectively. For countries with per capita GNI of \$400, the amounts would, however, be only \$15 and \$30.

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

22. Children from 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, with most of the rest coming from the fourth year of middle school.

23. However, the scores of secondary school graduates do not reach the levels of the much smaller group of secondary graduates in 1987.

24. Chronic underfunding of the program in the late 1980s led to poor quality and its ultimate collapse and to integration into the regular system of the study centers at a very low level of quality.

25. The CSRs consulted are listed in appendix A to this book.

26. In OECD countries, the ratio of secondary recurrent to primary recurrent unit costs is always less than 2:1 and is often below 1.5:1. Where the recurrent unit cost ratio is more than about 3:1, it becomes difficult, if not impossible, to universalize secondary education using domestic resources. Averages for SSA are around 3:1 for junior secondary and 6:1 for senior secondary (table 5.6).

Quality and Relevance of Curricula, Assessments, and Examinations

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

The pressures of participation in an increasingly competitive global economy are changing expectations worldwide of what graduates of secondary education and training programs should know and, most important, be able to do.¹ In middle- and high-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 labor markets that increasingly require the capacity to acquire new knowledge and skills, the readiness to take initiative, and the ability to contribute to innovations in products and processes. Asian and Latin American countries—the Republic of Korea, Singapore, Thailand, Vietnam, Argentina, Chile, Costa Rica, and Mexico, for example—have reformed their secondary education and training systems, focusing on the quality and relevance of learning outcomes. Secondary education and training is also increasingly recognized as an indispensable tool for providing adolescents with key skills and competencies to become productive citizens, capable of leading healthy lives and contributing to development in their communities. Secondary education reform has been high on the agenda in many Organisation for Economic Co-operation and Development (OECD) countries for several decades.

Sub-Saharan Africa (SSA)—like other regions of the world—is confronted with the need to respond to the demands of economic

growth, to competitiveness in the world economy, and to changing social demands. A sustainable financial framework for secondary education development (chapter 5) is necessary, but not sufficient, to deal with these challenges. Establishing the human capital foundation for economic competitiveness and strengthening the social capital necessary for the effective functioning of society are equally important. Changes in curriculum content, examinations, and assessment strategies are essential complements. The priority should be ensuring the relevance of 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 evolution of science and technology and new applications of information and communication technology (ICT) need to be reflected in the curricula. In addition, far-reaching changes in curriculum content and instructional strategies are required if secondary education is to provide real opportunities to learn to a much larger proportion of the age group, many with socioeconomic backgrounds and aspirations markedly different from those of 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 important, “learning to know” and “learning to live together” (UNESCO 1996) are curriculum priorities that no country can ignore.

A relevant and well-designed curriculum is 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 ensuring that students acquire the knowledge and the skills specified in the curriculum, as discussed further in chapter 7. This chapter reviews global trends in curriculum reform and in related examination and assessment practices in SSA, as well as priorities for change. Curriculum issues are local by their very nature; the general trends discussed in this chapter will not apply in all country situations.

GLOBAL TRENDS IN SECONDARY EDUCATION CURRICULUM CONTENT

Most middle- and high-income countries have legislated compulsory education up to age 16 and implemented a combination of curricular, structural, and management reforms (box 6.1). Basic education usually starts at age five with preschool and continues through junior secondary

BOX 6.1 TRENDS IN SECONDARY EDUCATION REFORM 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 improving 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 lifelong learning programs.
- Using and integrating ICT as learning and teaching tools, including specific teacher training for using ICT as a pedagogic tool, and (separately) developing ICT as a self-standing subject to provide all secondary graduates with basic ICT skills.
- Developing general skills for further study and faster integration into the world of work, including the ability to (a) use and apply communication and information, (b) apply basic mathematics and science principles, (c) have a working knowledge of at least one foreign international language, (d) develop a problem-solving attitude and competency, (e) work in groups, and (f) 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 as a part of the basic education cycle. Most SSE is a mix of vocational and academic education, with considerable variation in emphasis between countries.
- Promoting flexible, integrated, and innovative networks of providers who are committed to achieving ambitious new goals. The goals often use 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: Authors' review of education and training Web sites of several OECD countries.

education (JSE). The traditional JSE subjects (there are about 12–15) have been repackaged and streamlined within a basic education cycle of about nine years.

JSE examinations have been redesigned to function as instruments that guide and encourage students to select a pathway at the senior secondary education (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 to provide students with targeted learning support. As a result, junior and senior secondary education have become quite distinct. In most countries, JSE today is part of an integrated basic education foundation curriculum, emphasizing generic skills and competencies. SSE is explicitly focused on the preparation of students 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 compulsory school age, which most often ends with JSE. These incentives stimulated many 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 this level are usually highly diversified, with a large number of institutions and providers offering opportunities for further learning.

Current reforms are aiming to ensure that the senior secondary cycle is better connected to the demands of society and the economy. Rapidly changing technology and the pressure of competitiveness in an increasingly open world economy are changing skill requirements in the workplace. Different jobs are being created at a faster pace. This change requires more, better, and differently skilled graduates from secondary education and training institutes. The general trend is toward 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 has shifted to specialized training institutes. SSE curriculum content now puts greater emphasis on core knowledge, and teacher support systems have been strengthened. Concurrently, more-flexible pathways have been created, resulting in study tracks that allow students to select a group of subjects related to specific academic interests or professional career areas while students are provided with better professional guidance. For students, this emphasis

BOX 6.2 PROBLEM SOLVING AS A KEY COMPETENCE IN THE SECONDARY CURRICULUM

Denmark, Hong Kong (China), New Zealand, and Queensland (Australia) all specified problem solving as part of their curricula. The New Zealand Ministry of Education further broke down 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, 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, Ottevanger, and van den Akker 2008.

translates into better opportunities to explore the transition from school to work, even though in most OECD countries, half to three-quarters of students continue to further learning, often combining work with study.

ICT is an increasingly important part of curricula. 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 it is now incorporated within 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 taught at primary and junior secondary levels in an integrated manner. Most OECD countries (and Asian middle-income countries) are struggling to keep ICT curriculum content up to date and linked to labor market demand. Many students select subjects that can get them entry into postsecondary studies related to technology in the areas of health, entertainment, office technology, and laboratory technology. Therefore, the curriculum content

for ICT at the SSE level is kept general, but in many cases with specific emphasis on certain job groups.

New technologies also are changing the way teaching and learning take place. Instructional strategies increasingly rely on technology tools for information and for data management to help students develop understanding and construct knowledge, instead of rote learning and memorization. Technology also provides teachers with access to effective pedagogic instruments and instructional practices. Many countries now have professional services and Web sites that support teachers in 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, to be more productive, to easily transfer from school to work, and to take preventive action against social ills. The stakes for reform at the SSE level are high, as measured by private economic and social pay-offs for the individual and for national economic growth. These high stakes drive OECD countries to constantly reform and renew 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 senior secondary level, along with more academic subjects, through institutional cooperation between “vocational colleges” and more traditional secondary schools. In Denmark, Ireland, and the United Kingdom, senior secondary schools are becoming more specialized, offering one or two programs in which they want to excel. At the tertiary level, universities and specialized training institutions have begun to offer more diverse vocational training, in many instances with private sector support and collaboration. In the United States, community colleges are major providers of technical and vocational training; a flexible organizational structure allows them to quickly adapt to changing labor market demands. Chile has implemented major reform to secondary education, thus 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).

EXAMINATIONS AND ASSESSMENTS

The quality and relevance of learning and teaching in secondary education is intricately linked to curriculum and to examination and assessment policies and practices. Traditional high stakes examinations were

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, to respond to the needs of a more differentiated student body that resulted from the rapid expansion of coverage, and to establish different and higher standards. A common curriculum was developed for grades 9 and 10 that all schools, general as well as vocational, had to follow. During the final two years (grades 11 and 12), both vocational and general secondary schools combine general and specialized education. The more than 400 specialties in vocational and professional schools were reorganized into 14 economic sectors with 46 specialties. These new specialties are now offered to students who have completed a much more robust 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 redesign is expected to allow students to adapt their skills in reaction to rapidly changing technologies and occupations. The content of the subject matter was changed to emphasize skills and competencies rather than content knowledge, to establish higher standards of achievement, and to ensure relevance by pursuing connections to students' lives. University entrance examinations were redesigned to be curriculum referenced.

Source: Cox 2004.

designed to select academically high-performing students for further education. In fact, they often measured teacher performance rather than student ability, and they discriminated against students from families with lower socioeconomic status. Efforts in OECD and Asian countries (the Republic of Korea, Singapore, Thailand, and Vietnam) to improve the quality of secondary education and training systems have focused not only on revamping curricula but also on restructuring national examination systems, on introducing national assessments, and on 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 that affects the interests of major stakeholders (parents, teachers and other school staff, teachers unions, employer organizations, religious authorities, and other civil society special interest groups).

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, examinations have certification and diagnostic functions, 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 of entire education systems, or of clearly defined parts (for example, grade 4 pupils or 11-year-olds). The centerpiece of an 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 most obviously in that they have to be designed to allow administration in more than one country. They provide some indication of how the achievement of students in a country compares with the achievement of students in other countries.

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

Source: Kellaghan and Greaney 2004.

The success of reforms to secondary education in most OECD countries has generally depended on reaching consensus during national debate, because the stakes for families and students are high.

In OECD countries, examination systems today support the goal of keeping students in the system rather than selecting them out. This

approach requires ensuring that tests discriminate effectively over a wide range of achievement, rather than simply indicating pass or fail. Significant restrictions on repetition practices were introduced, and automatic access to JSE and SSE has become common, although a diagnostic assessment of students at the end of primary and JSE often remains as a guide for study choices at the next level. The concept of passing or failing has largely disappeared as examinations focus more on what students know rather than on tripping them up. Thus, a greater variety of skills with an emphasis on understanding and problem solving are tested, and norm-referenced papers have been replaced by criterion-referenced papers. The examination no longer drives curriculum construction, but it is responsive to a set of curriculum-based standards indicating clearly what should be tested.

In all OECD countries, the need to better monitor the quality and efficiency of performance outcomes 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 such as the Programme for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS), and Progress in International Reading Literacy Survey (PIRLS).² The OECD's PISA and TIMSS assessments have become widely accepted international comparative tools for measuring the quality of education system outcomes, including assessment not only of student performance but also of teachers' skills and students' backgrounds. The results have captured the interest of politicians, education authorities, and parents. The results of PISA 2006 received wide attention in the press³ and were followed by political announcements in several countries of secondary curricula restructuring and other measures to improve quality. National assessments are also gaining importance as indispensable instruments to complement education monitoring and information systems, monitor systemwide progress in student learning over time, and allow identification and analysis of causes for success and failure. The results from these assessments stimulate debate on education quality in the participating countries.

Examinations and assessments can cripple a curriculum, or they can drive and steer it. Most secondary teachers, principals, parents, and politicians judge educational success by examination results. Secondary schools and teachers 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 United States with Adequate Yearly Progress reports required by the No Child Left Behind Act. Assessments and examinations have multiple uses and consequences for curriculum

development and implementation. Successful execution of education reform hinges significantly on these measurements.

THE LANDSCAPE OF SECONDARY EDUCATION CURRICULA IN SSA

Most countries in SSA have maintained traditional secondary education systems for their elite, admitting a small, privileged proportion of students through selective, high stakes examinations. Teachers and school officials explain these restrictive practices with the quality-assurance argument: strictly controlled access ensures that students who are admitted are well-prepared and are able to master the curriculum. Simultaneously, SSA governments are becoming increasingly concerned about large numbers of primary school graduates who fail to enter secondary school. For students who were not admitted into the elite academic streams and institutions, 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 generally supply driven, costly, and poorly related to labor market demands. They typically enroll few students and do little to respond to the increasing demand for access to postprimary 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 examinations do so reliably; even when they do, poor and rural students are disadvantaged by their inadequate academic preparation, unfamiliarity with examination procedures, and inability to influence the process with illicit means. Exacerbating these problems is the practice of establishing pass rates on the basis of average grades, which provides a strong incentive for students to select easy subjects (for example, Bible studies) instead of hard ones (math and science). Reform has been difficult because the desire 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 from 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, several 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. The process swells the number of students in the final grades of primary,

junior secondary, and senior secondary education, because 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, because many 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 disproportionately denied access and excluded from leadership positions. Everywhere, more and more students sit for entrance examinations to secondary schools and universities. However, without concomitant increases in places at the next level, the result will be higher grade requirements for selection and declining admission rates. Thus, examination results are often announced amid considerable public criticism and the expansion of access to secondary education has become a “hot” political issue.

REFLECTING THE LEGACY

African secondary education systems still exhibit features inherited from a colonial past. Surprisingly little change has taken place in curricula, assessments, and examinations at the secondary levels in SSA countries (Lewin 2008; Kellaghan and Greaney 2004). Most still have curriculum structures and examination systems that reflect the way secondary education in France and the United Kingdom was organized in the 1970s and 1980s. Although many SSA countries have attempted to launch reforms to secondary education since the 1980s, systems have been resistant—teachers and parents are often much less ready to adopt innovations than are curriculum specialists—and many African educators consider the impact at the school and classroom levels to have been marginal.⁴ Many Anglophone secondary education systems in Africa continue to use the General Certificate of Secondary Education and its predecessor, the O- (Ordinary) levels, from Cambridge or other UK institutions under license, as in Botswana, Mauritius, Nigeria, Tanzania, and Uganda. At the SSE level, the UK AS- (Advanced Supplementary) and A- (Advanced) levels are also used widely.

Most SSA countries have developed localized curricula and examinations, or they 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 (Cambridge International Examinations) 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. South Africa reestablished a quality assurance board for secondary education; in 2005, it compared its examination questions to Scottish standards when increases in pass rates in 2003 over those in 2000 raised concerns about a possible decline in standards.

In Francophone SSA countries, French curriculum structure, content, and related examinations still exert considerable influence. French secondary education provides seven years of schooling (four plus three). Junior secondary education, the *collège*, leads to the Diplôme National du Brevet, which is based on an examination in six or seven 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 through formal and informal exchanges of practices between the academics of the African countries and their French colleagues.

Student selection for entry in the senior secondary cycle is regulated on the basis 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 in France. Because the number of places in tertiary education is limited, the selection for admission to the *baccalauréat* exam and the success rate are strictly regulated. A key issue is the imbalance between the 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, enrollment 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 continues into higher education and post-secondary training programs.

Similarly, systems in Mozambique and Angola resemble those in Spain and Portugal, and those in Ethiopia and Eritrea resemble 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

In much of the region, progress toward expanding secondary education and adapting curricula to the demands of the 21st century have been slow, but there are exceptions. New organizational structures and curricula have begun to emerge. Appendix B shows the different ways education systems in SSA are structured. In an increasing number of countries, JSE is

considered part of a basic education cycle of 8–10 years, with—ideally, but rarely in practice—a unified curriculum and a school environment that sharpens and extends the basic knowledge and skills acquired during primary education. Consistent with this view, several countries have extended the duration of their primary cycles. Mali, for example, created a two-part basic education course, *enseignement fondamental*, in 1962. That course covered a first cycle of six years and a second cycle of three years, but enrollment in the second cycle always remained low (GER in 2004 was 30 percent). Kenya has a primary cycle of eight years, followed by a four-year secondary cycle. Madagascar decided to lengthen its primary cycle to seven years from five starting in 2006/07. It is now sequentially restructuring its junior and senior secondary cycles (Ramanantoanina 2008). Zambia is integrating grades 7 and 8 into a nine-year basic education cycle. Nonetheless, most African countries still have a three- or four-year junior secondary cycle, followed by a senior secondary cycle of about three years. The SSE level often provides a specific job training option if the academic route is closed as a result of exam failure. The total secondary cycle in most African countries is six to seven years, resembling the general practice in OECD countries.

Change at senior secondary schools is mainly linked to the creation of differentiated vocational and academic opportunities for education and training. The landscape of SSE is varied and, in many SSA countries, is dominated by a large number of providers and sponsors. Several countries—Mali, Mozambique, and Zambia—for example, are implementing important reforms to their traditional state-dominated training systems. In many countries, however, secondary education curricula still reflect the role of senior secondary schools as preparation and selection for university entry. This selection role produces inefficiencies by reducing the number of graduates and by fueling high drop-out rates. Alternative opportunities for education and training in SSE are sometimes regarded as inferior, primarily because few opportunities are available to transfer back into the academic mainstream or to enter tertiary technical and vocational education and training programs.

RENEWING CURRICULA

Botswana, Mauritius, Namibia, and South Africa have started significant reforms to their JSE and SSE curricula and examination systems. Other countries—Madagascar and Ghana, for example—are revitalizing stalled reform processes. Ethiopia, Kenya, Senegal, Tanzania, and Uganda have implemented several rounds of secondary curriculum reform, although

these reforms did not fundamentally change JSE curriculum structure. Notwithstanding these efforts, most countries in SSA are still searching for a model of secondary education and training more closely connected to African realities and development priorities. Issues that need to be reflected upon are related to what outcomes governments and societies expect 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 to rapidly evolving economic development priorities.

Curricula are designed to provide frameworks for teaching and learning. They typically specify the skills, performance, attitudes, and values that pupils are expected to learn from schooling and may include the statements of desired pupil outcomes, the descriptions of materials, and the planned sequence that will be used to help pupils attain the outcomes. In reality, what the curriculum specifies that students should learn, what teachers teach, and what students actually learn often vary considerably (box 6.5). What students learn is influenced not only 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

BOX 6.5 DIFFERENT CONCEPTS OF CURRICULUM

There are many varied definitions of curriculum on a continuum that ranges from a narrow 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:

<i>Ideal curriculum</i>	Original vision underlying a curriculum
<i>Formal curriculum</i>	Specified curriculum documents, including teacher guides and student materials
<i>Perceived curriculum</i>	Curriculum as interpreted by its various users
<i>Operational curriculum</i>	Actual instructional processes in classrooms
<i>Experiential curriculum</i>	Actual learning experiences of students
<i>Attained curriculum</i>	Resulting learning outcomes of students

Source: Leyendecker, Ottevanger, and van den Akker 2008.

level is comparatively high: 965 hours (Benavot 2004). The time-on-task is, however, reported to be much lower for several reasons: tardiness or absenteeism of students and teachers, discipline, and learner-attention problems; a multitude of extracurricular activities; and shortages of classrooms. Chisholm et al. (2005) suggest that in South Africa, teachers spend only 46 percent of a 35-hour week teaching, much less than the expected range of 64–79 percent. In many countries, administration of exams leads to the suspension of classes and reductions in instructional time. Moreover, available instructional time 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 cover only those parts that they expect to be on examinations.

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, stronger relevance, and higher learning standards. Central to 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 before leaving the system. Without having clearly defined exit skills, instructional objectives and strategies at the next level are difficult to define. Exit skills translate directly into “graduate profiles.” England, the Netherlands, Scotland, and Singapore are examples of countries where these profiles have been formally adopted and published. This knowledge allows the labor market to better comprehend the desired outcome of each cycle, subject, or subject group, and it facilitates the work of the inspectorate. A well-designed set of exit skills also reinforces the connections among curricula in different parts of the education system. JSE needs to build on primary curricula and to be designed as part of a seamless basic education program that will ensure students acquire the skills specified for SSE. SSE needs to build on JSE curricula and to have explicit linkages to the entry requirements of tertiary institutions. Depending on the structure of the curricula, the exit points into the world of work in SSA can vary considerably. Table 6.1 illustrates exit points drawn from a sample of countries.

As systems expand, schools will have to deal with more diverse student bodies with much wider ability groups, including slow learners and students with special needs. Ways to deal with this kind of diversity are rarely effectively addressed by schools and curricula in SSA. Class teaching, in

Table 6.1 Skills at Exit Points 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 or 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, Ottevanger, and van den Akker 2008.

which all learners in the class do the same work at the same time, is a viable option only in systems that are highly differentiated by type of school and in which classes tend to be homogeneous in ability and achievement. If the system does not differentiate, either the schools must do so by systems of streaming or ability grouping,⁵ or teachers must teach mixed-ability groups. Some countries, especially the high-performing Asian economies, opted for multiple curricula and schools to address this issue. This approach imposes the least burden on teachers who might not have the skills for mixed-ability teaching, but it might also perpetuate undesirable distinctions of class, wealth, and ethnicity, and it may not be desirable in countries where social cohesion remains a major issue. Most African schools exhibit little differentiation. Slow or poorly prepared learners simply fail and repeat but typically receive little additional help. This tactic is expensive; does not address underlying learning difficulties; and, in an expanded secondary system, is clearly educationally and financially unsustainable. 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 important, 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 be successful only 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. Those conditions include large classes, inadequately trained teachers, limited availability of instructional materials and specialized facilities, and poorly prepared students. Curriculum designers must particularly be aware of the constraints of curriculum implementation in small schools (see chapter 7 for further discussion) and of the need for remedial teaching—especially for the language of instruction—for the many primary school leavers who do not have the knowledge and skills assumed by the formal JSE curriculum.

Secondary education in SSA is challenged by the need for major changes in knowledge, attitudes, and skills that curricula, examinations, and assessments prioritize. Four questions are particularly important:

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

INTEGRATING JSE INTO A SEAMLESS BASIC EDUCATION CYCLE

Chapter 3 argued that sustained acceleration of economic and social development in SSA will require an ambitious effort to increase educational attainment. Increasing productivity and attracting foreign direct investment requires a supply of workers who have completed at least JSE. This requirement makes exit point 2 (table 6.1) particularly important for countries in SSA. The challenge is twofold: to increase the number of students who enter JSE, and to ensure they acquire the knowledge, attitudes, and competencies specified while there. Addressing this challenge successfully will require the following:

- Students must complete primary education with mastery of the knowledge and skills specified in the primary curriculum
- Junior secondary curricula must be designed as an extension of primary curricula and must allow for the review and remediation, where necessary, of competencies acquired in primary education
- JSE must focus on the development of those competencies that are particularly critical for successful entry into the world of work and for further education and learning.

These conditions are not in place in most countries. Students often complete primary school with incomplete mastery of the knowledge, skills, and attitudes specified in the primary curriculum, even though 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 reading, writing, and basic mathematics. Learning achievement in Botswana, for example, while better than in many other countries in SSA, still is affected by weaknesses in primary student achievement in numeracy and a second language (Leyendecker, Ottevanger, and van den Akker 2008). Junior secondary curricula are typically designed as preparation for SSE, not as an extension of primary education. The curricula are often overloaded with extensive subject options that are explored only superficially. Adequate time is seldom allocated to math, science, and language education. Rote learning dominates, with little attention to the development of analytical skills, of problem solving, or of communication and teamwork. The curricula are often based on unrealistic assumptions about the mastery of core subjects by primary graduates.

Reducing the overload of subjects allows for more interactive and hands-on pedagogy; enables a more focused, cost-effective, and manageable curriculum structure; and allows for valuable extracurricular activities that have high potential for personal development and maintenance of cultural and social cohesion (Government of Ghana 2002). Table 6.2 provides an overview of JSE curriculum structures in five SSA countries. For comparison, subjects and learning areas are grouped in related categories. Time allocations are in parentheses. South Africa 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 the teaching of science subjects for reasons of quality and efficiency.

The JSE curriculum in many countries includes a subject titled “life skills,” with the justification that JSE is the end of formal education for most African students. Life skills as a subject has a variety of definitions, but is generally meant to provide students with practical skills so they can participate in their immediate economic and social environment. In Tanzania, it includes doing needlework, tailoring, cooking, simple metalworking, or domestic wiring. In Ghana, it includes pre-vocational skills in local crafts like basketry, leatherwork, weaving, pottery, textiles, and sculpture.

Many African politicians and educators advocate increasing the vocational training opportunities in general secondary education, and it remains popular with some donor agencies. However, international experience provides robust evidence of problems in this approach (chapter 2).

Table 6.2 Junior Secondary Curriculum Structure in Five SSA Countries

Tanzania JS curriculum core subjects planned by SEDP	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 per 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%)
	pretechnical 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%)
	prevocational 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 practical studies options and general studies options		Plus options where teacher available: living language 2 (e.g., Arabic, German, Spanish); home economics

Source: Leyendecker, Ottevanger, and van den Akker 2008.

Note: Time allocations for Tanzania are not available. SEDP = Secondary Education Development Program (2004).

Countries with vocational subjects as part of the JSE curriculum may wish to consider following:

- Eliminating vocational training can relieve 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. 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 4.0 times as high as other subjects. In Kenyan secondary schools, the ratios are between 5.6 and 14.5 times higher (Lauglo 2005).
- The logistics for facilitation and teaching of vocational subjects are complex and not easily maintained and sustained, particularly in an educational system that is expanding dramatically.
- Primary students often lack the general education foundation for effective vocational training.
- Vocational subjects require sufficiently trained and competent trainers and teachers, implying that trainers will have practical experience. Teachers with this background are 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 these schools offer under-financed, low-quality programs catering to small numbers of mostly poor students.⁶ These programs solve neither the challenge of expanding secondary education access nor the problems of youth unemployment.

In sum, curriculum change at the junior secondary level must be an essential part of the reform agenda as countries move to include all or part of JSE in a basic education program of 8–10 years. Curriculum designers will need to recognize that they are no longer charged with preparing a small group for further formal education; they have to prepare a much larger group for work and lifelong education and training. This is not an argument for specific vocational training. 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. The curricula must emphasize instruction in the core subjects of mathematics, science, and an international language; ensure that students acquire analytic and problem-solving skills; and, most important, instill the motivation and the competence for further learning and skill acquisition. Beyond academics, curricula must 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) also recognize the need to introduce more

guidance 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.

GOING BEYOND BASIC EDUCATION TO PREPARE FOR WORK AND FURTHER LEARNING

In many SSA countries, especially those that currently have low secondary enrollment, access to formal general SSE will remain selective, with curricula that emphasize preparing 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 the senior secondary level. Although some of these programs will be in formal institutions, less formal settings will increasingly cater to students who are already employed and want to upgrade their skills or prepare for new job opportunities.

A key choice for SSE curriculum development is whether to use the same institution to prepare students for both tertiary education and work, or whether TVET should be offered in separate institutions. Two curriculum structures for general SSE dominate in SSA, each subscribing to a different understanding of exit skills. The first and more widespread structure prescribes language (either the local and the instructional language, or the instructional language only, as in Ghana, for example) and mathematics as compulsory core subjects, or as part of a wider range of compulsory core subjects, with additional elective subjects. The second structure, as in Tanzania, offers specialized and highly selective combinations of core courses of usually three or four subjects, which the SSE schools may define, and which, in turn, define the secondary school. The Senegalese SSE curriculum is located somewhere between these two structures. It offers different streams in areas of languages, sciences, technical education, or commerce that consist of core subjects, but that have different emphasis and time allocations. There are additional compulsory subjects for each stream, for example, philosophy for the languages stream. In Ghana, schools often modify subject offerings because of a lack of teachers or to satisfy university entry requirements (Ampiah, Akyeampong, and Leliveld 2007).

Table 6.3 provides an overview of the variety in SSE curriculum structures in five SSA countries. 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

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: 1 subject minimum from humanities, sciences, and social sciences. In addition, 2 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 and secretarial), general (science), general (arts), vocational (home economics and visual arts), technical	3 or 4 choices of 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 economics	Minimum of 6 core subjects, plus 4 subjects from streams.
Tanzania	Sample subject combination choices, depending on JSE results: A: history, geography, English B: economics, commerce, accountancy, plus basic applied math C: physics, geography, advanced math D: physics, chemistry, math E: chemistry, biology, nutrition F: economics, geography, advanced math G: chemistry, biology, geography H: history, Kiswahili, language Plus additional subject choices		Some of the subject combinations are greatly undersubscribed.
Senegal	Core subjects, except for the technical stream, with different allocations of time: French, mathematics, physical science, science of life and earth, English, history, and geography		2 language streams (about 67 percent of students); 2 science and 1 technical stream (about 28 percent); 1 economics stream (about 5 percent).

Source: Leyendecker, Ottevanger, and van den Akker 2008.

traditional vocational subjects in the general SSE program are similar to those summarized earlier for JSE. These arguments suggest that specialized institutions are the best locations 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 for different occupations with different training objectives and varying durations. These institutions are generally

not as organized as schools, and they are managed by private providers, autonomous agencies, or ministries other than the Ministry of Education.

Many countries aim to increase the number of students in technical and vocational SSE institutions and to actively limit the percentage in general SSE, even though the per student cost of TVET programs is high—three to four times that of general SSE (chapter 5). If they are to be successful, these strategies need well-defined and feasible financing approaches, well-structured public-private partnerships, and curricula closely connected to employer preferences and labor market demand. Box 6.6 summarizes the SSA experience and policy options.

BOX 6.6 SKILL DEVELOPMENT IN SSA

A recent World Bank study explores the question of what African governments can do to ensure that the skills required for growth and development are developed cost-effectively and that all young people have the opportunity to acquire new skills and to improve the ones they possess. First, getting the macroeconomic context right is essential. The best impetus for improving the quality and incidence of training is likely to be strong growth in the demand for skilled labor from firms. The incentives that this growth provides for financing and the provision of training are important to the successful reform of TVET. Second, basic education is a prerequisite for 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 required training. Basic education enables people to become learners throughout their lives, to specialize and update themselves as economic opportunities and technology change, and to recognize that basic education provides the foundation of skills and flexibility needed in any workforce. Third, the report recommends a strategic framework that will help African governments establish more efficient training markets, diversify training opportunities, and work in partnership with private sector employers in the formal and informal sectors to ensure equitable and efficient skill development. The main elements follow:

- *Improving public training* by providing both individual training institutions and managers with increased autonomy and

accountability for results has improved the relevance and quality of skill development and has encouraged innovations in the delivery of shortened, competency-based programs. Many programs provide skills training on a schedule that accommodates the needs of clients, which has opened up new markets for public training systems.

- *Opening markets for private institutions*, including nongovernmental organizations, religious-based providers, and for-profit trainers. Because quality is often a major concern, providing information to clients about the performance of individual institutions is an effective form of consumer protection and enforcement of standards.
- *Recognizing formal sector enterprises* as trainers because African enterprises also provide training, and are an important supply component in training markets.
- *Building skills for the informal economy*—in which most of the nonfarm poor work—by supporting training of master craftspersons and by shifting financing to the demand side through training funds and vouchers for workers can elicit a new supply response from trainers for the informal sector.
- *Focusing government financing on strategic priorities* in the provision of TVET by (a) shifting sector financing from an input-based to an outcomes-based model, (b) removing barriers to skills development for the benefit of economic growth and poverty reduction, and (c) promoting social equity will help address issues that markets generally fail to address. Governments perform market functions for which they are uniquely equipped.

Source: Johanson and Adams 2004.

In sum, SSE will need to evolve toward 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. Maintaining quality will usually require concentrating on a set of core subjects and limiting subject matter options. For many JSE graduates, opportunities for further education and training should be

offered in TVET institutions. Some will be full-time students; many others will be part-time students, combining education with work. Curricula will need to be flexible, able to respond to demonstrated labor market demand, and designed in consultation with employers. An important role for the government is to establish public-private partnerships to support such training opportunities, to ensure their quality, and to provide financial support, particularly 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 have always been expected to provide students with general knowledge and skills in the sciences necessary to function in their local societies. But 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 balancing the expectations for local relevance and for the demands of training a competitive labor force are on almost every education reform agenda.

Current science programs are too academic and too difficult for most students. In addition, the gap between the intended curriculum and what is actually taught in the classroom—the operational and experiential curricula—is large (box 6.4). The reasons are well known: (a) lack of teaching materials and other resources; (b) curriculum crowding and poor time-on-task management, leaving little room for a learner-centered approach; (c) poor curriculum sequencing, where many topics are taught too early; (d) lack of teacher confidence with content resulting from poor teacher qualification; and (e) excessively large classes, which inhibit practical lab classes and learner-centered problem solving. As a result, student performance is disappointing. In 2000, Namibia had only an 18 percent pass rate in JSE mathematics. In 2001, Zimbabwe had a 28 percent pass rate in JSE core science. In SSE, student performance in the combined or integrated sciences is generally lower than in the elective science programs.⁷

The 10 countries included in the “Secondary Education in Africa—Science, Mathematics, and ICT” (SEIA-SMICT) study (Ottevanger, van den Akker, and de Feiter 2007) mention lack of relevance as a major 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 topics without dropping less relevant ones has led to major curriculum overload. 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.⁸

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 attention is especially important with a student population that is increasingly heterogeneous in ability levels and future aspirations in the math and science domains. The issues then surround 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 of what their society-related priorities are. These priorities can then be reflected in a curriculum that strikes a balance among 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.

Many SSA countries are moving toward more integrated science approaches, especially at junior secondary levels. This direction is in line with international trends, and it can enhance the relevance of the science curricula and can address curriculum overload. The benefits of integrating the separate science disciplines into broader science learning areas are significant: the 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. These benefits are 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 that increasingly demand 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 curricula, such as HIV/AIDS education (in all Anglophone countries except Botswana), environmental education, and issues related to science and technology. Sometimes, as in Ghana and Namibia, topics may include agriculture and the environment.

Unfortunately, implementation problems have thwarted the introduction of many integrated science programs. Where learning areas or integrated subjects have been introduced in the junior secondary curriculum (Namibia and South Africa, for instance), students are reported to lack the content knowledge for continuation at the senior secondary level, at which 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 teach the subjects with two teachers and divide the time allocated between the two subjects. Ghana offers integrated science at both the junior and senior secondary levels, but the course is generally divided into its components (chemistry, physics, biology, agricultural science) and is taught by more than one teacher. These implementation difficulties arise from at least three factors:

- Teachers already struggle with new approaches to teaching that are commonly attached to new subject combinations, and they are expected to “keep up” with new developments.
- Teachers lack the required combined knowledge of the related subjects to teach the integrated learning areas in meaningful ways because they have not been trained in how to do so (although Ghana provides for integrated science studies in teacher education).
- The instructional materials (textbooks, for example) for both learning areas and new pedagogical approaches are lacking (at least for now).

Nevertheless, 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 GEEP⁹ materials in Senegal also provide a good example of how family life education can be approached from a multidisciplinary perspective by combining insights from the various science domains and relating to issues in everyday life. The Science Teachers Association of Nigeria developed an Integrated Science syllabus and produced many textbooks, teacher guides, and pupil 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; its implementation can be successful if the instructional materials are available, if there is significant in-service support for existing teachers, and if integrated science is part of the pre-service curriculum.

Good science teaching, especially at the SSE level, requires specialized facilities, equipment, and supplies. The associated high cost makes it

appealing to spread these resources over as many students as possible. Resource centers shared by several schools are designed to do just this. Botswana, Ghana, Namibia, and Senegal, for example, have introduced resource centers, which are separate from secondary schools, as hubs for professional development and for exposure to practical elements (for teachers, and at times students). Ghana has more than 100 Science Resource Centers attached to secondary schools. These centers have extensive inventories of science and mathematics equipment, including ICT facilities. They also allow local production of teacher support materials. Senegal established *blocs scientifiques* to be shared by students from different schools in urban areas in the early 1980s.

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 mathematics and science curricula in this direction is long overdue in most of SSA. This process can be facilitated by adopting a clear definition of scientific and mathematics literacy. The consequence is that a distinction will need to be made between mathematics and science courses that are aimed at all students (mainly at JSE level and as core courses) and those courses that are selected by students who want to continue in these subjects at the SSE level and in higher education. There is a temptation in mathematics and science curricula (as in all other subjects) to add but not remove content. This addition 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.

INCLUDING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

All SSA countries emphasize the need to include ICT and computing skills in the JSE and SSE curricula to prepare students for further learning in societies that are increasingly using technology. In JSE, the main objective is to instill computer literacy, and is usually restricted to familiarization with basic computer skills (for example, common application software) and their function in personal and professional contexts. Most of the 10 countries surveyed for the SEIA-SMICT study (Ottevanger, van den Akker, and de Feiter 2007) 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 science¹⁰ is taught at the 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, acquisition of information on the 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 industrial countries, labor markets demand general ICT skills from secondary graduates. However, what is needed of them is usually much more than simple “computer skills,” but rather a good understanding of how information and data are collected, organized, stored, and analyzed. This level of proficiency invokes many more technology skills than are currently offered in African secondary education and training curricula.

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

ICT studies have found their way into formal curricula in much of SSA, but, in most schools, the courses are embryonic, mainly because of a 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 the computers and their infrastructure, typically the responsibility of the schools, has become a substantial—often insurmountable—challenge for schools and educational systems. ICT laboratories with many more broken than functioning computers are common. Lack of infrastructure (telephone lines or other high-speed Internet access) often limits the effectiveness of instruction.¹¹ The resources consumed by maintenance significantly burden school budgets 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 some countries, schools have found ways to address problems by partnering with local private providers of computer services and training.¹²

ICT will need to be incorporated in secondary curricula in SSA as a subject and as a tool to support learning across the curriculum. However, the costs are not insignificant and will be an obstacle. The practical problems of finding competent instructors, supporting software, and keeping hardware operational often jeopardize the effectiveness of instruction. Nontraditional solutions, including collaboration with private providers of technical support and computer training, may make it possible to overcome these challenges.

TOWARD EFFECTIVE ASSESSMENT AND EXAMINATION SYSTEMS

High stakes examinations are a defining feature of African education systems. They determine promotion from primary into JSE, from JSE into SSE, and then into tertiary 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 accordingly. But 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 support 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 6.7 summarizes the experience of Kenya in primary education, which could easily be adopted for secondary education.

National assessment activity spread through Africa during the 1990s. The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) project, *Programme d'Analyse des Systèmes Educatifs des Pays de la CONFEMEN* (PASEC), and the Monitoring Learning Achievement (MLA) project have been 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 that 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. PASEC and SACMEQ assessments so far have focused only on

BOX 6.7 EXAMINATION REFORM IN KENYA

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

- Include fewer items that measured the memorization of factual information and include 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, including the publication of a district and school order merit list that was based on the examination performance (league tables)
- Guidance information that was based on an analysis of the performance of students nationally on individual questions, and that 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.

primary education. Only a few African countries have participated in international assessment at the secondary level (chapter 2). A strong case can be made to extend the coverage of PASEC and SACMEQ to include secondary education (see chapter 8 for further discussion). The results of such internationally comparable testing provide an incentive to review

existing policy and practice and to consider strategies for improvement. Although classroom formative assessment¹³ 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, teachers' 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.

Examination results are often disappointing. In Ghana and Senegal, pass rates are less than 60 percent (tables 6.4 and 6.5) In other countries (Botswana, for example) the majority of students pass examinations in the lowest category only. Osaki and Njabili (2003) report on the motivational factor of national examination ranking, the consequence of

Table 6.4 Examination Results at the JSE Level in Four SSA Countries

Subject	Botswana (2004)	Ghana (2003)	Senegal (2005)	Tanzania (2004)
First language	77.3	n.a.		
Second language*	74.6	58.3	Overall success rate	No subject data available General pass rate = 88.1
Mathematics	71.3	59.6	30.2 (2005)	
Science	68.6	57.1	55.4 (2004)	
Social studies	71.1	58.9		

Source: Leyendecker, Ottevanger, and van den Akker 2008.

Note: n.a. = not applicable.

*English except for Senegal, where it is French.

Table 6.5 Examination Results at the SSE Level in Five SSA Countries

Subject	Botswana (2004) BGCSE results graded A–D on an 8-point scale	Ghana (2001) Pass rates	Senegal (2005)	South Africa (2003) (results for 2000 in parentheses)	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 6 or more subjects, total pass rate: 73.3% (58.0%) Passed with endorsement: 18.6% (14.0%) Passed without endorsement: 54.6% (44.0%) Candidates failed: 26.7% (42.1%)	No subject data available Overall pass rate = 93%
Second language	English: 77%	English: 61.3%			
Math	53.1%	48.8%			
Science	80%	50.7%			
Social studies	90%				

Source: Leyendecker, Ottevanger, and van den Akker 2008.

which is that teachers focus on examination success at the expense of general knowledge and understanding. “Teachers teach for examination success” is a commonly repeated phrase throughout SSA. Subjects not included in assessments are often not included in secondary classroom teaching and learning, partly because of the high stakes nature of the examinations. Conversely, various commentators on the guaranteed and nearly 100 percent transition rate from primary to secondary education level in Botswana have noted that the lack of examination consequences reduces the motivation of students (Leyendecker, Ottevanger, and van den Akker 2008).

Modern curricula in SSA formally include learning outcomes such as 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 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 assessments that only require students to reproduce statements, facts, and definitions will train students for rote learning and memorization, whatever the aims of the secondary curriculum. Without changes in current 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 in examinations, as well as clear definitions of roles, are essential elements of curriculum reform: the former should plainly define the knowledge and skills that students are expected to acquire; the latter should ensure that these are tested as specified.

Another major issue with the effectiveness of examinations for certification and selection is the extent to which cheating and corruption influence examination results. Honesty in correction is an important quality criterion, closely connected to questions of equity and quality. Although the Ghana junior secondary examinations of 2002, which were cancelled and repeated nationwide, are an extreme example, widespread examination leakages and other fraudulent practices are commonly reported throughout SSA (Greaney and Kellaghan 2006).

Reorganizing the assessment and examination systems in SSA and implementing new instruments is complex and multifaceted, which may include the following tasks:

- Defining appropriate standards of learning performance as part of revised JSE and SSE curricula¹⁴ and assigning clear responsibility for quality assurance, setting standards, and monitoring performance.

- Differentiating between minimal and acceptable standards and the need to cater to the entrance requirements for higher education.
- Including new forms of assessment for skills not measured in current assessment practices and common examinations.
- Improving the technical quality of items in examination papers: accuracy of correct response, clarity of language and expression, appropriate levels of cognitive demand;¹⁵ setting items to measure learning performance and not language proficiency is important.
- 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 on 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, on the basis of on a bank of test items.
- Using coursework assessments to provide feedback for teaching and learning, as well as for end-of-year and examination grades.
- Including practical laboratory-based testing for sciences, to the extent possible.

The task list illustrates the complex nature of examination reform and the interdependence of various components. A comprehensive approach is needed that encompasses (a) professional development for secondary teachers, including test and examination setting, marking, and classroom assessment; (b) 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 to use them for instructional improvements; (c) an improved professional exam culture to eliminate cheating and fraud; and (d) strengthened linkages with priority learning objectives specified in the curriculum and valid, reliable measurement of these linkages.

CONCLUSION

Curriculum reform is a critical part of the transition of secondary education in SSA from an elite to a mass system. In many countries, curricula and examination systems have changed remarkably little for decades, and the colonial legacy is still clearly visible. Some 50 years after independence, SSA is strongly in need of far-reaching curriculum reform.

Such reform is driven by concerns about local relevance in rapidly changing societies, by the different priorities and aspirations of a much larger student body with a changing social composition, and by the need in growing economies to train the personnel required for effective participation in a technology-driven global economy. This need is leading countries to consider the following reforms:

- Including all or part of junior secondary education in a basic education program of 8–10 years
- Strengthening 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 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 the senior secondary level
- Incorporating ICT in the curriculum and improving the quality of instruction by establishing linkages with nongovernment and private providers of training and technical support
- Ensuring 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 toward 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 to improve student learning.

This agenda is an ambitious one, implementation of which will require systemic articulation and selectivity. This curriculum change process will be successful only if it is explicitly designed to ensure the linkages between the different parts of the system. JSE needs to build on primary curricula and to be designed as part of a seamless basic education program. SSE needs to build on JSE curricula and to be explicitly linked 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—the initial efforts will need to focus on selected schools. Priorities for public support of this

effort should be given to those schools that serve disadvantaged clientele and that propose collaborative arrangements with nongovernment agencies and private operators.

Curricula should be closely linked to the desired exit profiles for graduates of both JSE and SSE. JSE curricula will need to be developed in recognition of the fact that they no longer can be designed to cater to a small group of students in search of further formal education, but they will now have to prepare a much larger group for work and lifelong education and training. They must emphasize instruction in subjects 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 a system that offers a wide range of education and training opportunities to students graduating from junior secondary school. Access to general secondary schools and formal training institutions especially will have to remain selective for the foreseeable future. If SSE is to provide opportunities for further learning to those who do not gain admission, it will be important to support the development of other training opportunities in informal 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, responsive to demonstrated labor market demand, and designed in consultation with employers.

Robust research evidence suggests that strong performance in math and science in international assessments is strongly associated with economic growth performance. 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 and 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 adaptation requires regular review (every three to four years) of the content and 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 that include provision for teacher training have promising results, especially when implemented in partnership with private sector providers. Financial constraints, however, may make selective implementation necessary, 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 industrial countries, typically the former colonial power. Many test 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 analysis and feedback of results to schools has rarely been tapped. Few countries in SSA have participated in international assessments or regularly conduct their own national assessments of student learning; yet these are critically important instruments for the management of a secondary education system in which student learning performance is its key priority. Classroom assessments are critical tools for teachers because they help students improve learning, but they are often not used to identify student learning outcomes and target remedial instruction.

Table 6.6 summarizes options for reform that governments may wish to consider.

Table 6.6 Options for Reform of Junior and Senior Secondary Education

Issue	Possible response at JSE	Possible response at SSE
High stakes examinations do not support curriculum change and learning	<ul style="list-style-type: none"> • Ensure that examinations are curriculum referenced. • Feed back item-specific examination results to schools. 	<ul style="list-style-type: none"> • Ensure that final examinations and university entrance examinations are curriculum referenced. • Feed back item-specific examination results to schools.
Poorly designed curricula	<ul style="list-style-type: none"> • Take into account costs of curriculum decisions. • Limit curriculum options. 	<ul style="list-style-type: none"> • Take into account financial and human resources constraints. • Limit choice and options by specifying minimum enrollment requirements.
Little knowledge about student learning	<ul style="list-style-type: none"> • Develop national assessments. • Participate in international assessments. 	<ul style="list-style-type: none"> • Develop national assessments. • Participate in international assessments.
Weak system linkages	<ul style="list-style-type: none"> • Integrate JSE curricula with primary curricula. • Provide remedial instruction to poorly prepared primary graduates. 	<ul style="list-style-type: none"> • Build on JSE curricula and establish linkages with tertiary institutions.
Weak links with world of work and labor market	<ul style="list-style-type: none"> • Link curriculum content closely to formal graduate profiles. • Emphasize generic skills. • Postpone prevocational and occupational training to senior secondary level. 	<ul style="list-style-type: none"> • 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 learning, especially in math and science	<ul style="list-style-type: none"> • Increase time allocations for math and science and for language of instruction. • Strengthen teacher training and support. • Gradually move toward integrated science. • Encourage school and classroom assessment. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Provide introduction to ICT. 	<ul style="list-style-type: none"> • Offer ICT as a subject and as a tool to support instruction in other subjects.

Source: Author's compilation.

NOTES

1. This chapter draws heavily from SEIA Thematic Study No. 5 (Leyendecker, Ottevanger, and van den Akker 2008) and Thematic Study No. 7 (Ottevanger, van den Akker, and de Feiter 2008). Comments by Andrew Clegg were also helpful for the final draft.

2. PIRLS is a large international comparative study of the reading literacy of young students. In 2001, it assessed the reading achievement of approximately 150,000 4th graders in 35 countries.

3. PISA 2006 results in Germany shocked the government and politicians because Germany did not do as well as expected and had fallen behind compared with PISA 2003. National reflection is now under way, and the government is reviewing its financing for secondary education and training. England and Asian

countries gave similar attention to PISA and TIMSS results. PISA and TIMSS tools are more powerful if countries participate for the “longer term.” PISA, for example, started in 2000 and announced it would hold three assessment rounds with 3-year intervals. For further information, see http://www.oecd.org/pages/0,2966,en_32252351_32235731_1_1_1_1_1,00.html and <http://timss.bc.edu/>.

4. See conference reports for the first and second regional SEIA conferences; World Bank 2002b, 2004b.

5. Streaming refers to dividing a whole year group into classes differentiated by ability. Such classes form a teaching unit in all subjects. Ability grouping refers to differentiation for the purpose of teaching a particular subject.

6. See, for example, Lewin (2006) for a discussion of the situation in Uganda.

7. More-capable students usually tend to pick more demanding elective courses.

8. It should be noted that curriculum overload is not typical just of countries in SSA. Worldwide, it appears to be easier to get subjects into the curriculum than to take them out.

9. *Groupe pour l'étude et l'enseignement de la population* (<http://www.geep.org>).

10. A good case can be made for renaming the subject “information sciences.” For a review of trends in Europe, see Eurydice ICT Web site http://www.eurydice.org/portal/page/portal/Eurydice/ByTopicsResults?topicCode=aacp&subTopicCode=***.

11. See SchoolNet Africa (<http://www.schoolnet africa.net/>) and, in particular, SchoolNet Namibia (<http://www.schoolnet.na/>), which are tackling these problems by providing refurbished, diskless, networked computers to schools, with servers running on a Linux operating system. SchoolNet provides online maintenance carried out by trained school leavers, solar power, and wireless access to the Internet. The use of Linux software avoids the huge costs of software licensing.

12. Andrew Clegg, in a personal communication after the third SEIA conference, provided an interesting public-private partnership example from Uganda and Tanzania and probably elsewhere. ICT providers are allocated a room in a school, equip it, and provide tuition; learners pay the provider \$10 for the service per term.

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

14. Standards for JSE subject curricula should be aligned with the basic education curriculum. Standards for SSE subject curricula should be aligned with the objectives for the SSE “desired graduate profile,” which takes into account that the content of some SSE (ICT, for example) changes often.

15. 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], as quoted in Leyendecker, Ottevanger, and van den Akker [2008, 63]).

Providing Effective and Equitable Opportunities to Learn

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

—Cicero

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.¹ Improving the quality of instruction critically depends on the recruitment, training, and retention of competent teachers; the support for practicing teachers; the effectiveness of school leadership; and the availability of an adequate supply of instructional materials, particularly textbooks. Improving quality 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 the policies that countries can consider to ensure an adequate supply of competent teachers, well-prepared school leaders and counselors, and regular provision of textbooks 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 to poor students, especially those who live outside urban areas.

COMPETENT TEACHERS: THE BACKBONE OF EFFECTIVE SYSTEMS

The rapid growth of secondary enrollment in Sub-Saharan Africa (SSA) has outpaced the growth of the number of teachers (chapter 2, table 2.4). Recruiting teachers in the quantities 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 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. Strong demand for educated personnel in other occupations can adversely affect 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 fewer than 10 years, often even fewer for math and science teachers. 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. Teachers are also expected to engage with an array of new challenges. Improvement to the current low levels of learning achievement (chapter 2) will require more effective instructional strategies. Increased enrollment and limited public resources will translate into larger classes for many teachers; classes filled with students with different personal characteristics and a more limited grasp of the language of instruction; and lower levels of literacy, numeracy, and analytical skills (Lewin 2002). Handling more diverse classrooms will require improved classroom management techniques and different teaching methods (Condy 1998). In addition, teachers may be expected to refrain from physical punishment, to create a collaborative classroom climate, to promote analytical thinking, to encourage good citizenship and gender-fair attitudes, and to incorporate information and communication technology (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. Countries face an intimidating challenge: they need to increase the number of teachers, to improve the quality of teaching, and to 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. The collection of attributes that make a good teacher is less clear, however. The level of education and teacher training has been shown to make a difference, but it explains only part of the variation in teacher quality. Other factors, less measurable by conventional means, also play an important role (box 7.1).

GENERAL EDUCATION

The effectiveness of secondary teachers is strongly related to their mastery of the subject matter they teach. Teachers should not only know the content

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. Identifying the effects of these varied factors and of how they influence and relate to 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 conclusion 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 their family and community backgrounds.

The second conclusion 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 and student learning. 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 many important aspects of teacher quality are not captured by the commonly used indicators. The teacher characteristics that are harder to measure, but that 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.

they teach, but also have a deep understanding of it. Studies in the United States show that teachers' advanced content course work is especially important at the senior secondary level (Rice 2003). However, the principle of diminishing returns applies: it is important that teachers be educated to a higher level than the level at which they are teaching. Each level of education above that also improves quality, but to a smaller extent.

General education requirements for teaching at the junior secondary level vary; some countries allow teachers with the equivalent of a senior secondary level education to teach (table 7.1). In many countries, fewer than half the teachers meet the required standard, including Comoros (45 percent), Ghana (42 percent), Benin (33 percent), and Uganda (32 percent). Most countries require at least a bachelor's degree to teach at the senior secondary level. Distinguishing between the requirements of senior and junior secondary education allows some countries to have nongraduate teachers at the junior secondary level, and a mostly graduate teaching force at the senior level. This pattern ensures that most students are taught by teachers who have been educated to at least one level higher than the level at which they are teaching.

In summary, the evidence suggests that better-educated teachers achieve better results. Ideally, it may be desirable to have an all university-educated secondary teaching force, but, in the medium term, most

Table 7.1 Qualifications Required for Junior and Senior Secondary Teachers in Selected Countries

Country	Reference year	Junior secondary		Senior secondary	
		Years of schooling required	Proportion meeting the standard (%) ^a	Years of schooling required	Proportion meeting the standard (%)
Burkina Faso	2002	16	100	16	100
Chad	2003	15	35	15	47
Guinea	2003	16	—	16	—
Lesotho	2003	14	83	16	*
Mali	2003	12	—	16	—
Niger	2003	15	90	16	92
Senegal	2003	15	100	15	100
South Africa	2003	17	—	17	—
Uganda	2004	13	44	15	32
Zimbabwe	2004	16	59	16	*
Cuba	2003	17	84	17	85
Ecuador	2000	16	65	16	*

Source: UIS 2006b.

Note: — = no data available; *no separate data available for SSE.

a. JSE and SSE teachers combined.

African countries will be unable to find and finance sufficient teachers with university degrees, especially in a context of increasing secondary enrollment. Rapidly growing systems may end up with a few highly qualified, high-cost teachers, many untrained teachers, and increasing class sizes. The alternative of constraining enrollment growth is rarely feasible. Countries may, therefore, need to plan to use teachers with lower formal qualifications, particularly at the junior secondary level. Whatever qualifications are required, they must be realistic and affordable, and the consequences of less than optimal staffing patterns must be clearly recognized. Failure to take into account the quality of teachers actually employed can lead to unrealistic expectations in curricula, and it tends to reduce the perceived need for in-service supports for teachers.

PROFESSIONAL TRAINING

Teacher education programs vary in their organization, duration, and scope, but most have common content (Coolahan 2002; Nwaboku 1996), typically including the following:

- Academic studies, usually in the school subjects to be taught
- Pedagogic preparation comprising
 - Studies in educational sciences, such as psychology and sociology of education
 - Study of general instructional strategies, and subject-specific teaching methods
 - 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: concurrent and consecutive. The concurrent model involves a course with academic subject knowledge combined with educational and professional studies throughout the course duration. In the consecutive model, students first get qualifications in the subjects that they wish to teach, then undertake a shorter teacher training course (Coolahan 2002).

A variety of systems are used in SSA (table 7.2); in many countries, both models are provided as parallel alternative routes into teaching. Both models have important financial implications. The consecutive model may transfer much of the cost of teacher training onto the aspiring teacher, depending on how higher education is financed. The concurrent model is more commonly provided free to students, and it may provide

Table 7.2 Secondary Teachers: Recruitment Levels and Training Duration

Country	Level of recruitment into teacher training	Duration of training (years)
Angola	High school diploma (11th year)	4
Botswana	BEd, BSc, BA	1
Cameroon	High school diploma or CGE	3
Cameroon ENSY	Bachelor's degree, BA	2
Equatorial Guinea	Primary teacher diploma or one year pre-university training	3
Mali	Bachelor's degree	2

Source: UNESCO 2003a.

Note: BA = Bachelor of Arts; BEd = Bachelor of Education; BSc = Bachelor of Science; CGE = Certificate of General Education; ENSY = *École Normale Supérieure Yaoundé*.

access to teaching careers for students who might otherwise be unable to afford it.

Apart from small-scale project experiences, the literature provides little evidence of teacher education effectively functioning as an agent for educational change in Sub-Saharan Africa. For example, Ware (1992) cites researchers in Kenya, Nigeria, and South Africa 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 concentrates on the history, psychology, and sociology of education to the detriment of pedagogy. This approach leaves students ill-prepared for classroom teaching. Student teachers 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 for classroom teaching (Sun and de Jong 2001).
- *Weak teaching practice.* Teaching is a practical skill. Teaching practice should be at the center of the attempt to develop good pedagogical skills. However, the value of teaching practice depends 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 as students, which often relied heavily on transcription of notes and memorization of facts for examinations (Akyeampong et al. 2000).

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, because 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 it 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. The faculty provides a BEd in secondary education and in primary teaching, but training programs do not seriously take into account the subjects taught in the secondary schools (UNESCO 2003b).

CONTINUING PROFESSIONAL DEVELOPMENT

Teachers cannot be expected to work effectively for the remainder of their careers with no additional support or training. Continuing professional development (CPD) is necessary not only to help teachers deal with revised curricula and evolving methods, but also to reenergize and motivate them. Studies on the costs and benefits of different CPD methods are not readily available, and most tend to rely on anecdotal evidence (Christie, Harley, and Penny 2004).

Three main CPD models are popular. The cascade model is the most widely used, typically delivered through short-term workshops (Anderson 2002). Although this model is suitable for some kinds of material, the effect of short cascade courses on teaching practice has 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 practices, 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 has attracted significant interest on the basis of cost savings (see chapter 5) and of the ability to reach a large number of geographically separated beneficiaries. Providing further education to

BOX 7.2 CONTINUOUS PROFESSIONAL DEVELOPMENT IN KENYA

The SPRED 3 project in Kenya provides one example of distributed teacher development. In each of three districts, each school was invited to select three lead teachers, one each in English, mathematics, and science, to participate in the project. Over a five-month program, these teachers were to build subject teams in their schools and begin to mentor their colleagues. It was expected that within two years, 50,000 teachers would have been through the first phase of the program, and there was some consideration of offering accreditation for participants.

Source: Christie, Harley, and Penny 2004.

teachers who continue to be present in school is more attractive than systems in which 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 method is effective for increasing teaching experience, but it is less effective for academic training in content knowledge. In Malawi, where this system was used with primary teachers, evaluations identified weak performance in content knowledge as a difficulty. This finding suggests that for distance education courses to be effective, they need to emphasize subject-matter knowledge.

Increasingly, the trend is toward interschool 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 it 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).

TEACHER QUALITY: MORE THAN FORMAL QUALIFICATIONS

The research on teacher effectiveness finds that a large part of the variation between teachers cannot be explained by teacher education or qualifications. Other factors contribute to the performance of teachers (VSO 2002):

- *Personal characteristics.* Selecting teachers who are motivated to teach, who display empathy to children, and who communicate 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. Increasing evidence indicates that teachers' morale and status are falling. Teachers with low morale are less likely to invest energy in developing and improving their work.
- *Contribution to student learning.* Structures that reduce student performance or that leave teachers facing impossible situations adversely affect motivation.
- *Opportunities for progression.* Although pay and conditions are important contributors to motivation, evidence suggests that nonremunerative—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 relationships with students or to feel responsibility toward them. In one study (IEQ 2000), almost 50 percent of teachers were not teaching the same class at the start and end of the school year.

A NEW LOOK AT TEACHER TRAINING

Teacher training is increasingly conceived as a three-stage process, including Initial, Induction, and In-career (the three "I"s). Given the urgent need to produce more teachers, many African countries have emphasized initial teacher education, while the induction and in-career stages are underdeveloped. Even so, the initial teacher education is too theoretical and too removed from the reality in schools. If these three stages are seen as parts of a continuous process of professional development, there are opportunities to move some of the content to the later stages, at which point it may appear more relevant to teachers and have a greater effect 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.

STRUCTURE CHANGES

More effective initial teacher education could be achieved by developing a combination of the preservice, induction, and CPD models. Most often, this approach will entail shifting a significant proportion of the training

BOX 7.3 TEACHER COMPETENCE IMPROVEMENT IN BURKINA FASO

Preservice 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 receive support from school directors and are visited at least once by in-service training center staff, pedagogic advisors, or school inspectors. Student teachers also participate in training sessions with experienced teachers who are undergoing in-service training.

Moreover, all teachers in public and private schools benefit from continuous pedagogic support and advice following a three-pronged approach. The first level of support is inside the school. Directors, 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. Directors 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 advisors and inspectors who are responsible for visiting each school and each teacher at least once a year. On the basis of their reports, the inspectorate elaborates subject-based, in-service training programs. The pedagogic advisors 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 takes 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 2006b.

away from preservice toward in-service support and training. By blending different types of training, students could be given, for example, short "essential toolkit" training before starting to teach and could be provided with further training through a combination of short courses and self-study material as they teach. Box 7.3 illustrates how Burkina Faso is trying to move in this direction. Limiting the initial training time reduces the

BOX 7.4 INTERNATIONAL TREND: MORE TEACHER TRAINING IN SCHOOLS

In the United Kingdom, 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 development is in response to one of the major demands voiced by teachers' professional associations, for exposure to 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 precertified teachers before and during their teaching course (Kyriacou, Hultgren, and Stephens 1999).

cost to the system if teachers leave the profession and also increases teacher supply by having teachers in the classroom as they learn. It has the advantage of getting teachers into the classroom quickly, and it may reduce wastage by selecting more of those who are actually interested in teaching.² This approach is consistent with an international trend toward greater training of teachers in schools and is driven by the desire to improve the relationship between training and classroom practice (box 7.4).

Adjusting teacher training curricula is desirable to focus more on developing practical classroom skills and less on the theoretical core disciplines. A structure in which courses are provided on a part-time basis outside of school hours could facilitate the use of practicing secondary teachers to provide teacher training.

Critical to the success of this model is the effectiveness of induction support. A teacher's experience during the early years in the classroom is critical to developing and applying the knowledge and skills acquired during initial training and to forming positive attitudes about teaching as a career. Yet, the beginning teacher is often "thrown in at the deep end," with a full teaching load and associated responsibilities. Although the value of good induction processes for beginning teachers is generally accepted, coherent policy on its implementation is lacking, despite "the high probability that solid induction programs represent one of the most cost-efficient preventative strategies around" (Fullan 1993, 106).

Induction typically involves structured 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 will provide it. With continuous support by a skilled mentor, a new teacher is more likely to get beyond personal and class management concerns quickly and to focus on student learning sooner.

CPD is the third element of an effective teacher education strategy. As discussed earlier, CPD has often been thought of as a series of short-term events rather than as an ongoing process of professional development. In fact, every teacher should have opportunities for professional development and should be expected to participate in them. Thus, ministries of education have an obligation to provide the training opportunities, and teachers have the obligation to take advantage of them. Given the large number of underqualified teachers in secondary education, providing them with professional development opportunities to upgrade their skills must be a high priority, especially in math and science (box 7.5), where the shortages are particularly severe and teacher subject mastery is insufficient.

Structuring selection and conditions to attract those who want to teach, as opposed to those who want to use teacher training as a step toward other opportunities, could also help increase quality and reduce wastage. Selection to teacher education entirely on the basis of academic achievement does not allow for preferential selection of specific people, including (a) those with personal characteristics particularly suited to teaching, (b) those with a strong interest in teaching, and (c) 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, who simply use teacher education as a

BOX 7.5 TRAINING FOR MATHEMATICS AND SCIENCE SECONDARY EDUCATION TEACHERS IN KENYA

In Kenya, a system 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 were 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: JICA n.d.

form of subsidized higher education, or who would be unwilling to teach in the locations where they are most 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 forecasted needs. Careful modeling of teacher requirements in each subject area can allow for adjustment of teacher training to meet the needs. Even so, unexpected developments, such as budget shortfalls and unexpected enrollment growth, can make it necessary to consider short-term actions 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 educators are critical, both to enable expansion and to improve the quality of classroom teaching. Possible actions to be considered include the following:

- *Tap outsiders with sufficient education.* A body of people may be available who have adequate general education but have not been trained as teachers. Providing them with 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, these candidates can be trained quickly by eliminating the teaching of subject content and by concentrating only on practical classroom skills, leaving educational studies and other theoretical material to be delivered in service. It should be possible to equip such teachers with an emergency course covering the essential skills in as little as a month of preservice training.
- *Provide accelerated content courses.* In many cases, there are insufficient teachers with the academic training to be secondary teachers. Shortages of teachers with adequate content knowledge present a serious difficulty, because content training cannot be compressed, particularly for mathematics, science, and international languages. The best candidates for accelerated content programs may be teachers who instruct at the next lower level and who desire additional certification. They can receive training, heavily focused on content mastery, through a combination of distance education and additional vacation courses.

- *Restructure the teaching career.* Like other professionals, teachers are motivated by career progression, which generally 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 occur in situations in which 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 on-site support for novice teachers, as well as rejuvenation and enhanced status for experienced teachers.
- *Arrange for emergency recruitment.* Short-term emergency measures may be necessary to increase the supply of teachers. Such measures could include (a) encouraging teachers who have passed retirement age to remain in service, (b) allowing public servants with sufficient education to work as teachers for a limited period (a year or two) and then return to their jobs, and (c) 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:

- *Using teacher incentives to improve learning quality.* Much discussion has revolved around the possibility of using incentive schemes to improve teacher performance. Schemes that 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 linked to administrative assessment of student performance on exams and tests 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 so that it is systematic and progressive, presents content and terminology in a straightforward manner, and is accompanied by good-quality instructional materials that explain the content and that help structure appropriate learning activities can increase motivation and the opportunity to succeed.

Building a competent teaching force in a rapidly growing system is a complex task, especially in a resource-constrained environment. No single strategy will work in all cases. In practice, a package of measures will need to be adopted and implemented simultaneously. Table 7.3 summarizes the options that may be considered.

Table 7.3 Summary of Options for Teacher Development

Possible action	Potential	Limitations
Restructure teacher education.	<ul style="list-style-type: none"> • Make teacher education more effective by focusing on practical skills. • Provide induction support and CPD. • Shorten preservice and increase induction and in-service programs. • Transfer as much in-service training as possible to school level. 	<ul style="list-style-type: none"> • Relies on support at school level, particularly if transportation is poor • Requires investment in in-service and professional development programs
Reorganize selection into teacher education to enroll students with the required profile (target specific personnel groups and subjects).	<ul style="list-style-type: none"> • Draw interested people into teaching and reduce wastage. 	<ul style="list-style-type: none"> • Is a medium-term solution and will take some years to produce results
Increase the number of places in teacher education to match needs.	<ul style="list-style-type: none"> • Increase teacher supply. • Match supply to predicted needs in specific subject areas. 	<ul style="list-style-type: none"> • Is a medium-term solution and will take some time to produce results
Draw well-educated people into teaching with short preservice training courses.	<ul style="list-style-type: none"> • Provide a rapid supply of new teachers if sufficient people exist. 	<ul style="list-style-type: none"> • Is limited by availability • May not be willing to work in locations where shortages are most severe
Provide accelerated pedagogy courses for candidates with sufficient subject matter knowledge.	<ul style="list-style-type: none"> • Provide a quick increase in teacher supply. 	<ul style="list-style-type: none"> • May not have suitable candidates available • Needs to be followed by targeted CPD
Provide accelerated courses in subject content.	<ul style="list-style-type: none"> • Provide a relatively quick supply. 	<ul style="list-style-type: none"> • Takes longer to produce results • May involve some compromises in quality
Restructure the teaching career.	<ul style="list-style-type: none"> • Develop positions of responsibility for good teachers (mentoring or training). • Provide opportunities for advancement to the next higher level. 	<ul style="list-style-type: none"> • Needs to be negotiated with teacher unions
Use emergency measures: allow retired teachers or other civil servants to teach.	<ul style="list-style-type: none"> • Provide an immediate solution. 	<ul style="list-style-type: none"> • Is a short-term solution only
Provide incentives for quality teaching by increasing local autonomy and rewarding performance measures controlled by teachers.	<ul style="list-style-type: none"> • Improve teacher motivation, accountability, and student learning by providing more time on task and better organized instruction. 	<ul style="list-style-type: none"> • Linking financial rewards to student performance is unlikely to be effective
Help teachers succeed by implementing policies that make appropriate curricula, good textbooks, and the like available to teachers.	<ul style="list-style-type: none"> • Improve performance of teachers who are already employed. 	<ul style="list-style-type: none"> • Usually requires significant up-front investments and time before showing results

Source: Author's compilation.

CPD = continuing professional development.

SCHOOL LEADERSHIP AND SUPPORT

The impact of teachers on student learning is greatly enhanced in schools with effective leadership buttressed by well-functioning school supervision and support (see also chapter 8). The role of school leaders—designated in different countries as head teachers, principals, or school directors—is particularly important where inspection and support mechanisms are weak, as in many African countries. In many countries, schools function in isolation, having only limited contact with other schools or with district and central-level authorities. Moving to a systemwide “culture of quality” (Verspoor 2006) means moving away from a system of largely unconnected schools, to a *system* where all—teachers and administrators at every level—take 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 may eschew perhaps their 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 jobs. A 1990 study concluded that only 3 of 31 African countries had comprehensive training programs in educational planning, administration, and management. Moreover, the frequent use of seniority and ideology as the basis for promotion 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 leaders generally have responsibility in four key areas:

- *School management.* Routine duties include assigning teachers to classes, dealing with disciplinary issues, and managing school finances and supplies. As more public and private resources are managed at the school level, ensuring their cost-effective application is becoming a key responsibility.
- *School-ministry liaison.* Typically, liaison is a combination of reporting to the ministry and requesting staff and resources from the ministry or local officials. Much of this work is done away from school premises.
- *School-community relations.* Working with the community is increasingly seen as part of the role of a school. It usually involves encouraging support for the school (for example, teacher salary subsidies, facilities construction, and maintenance) or of the schooling process

(encouraging parents to make sure their children do their homework, and to send their daughters to school).

- *Instructional leadership.* Leadership includes 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 and van der Westhuizen 1997). Developing good community relations is an additional burden on school leaders and is one for which their training has not prepared them. Research in Botswana, Malawi, South Africa, and Uganda found that at the school level, head teachers tend to lack the leadership training needed to operate as efficient managers (Göttelmann-Duret and Hogan 1998). Most school principals tend to see their role as managerial and to 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. A survey of 200 school leaders in Togo found that most preferred to see themselves solely as 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 because criteria for promotion are not always plainly articulated, and because 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 (Göttelmann-Duret and Hogan 1998). Once appointed, they 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 performance standards and little accountability.

LEADERSHIP TRAINING FOR SECONDARY SCHOOLS

Training is increasingly being provided for school leaders in Africa. However, it is often unsystematic, incomplete, and lacking the necessary follow-up. The duration and level of the courses vary widely: some head teachers receive two 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, focusing on details of administration and reporting rather than addressing the

real needs of supervision (Carron and de Grauwe 1997; Dadey and Harber 1991) or emerging financial management responsibilities. Courses aimed at school leaders need to be carefully targeted, in both content and level, to equip school leaders with practical skills relevant to their context.

Many of the day-to-day responsibilities are very practical, such as monitoring teacher attendance to reduce absenteeism (Halliday 1999; Gaynor 1994; Condy 1998). However, there is a clear need to train and develop school leaders who are ready to adopt educational leadership roles. School leaders should be in a position to observe teaching and to provide supportive interventions to guide weak teachers. Yet the training that exists is often brief and focused on administrative tasks. Changing the behavior of school leaders will require richer, more extensive training. School principals will also need support, 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 multinational program aimed at increasing the management capacity of head teachers in Francophone countries. The program uses new information and communication technologies to help the process of course development but uses 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, Creed, and Robinson 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, 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 (Göttelmann-Duret and Hogan 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 is magnified by unequal power relations, where students, and even many parents, are in poor positions to question professional practice. In response, most countries have inspection services that are intended to play this role. Where supervision occurs, it can have

positive influences on student learning: reducing teacher absences increases student attendance and it improves teaching and the flow of information to central authorities (Warwick, Reimers, and McGinn 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, who check standards and procedures, but who 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 percent 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 percent 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 is rarely clearly or realistically defined. Finally, one of the most serious constraints on inspection frequency is transportation. Inspectors may have limited access to transportation because they are, 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 percent 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 selecting inspectors could lead to the appointment of less-competent and less-motivated candidates. Inspectors may be chosen on the basis of seniority, or on examination results, neither of which guarantee the teaching skills and insights 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, 70) 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 SEOs [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.

These problems are further aggravated by the fact that in many countries, the inspectorate is a separate service in the Ministry of Education; this separation often results in coordination problems with other services of the ministry, such as secondary school, teacher training, and curriculum development departments. Inspectors typically lack the authority to take action on the recommendations in their own reports. Inspection reports are written and sent up the hierarchy but are rarely followed up with action by the supervising officers.

School inspection systems can 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 transportation 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 be prohibitively expensive in personnel and transportation. It is therefore not surprising that many countries are moving to more profoundly reform traditional school supervision systems. These reforms are typically designed to strengthen the pedagogical support role of the inspectorate and change its relation with the schools. This transformation often begins with a change in the name from “inspectorate” into one that emphasizes the pedagogical counseling and support functions and is accompanied by a redefinition of roles and responsibilities that 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 follow:

- Strengthening the intensity 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 pedagogical counselors and schools
- Establishing an array of support mechanisms, including school-level support and supervision, facilitation of cluster meetings, and opportunities for continuous professional development
- Targeting poorly performing schools for supervision and support.

Progress toward improved school performance will require recognizing the school as the locus of change and making sure that schools have

BOX 7.6 DISTRICT DEVELOPMENT SUPPORT PROGRAM (DDSP) IN SOUTH AFRICA, 1998–2003

The DDSP was designed to improve the quality of educational delivery in targeted school districts in four provinces, aiming at (a) improved quality of curriculum practices, (b) better quality of district and school management, (c) enhanced school governance, and (d) 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 created 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 factor 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 mentoring 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 cofacilitate training workshops, to support educators in classrooms, and to help school management teams (composed of principals, deputy principals, and department heads) as they 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; the literacy score increased by 5 percent, indicating an improved level of math and language understanding. In addition, 90 percent of the DDSP schools have systematic recordkeeping in place as a result of the development of an Education and Management Information System (EMIS) linked to the national EMIS.

Source: RTI International.

the resources and the skills necessary to tackle the challenges of change and improvement.

TEXTBOOKS: ESSENTIAL RESOURCES FOR LEARNING

International research has consistently demonstrated the positive effect of textbooks on student learning (see Verspoor [2006] for a summary of findings from SSA). Although much of this research has focused on primary education, it is probable that the conclusions apply, perhaps even more forcefully, to secondary education. Without an adequate supply of textbooks, students are unlikely to achieve expected levels of learning. Similarly, a body of research, mainly from developed countries, highlights the importance of school libraries for increased student learning achievement at both the primary and the secondary levels.³ School libraries are particularly important in SSA, where they not only provide access to supplementary reading material but also can organize collections of multiple copies of textbooks for loan when purchase by students is not possible.

The importance of textbooks and school libraries for effective secondary education is widely recognized, but unrealistic requirements and high unit costs often result in extremely low availability. Some schools have found creative solutions; many other schools have not (box 7.7). The number of officially prescribed textbooks and the costs per book vary widely between countries and even between schools within a country. 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, similar analysis, experimentation, and reform are urgently required.

A strong case can be made for rethinking the suitability of the traditional high-cost textbook provision strategy that is modeled on practices in industrial countries. SSA countries might consider turning textbooks into books of core content by shifting material into teachers' guides (supplied at one book per class rather than one book for every one, two, or three students) or into library books (supplied in small multiples to school libraries rather than in class sets). The effectiveness of this strategy will depend on consistent library funding; good, small libraries and core-content textbooks are potentially cheaper and more effective in producing learning outputs than no school libraries and long textbooks that provide unnecessary detail. In conjunction with a cost reduction to about

BOX 7.7 BOOK AVAILABILITY IN UGANDA—THREE SCHOOLS

A large (1,100 students), long-established, prestigious, grant-aided religious foundation secondary school in Kampala has a good, rapidly increasing reputation for sound management and good exam results. Fees are 300,000 Uganda shillings (USh; \$170) per term for boarders and about USh130,000 (\$75) per term for day students. Approximately 3.0 percent of the annual school budget (USh 3,000,000, or \$1,700) is spent on textbooks and library stock every year. The school maintains a book-to-pupil ratio of 1:1 for textbook sets in mathematics and English language for all secondary grades (S1 to S6) but this ratio 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 four 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, then passed on to the next class for re-use. In this way, an effective 1:1 book-to-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 assigned 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 six 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 taped to prevent damage). Loss and write-off rates are about 1–2 percent 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, are lost, or are terminally damaged. In almost all other subjects, book-to-pupil ratios are between 1:10 and 1:20 for S1 to S4 and about 1:20 for S5 and S6. The chemistry textbook set has original books that are more than 20 years old, also rebound many times and in poor 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 using 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 has an enrollment of 200. Annual fees are US\$ 150,000 (\$85). There is no library, and there are no textbook sets. The school has bought one copy of each basic textbook for use by teachers. There are no other books in the school. The school issues a book list, but students never buy the books. Many students cannot even afford the fees, and a number of students perform work in lieu of fees. There is no local bookshop that stocks the textbooks on the list and nowhere for parents to go, except Kampala, if they wanted to buy them. The books on the school book list are largely those used by the teachers when they were in school.

A rural, government-aided (religious foundation) girls boarding school operates up to S4 with an enrollment of 200. Fees are US\$ 90,000 (\$50) per term. The school has sets of mathematics books for S1 to S4 at a ratio of 1:2. For English language, there is one teacher's copy per class. There are one or two science textbooks per class. There are no textbooks, even for teachers, in any other subject; teachers have to rely on their own school notes.

Source: Read et al. 2008.

\$4–\$6 per textbook as discussed in chapter 5 and with institutional reform policies discussed next, this strategy could provide an environment in which all students have access to printed textbooks and other materials.

COST-EFFECTIVE TEXTBOOK SPECIFICATIONS

Cost considerations are important in curriculum design—the number of subjects that require separate textbooks, the choices of instructional methods that call for more or less content coverage in the textbook, and the physical production specifications of textbooks all imply cost trade-offs. A realistic curriculum and syllabus design is the first step toward improving textbook availability. Costs need to be estimated for the learning and teaching materials prescribed by the curriculum so that annual funding implications are clearly understood and accepted and are within affordability parameters. A second step is to stabilize curricula and syllabi so that books and learning materials can be used for several years.

Third, curriculum design and instructional methods should recognize that few students—or government budgets—will be able to afford individual purchase of reference and reading materials. Arrangements should be made to ensure their availability for consultation by students in school libraries.

In many countries, physical production specifications (text paper, type and finish of cover, 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 industrial-country markets. Low student numbers, particularly at the senior secondary level, combined with widespread low parental purchasing power and lack of sustainable government and donor funding for textbooks will result in markets too small to attract investment in new title development. Because of the scarcity of local titles, particularly at the senior secondary level, that have been conceived and originated in the context of local conditions and local purchasing power, few alternatives remain other than to recommend imported textbooks. In some cases, for especially popular imported textbooks, the overseas publisher might 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 typically appear in countries with a school-based choice of textbooks. Of the 19 countries reviewed by Read et al. (2008), 11 have national approved secondary textbook lists (Botswana, Cameroon, Côte d’Ivoire, Ghana, Kenya, Lesotho, Malawi, Nigeria,⁴ Tanzania, Togo, and Zambia). Of these, only three (Kenya, Malawi, and Tanzania) use price as a significant factor in the evaluation and award of approved status. Of these three, only Malawi monitors prices to ensure that supply is at agreed-on 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 markups over list price are reported to be common in Tanzania. Cameroon, Côte d’Ivoire, and Togo have national recommended book lists, but the scope is so wide that the lists do not help schools choose relevant titles and do not help the secondary system as a whole lower purchasing costs for textbooks. Textbook requirements set by schools are often unrealistic with regard to price and local availability. Teachers generally do not expect students to have the books and resort to instructional methods based on students’ copying from the blackboard and using pamphlets prepared by the teacher.

Experience in Kenya with approved book lists suggests that low textbook prices are linked to the use of price as a key factor in a competitive evaluation. With no price factor, publishers have no incentive to offer their best prices. If the list is open-ended, there is no competition to achieve approved status. Limited lists also lead to bigger sales for approved titles, resulting in 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

The supply of textbooks that are published and distributed by government agencies has not been reliable because of underfunded budgets; unreliable data on school-level needs; poor management of facilities, staff, and inventories; and inequitable service delivery (Read, Denning, and Bontoux 2001). The government role in the process has declined rapidly since the beginning of the 1990s. In 18 out of 19 countries surveyed by Read et al. (2008), secondary textbooks were published by private sector publishers, and junior secondary textbooks were increasingly being published for specific markets. In only four countries did the government negotiate with publishers for a single title 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 of the 19, policies have been adopted that allow schools to select the textbooks they wish to use, usually from a preselected, approved, or recommended list.

A vibrant local publishing industry and bookseller networks are key elements of effective textbook supply strategies. Anglophone countries generally have stronger local publishing industries than do Francophone countries: their markets are larger, governments provide some support for textbook purchases, subsidiaries of UK publishers provided training opportunities for local staff until the end of the 1960s, and market liberalization got under way more than a decade ago. However, regional cooperation has been much stronger in Francophone countries, where smaller markets and more uniformly organized systems and curricula provided incentives and opportunities to realize economies of scale in joint ventures with French and Belgian publishers. Regional textbook publishing provides significant benefits from longer print runs and lower unit costs. Country-specific publishing takes place largely for the social sciences;

local adaptations of regional texts by local authors can help overcome the problems of local relevance.

Progress toward strong local publishing requires (a) stable and predictable funding; (b) open competition across borders; and (c) regional cooperation on curriculum, textbook design, and content coverage. Local publishing can be supported by exempting paper and other printing supplies from import duties and taxes. Tapping the experience and backlists of international publishers through joint ventures and tropical editions of textbooks holds considerable promise, especially for senior secondary education. In markets perceived to be big and reliable enough to justify the initial investment, approved textbook lists can be used to stimulate local publication of secondary school texts.

EFFICIENT DISTRIBUTION

Because parents purchase most secondary textbooks, efficient local distribution networks are essential. The supply of secondary textbooks has shifted back to private sector booksellers since the mid-1990s. A number of determined efforts have been undertaken in Kenya, Malawi, Tanzania, Uganda, and Zambia to redevelop primary and secondary textbook distribution strategies that consciously seek to support private sector educational bookselling on a national basis. This process is still only partial in most countries, and most suffer from geographic gaps in private sector textbook distribution. Only Botswana, Côte d'Ivoire, Kenya, Lesotho, South Africa, and perhaps Nigeria among the countries studied by Read et al. (2008) have bookselling capacity to provide genuinely national coverage. The redevelopment of national bookselling networks is hindered by continued state intervention in some countries and by underfinancing with associated credit and stockholding problems in others.

In several countries, used-book markets are important to secondary textbook supply. Sometimes these markets are organized at the school level, but in many other instances this market is dominated by "pavement" booksellers. Although they may slow down the development of a national network of booksellers, they play an important role where booksellers are not present. Outside urban areas, schools may have to take on the organization of used-book sales and the processing of parents' purchase orders.

SUPPORTIVE SCHOOL LIBRARY POLICIES

Libraries are integral to textbook policies that aim to reduce the financial burden on parents. The overwhelming characteristic of most secondary

school library provision throughout Africa is underfunding, 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 to focus on a limited number of schools and on the short term. When improvements occur, they are often temporary (box 7.8). Collections are old and mostly comprise donated books unrelated to the curriculum. Many libraries have been converted into classrooms. As a result, libraries are of limited value and interest to both students and teachers and thus are underused. 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.

Effective school libraries can also play a key role in textbook provision systems that aim to minimize individual purchase and that encourage sharing of expensive reference materials and infrequently used textbooks.

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 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 for a basic school library. A teacher had to operate as 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 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. 2008.

Libraries can also provide additional reading opportunities for students, which improve reading skills, comprehension, writing, and clarity of expression, in turn supporting performance in all other curriculum subjects. Effective school libraries should also provide training and experience in research and information access, which are essential skills for quality performance in higher education and for 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 percent); the remainder consists of reference and supplementary books to support the curriculum. Few countries can allocate such resources to school libraries. But almost all secondary schools in SSA will be able to establish functioning libraries with well-targeted smaller amounts of funding and careful library management of stocks. A careful analysis of the trade-offs between policies that rely on individual book purchases and systems that allocate part of 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 governments may wish to consider as they aim to ensure that all students have access to textbooks.

BOX 7.9 TOWARD AFFORDABLE TEXTBOOKS

Textbooks should not cost more than \$4–\$6 per copy (SSE textbooks in small markets may be an exception). With a curriculum that specifies six textbooks and an average life expectancy per book of four years, a budget of \$10 per student per year (or \$5 where two students can share) would suffice. Policies that would allow progress toward this goal include the following:

- Curricula with fewer subjects and thus fewer textbooks
- Textbooks that focus on core content and that reduce coverage of nonessential enrichment detail
- Shifting material into teachers' guides (supplied at one book per class rather than one book per one, two, or three students) or into library books (supplied in small multiples to school libraries)

- Book sharing and thus reduced book-to-pupil ratios through careful timetabling
- Effective school libraries where students can consult reference materials and borrow textbooks
- School-managed, second-hand markets and possibly loan or rental schemes
- Short-term rather than long-term loans of books to students to reduce loss and damage
- Approved limited list of titles on the basis of evaluations that include price as a factor
- Physical production and presentation specifications designed to extend book life but avoid unnecessary costs (such as the use of four-color printing)
- Reduced wastage in manufacturing, warehousing, distribution, school storage, and school usage
- Reduced page formats (large formats use more paper and are frequently less durable)
- Greater control over input costs from publishers and printers through review, evaluation, and approval mechanisms; conditions to ensure that price is a factor in evaluation and approval; and pricing that is monitored in parent purchase situations
- Tax exemptions for raw materials used for book manufacturing.

Source: Read et al. 2008.

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 an inability to pay, and that steps will be taken to ensure that sociocultural obstacles are adequately addressed. The supply and demand constraints faced by girls as they aspire to enter secondary school were discussed in chapter 2 (table 2.1). The important potential contribution of targeted financial support to poor students was discussed in chapter 5. The most direct and quickest way for governments to boost school enrollment for the poor is to reduce the direct, indirect, and opportunity costs to parents of education (Herz and Sperling 2004) by cutting school fees and

providing incentives and bursaries or stipends. 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 discriminate against them—as in expulsion and prohibited reentry of pregnant girls—or otherwise do not recognize the importance of instructional strategies and instructional materials that avoid gender stereotyping but that also recognize girls' learning needs and positively encourage girls' participation in classroom and school activities.

Such a policy framework is particularly important to ensure that poor girls have equal opportunities to learn: the policies need to ensure the creation of a supportive institutional and pedagogical environment as well as the safety and accessibility of schools. In many settings, this change will mean the creation of small, locally managed schools.

INTERVENTIONS TO HELP GIRLS TO SUCCEED

Girls often face formidable obstacles to entering and succeeding in secondary school. Some of the challenges have their roots at the primary level; others are related to girls' educational experiences in secondary school. Girls pass through puberty and become adolescents most often during their years in junior secondary school. Lloyd, Mensch, and Clark (2000) point out that girls 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 differently from boys because of differences in curricular opportunities within the school; differences in treatment by individual teachers; and differences in rules, regulations, and administrative practices.

Improving girls' educational experiences in secondary school will require policies that support overall improvement in education quality and student learning achievement; that make education opportunities available close to the parental home; and that do so with a special emphasis on the needs of poor students, especially girls. Girls will often disproportionately benefit from such interventions. But these interventions alone will rarely be enough to improve access, reduce drop-out rates, and improve girls' learning achievement, especially in mathematics and science. These goals will often require additional interventions that address

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.	Work with communities to address social demand constraints. Reduce distance to school by establishing day schools. Provide bursaries and financial support to poor girls. Provide 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.	Provide financial support to the poor. Provide academic and peer support. Use gender-neutral textbooks. Train teachers in gender responsiveness. Have reentry policies for pregnant girls. Provide appropriate sanitary facilities.
Low girls' participation and performance in math, science, and technical and vocational education	Increase number of girls who are successful in nontraditional fields, in particular math and science.	Provide role models. Improve gender-sensitive instructional strategies. Provide extracurricular support.

Source: Based on Sutherland-Addy (2008).

cross-sectoral issues—HIV/AIDS being the most important. Other interventions include institutional policies such as early childhood development programs, policies on pregnancy, female teachers who can provide role models, and single-sex schools; and instructional strategies that encourage girls' participation and that use instructional materials 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.

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 low, and the children are poorly prepared for further education. Rural secondary schools are often small. In Zambia, upper basic schools (grades 8 and 9) enrolled on average only 100 pupils in rural areas and 200 in urban areas. Day high schools (grades 10–12) in rural areas enrolled on average 371 students, compared with 617 in urban areas (Bennell, Bulwani, and Musikanga 2007). In Ghana, 16 percent of the senior secondary schools (grades 10–12) enroll fewer than 100 pupils (Akyeampong 2005). In Mali, about 20 percent of the

junior secondary schools (grades 7–9), representing 5.5 percent of total junior secondary enrollment, enroll fewer than 150 students (Mali Country Status Report [CSR]).⁵ In Mauritania, two-thirds of the junior secondary schools (grades 7–10) have fewer than 250 students (Mauritania CSR). In Madagascar, a third of the junior secondary schools have fewer than 100 students, and only half of these schools offer all four grades. Evidence from Madagascar suggests a similar small size (225 students) for senior secondary education (Ramanantoanina 2008).

Large schools are often thought to be more efficient. Some school systems in the United States followed the high school consolidation movement, leading to an increase in the size of the average high school. However, education reformers' promises of efficiency and effectiveness are now being questioned, and a movement back to small schools has become a prominent feature of the education landscape (box 7.10).

BOX 7.10 THE RETURN OF THE SMALL HIGH SCHOOL IN THE UNITED STATES

In the 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 titled *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 enrollment above 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 in life. They participate more in extracurricular activities, have better rates of attendance, report greater positive attitudes toward learning, and are less likely to face school-related crime and violence. Teachers report greater job satisfaction and are more likely to feel that 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

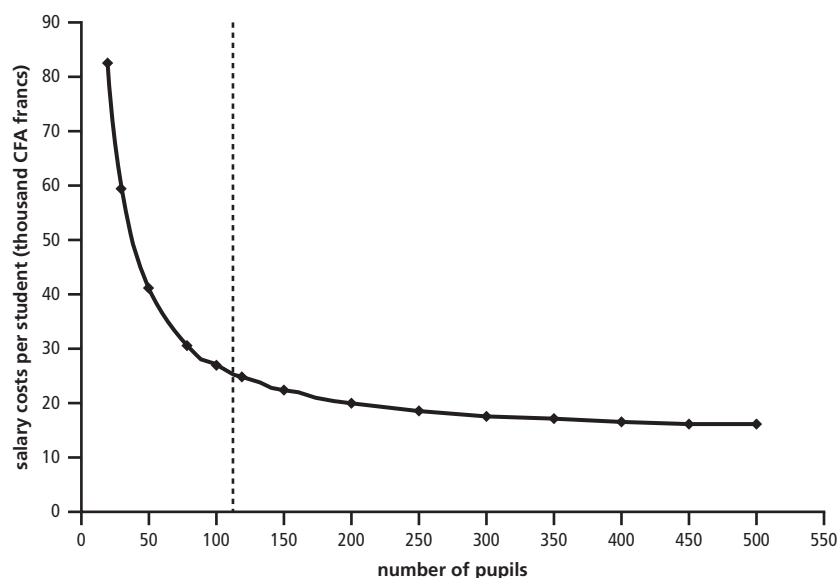
involved in the school. Small schools are often characterized by personalized attention, curriculum integration and specialization, relational trust and respect, a student's sense of belonging, a strong positive ethos, greater accountability, and a sense of communal mission. The towns and neighborhoods in which small schools are found also benefit, by providing a central meeting place and source of activity, by building community ties and relationships, by enhancing the democratic process through mutual goal setting and decision making, by providing added economic activity, and by acting as a source of 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 toward the transformation of large, comprehensive high schools into smaller, more-effective learning communities.

Small size, of course, is not a panacea for poor 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.

Evidence in SSA suggests that beyond a size of 150 students for a three-year course, or 200 for a four-year course, economies of scale are limited and would probably be outweighed by some of the benefits of smallness, as have been found in the United States. Figure 7.1 shows that beyond 120 pupils, the effect of increases in school size on the salary cost per student for junior secondary schools in Mali is small. Other CSRs have similar findings. Thus, small school sizes may be economical, especially when measures are implemented to eliminate inefficiencies in the use of resources. The scope for better use of resources is often considerable.

The number of teachers and administrative staff are almost equal across 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). Offering flexible hiring and employment policies, training teachers who can teach two or more subjects, and sharing teachers with other schools can all help reduce the per student cost in small schools.

Figure 7.1 Salary Cost Per Student and Enrollment

Source: Mali CSR.

Furthermore, opportunities to increase class sizes through multigrade instruction are rarely exploited. In Madagascar, for example, about half of JSE schools have small classes (fewer than 30 students). Some 20 percent of JSE classes and 15 percent of SSE classes 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.

Multigrade instruction—in which one teacher teaches students of two or more grades in one class—has been found to be a cost-effective solution for providing primary education in sparsely populated areas (Little 1995). It provides access at reasonable cost to children who otherwise would not be able to enroll; students develop self-study skills and learn to cooperate with each other; and positive effects on learning achievement, student self-esteem, and civic behavior have been found in most studies of multigrade instruction. Multigrade instruction occurs for the most part in primary schools. There are, however, examples of multigrade instruction at the secondary level in Colombia, Sri Lanka (Little 2004), and Finland (box 7.11). With more mature students who should increasingly be capable of self-directed learning and analysis, multigrade instruction has opportunities for wider application, especially where schools have the freedom to organize the structure and the timetable for curriculum delivery to fit local constraints.

BOX 7.11 MULTIGRADE CLASSES IN SECONDARY SCHOOLS IN FINLAND

For demographic reasons, combined-grade secondary schools were common in Finland. The usual 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 with a spiral curriculum approach that allowed 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 not only are a fundamental part of the system rather than an anomaly, but also are accepted as fertile ground for the development of new ideas for use in other schools—and not just the recipients of modified practices devised elsewhere.

Source: Laukkanen and Selventoinen 1978.

Another way to deal with the diseconomies of scale of smallness is to broaden the grade span⁶ of a 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 can be integrated with the primary school, offering grades 1–8 or grades 1–12. In several countries, kindergarten classes are also integrated into these schools (K–8 or K–12 in the United States). Recent research suggests it may be reasonable to reconsider the dominant view that a narrower grade span better responds to the developmental needs of students. Schools with broader grade spans reduce transitions between schools and can take advantage of the positive effects of the smaller schools (Howley 2002). In SSA, Kenya and Zambia are moving in this direction.

POLICY OPTIONS

Several countries in SSA have recognized the importance of providing local opportunities for secondary schooling to students outside urban areas. Reducing the distance to school is particularly important for addressing parental concerns about the safety of girls who may need to

BOX 7.12 EQUITABLE ACCESS TO JUNIOR SECONDARY EDUCATION IN SENEGAL

Only one in five children of junior secondary school-age in Senegal is enrolled in a junior secondary school (*collège*). Most such schools 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 schools have the following characteristics:

- They are located in a rural area reasonably close to children's homes (between four and five kilometers at most).
- They are child friendly, with trees, playgrounds, colorful environments. The school is both a learning space and a living space.
- They are community friendly; community members participate from the planning phase to the management phase. The process of community ownership is strengthened through capacity building and awareness campaigns throughout the project.
- They are affordable. Operating costs are low compared with traditional schools.
- They offer only core courses: language, math, science, history, geography, English, and physical training. Teachers teach at least two subjects, and it takes at most four teachers to cover the whole curriculum.

Source: Pape Sow, USAID Senegal, personal communication (August 2006).

travel long distances or attend boarding schools far from home. Senegal and Guinea are implementing a model of *collège de proximité* for junior secondary schooling (box 7.12). A report (CIDT 2005) on Zambia recommends establishing small local high schools to avoid the costs and social problems of large boarding schools. A key policy challenge is providing these schools—mostly in rural areas and attended by disadvantaged groups—with financial and human resources equivalent to those in larger schools in urban areas. In fact, equity considerations provide a strong case for targeting public expenditures disproportionately to these

schools (see chapters 5 and 9). Available evidence suggests that small rural schools can deliver good quality education, provided that they are adequately resourced and that the resources are efficiently and creatively used (box 7.13).

BOX 7.13 BEATING THE ODDS

A research project of the Rural School and Community Trust in the United States studied five small high schools in rural areas and small towns. These schools were smaller than the median, had higher than average poverty, and scored above the state mean on all mandatory state tests. Researchers found that these schools had the following factors in common:

- They focused on a mission and goals explicitly identified in a cohesive plan produced collaboratively by leaders, teachers, and parents or community members.
- They adopted diverse practices widely recognized as effective pedagogy, blended together to suit local needs. Team teaching was common, interdisciplinary courses were not exceptional, and the use of technology was embraced. The small size of these schools made this easier—they were able to be flexible in scheduling and sharing resources.
- They demonstrated leadership that was positive, flexible, creative, and collegial. The sense of shared responsibility for the success or failure of the school was very apparent. Teachers were empowered to make important decisions and work together and were given planning time that reflected those values.
- They connected closely to the communities they serve.
- They 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 was a sense of mutual respect and shared expectations. Doing well is less about pedagogy, programs, and professionalism and is more about how people treat each other—the human relationships are what make them successful.

Source: Rural School and Community Trust 2004.

With a flexible policy environment, many of the current inefficiencies in the use of resources can be addressed with some careful planning. Possible options include the following:

- *Employing polyvalent teachers.* Hiring teachers who can teach several subjects has been and still is common practice in many secondary schools in industrial countries, especially at the junior level. In high schools in the United States early in the 20th century, two or three teachers taught all subjects. In Germany, the *Staatsexamen* for Gymnasium teachers is equivalent to two master's degrees.
- *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; schools should be allowed to recruit local people with appropriate backgrounds even if they do not have the prescribed qualifications.
- *Adapting curriculum to fit local conditions and resources.* Localizing the curriculum might mean reordering sequences, limiting choice and options, and not offering classes with very few students.
- *Adopting innovative pedagogical practices,* such as multigrade classes, team teaching, and multiple shift classes that help intensify the use of available resources.
- *Sharing resources with the local primary school* by increasing the grade span to 8 or even 10–12 years of schooling.
- *Sharing administrative and pedagogical services* between two or more neighboring schools.
- *Using ICT and distance education* to help overcome the disadvantages of smallness.

CONCLUSION

Few countries in SSA have put policies in place to accompany the expansion of access to secondary education so that opportunities for effective learning are established and accessible to all students. This chapter reviewed several policy options that countries may consider as they formulate their national strategies for secondary education development. Effectively addressing quality issues will require defining policy packages that incorporate several measures in such a way that they can be accepted by the stakeholders concerned. For example, generalization of day schooling will be accepted only if 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 acceptable opportunities to learn.

Table 7.5 Improving Quality for All: Objectives and Policy Options

Policy objective	Options to consider
Expand the supply of qualified teachers.	<ul style="list-style-type: none"> • Shorten traditional preservice training programs, expand preservice output, provide intensive induction support to new teachers and continuous professional development opportunities for all teachers. • Explore options for nontraditional recruitment, including people with academic qualifications and retired teachers. • Create opportunities for professional advancement through increased responsibility in the current position or through opportunities to advance to teaching at the next higher level. • Increase teacher productivity through deployment policies that ensure that all teachers have a workload commensurate with their salaries.
Help teachers improve their instructional effectiveness.	<ul style="list-style-type: none"> • Ensure teachers have adequate subject-matter knowledge. • Emphasize pedagogical practice in preservice 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.	<ul style="list-style-type: none"> • Use transparent and competency-based selection processes instead of seniority-based promotion. • Reinforce preappointment and in-service training with regular opportunities to exchange experiences with other head teachers.
Improve supervision and support.	<ul style="list-style-type: none"> • Develop the capacity at the district level to provide pedagogical support. • Decentralize responsibility for supervision and support involving school leaders as front-line pedagogical counselors. • Target poorly performing schools for support and supervision.
Ensure an adequate supply of textbooks.	<ul style="list-style-type: none"> • Limit the number and the content coverage of required textbooks. • Reduce the cost of textbooks through more efficient institutional arrangements for publishing and distribution. • Strengthen school libraries to ensure access to reference and supplementary reading materials and opportunities for accessing information.
Enhance enrollment and retention of girls.	<ul style="list-style-type: none"> • Provide targeted financial support through bursaries of conditional cash transfers. • Mobilize communities to support girls' schooling. • Ensure a girl-friendly school environment. • Implement interventions to address areas of special concern, such as successful participation in math and science courses.
Expand opportunities for poor rural children to enroll.	<ul style="list-style-type: none"> • Progressively extend the primary cycle to eight or nine years. • Introduce multigrade instruction in junior secondary education. • Adapt the curriculum to take account of the constraints and opportunities of smallness, including the use of ICT and distance education. • Train polyvalent teachers. • Deploy resources flexibly to take account of local conditions that may require the use of part-time teachers and the sharing of administrative resources with other schools.

Source: Author's compilation.

Recruiting and retaining sufficiently competent teachers is a top priority. With rapidly increasing enrollment, sometimes second-best choices will have to be considered for the medium term because it will otherwise be impossible to expand the supply of trained teachers and enhance instructional effectiveness. And teachers do not work in a vacuum. Strong evidence maintains that effective school leadership is a key determinant of teacher performance. Yet, many school leaders are ill-prepared for this job because it has become increasingly complex and includes responsibilities for traditional school administration as well as for pedagogical leadership, financial management, and community outreach. Moreover, schools are part of larger systems that are expected to support and supervise the schools' efforts to improve instructional effectiveness. Combining the leadership of principals with well-targeted support from district and central offices will be an important element of quality-improvement strategies.

The impact of these efforts on student learning will, however, be limited if students do not have access to textbooks and other instructional materials. In many secondary schools, students have little access to written materials, with consequences for learning achievement even more severe than limited access to good ICT instruction. Effectiveness in secondary education development implies providing equitable opportunities to learn. This provision means targeting disadvantaged students—those who are poor, who live in rural areas, and especially girls—for special attention and specific interventions. Helping girls succeed must be an integral element of such strategies, and it must include addressing family concerns about safety and cost. Finally, countries will need to develop sets of policies that allow students in rural areas access to local secondary schools. This effort 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.

NOTES

1. 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 Read et al. (2008).

2. In their conclusions on the MUSTER project, Lewin and Stuart (2003) argue for these reasons that teacher education has to be restructured by reducing up-front investments in three or four years of preservice training in favor of much shorter initial periods backed by subsequent continuing professional development of those who actually are teaching and continue to teach.

3. The key outputs that can be expected 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 Web site of the International Association of School Librarianship, <http://www.iasl-slo.org/make-a-difference.html>, provides ample references. See also Williams, Wavell, and Coles (2001).
4. Nigeria has a mixed system, with some states having state-approved textbook lists. There is no federally approved secondary textbook list.
5. The CSRs consulted are listed in appendix A to this book.
6. Grade span configuration refers to the range of grade levels in a school.

Strengthening Governance and Management

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

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.¹ But 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 ensuring broad access to secondary education of acceptable quality.

Decentralization is perhaps the most ubiquitous management reform currently taking place in African education. Support for decentralization is provided by international evidence suggesting that a judicious combination of central direction and local autonomy can create an environment in which resources are most effectively deployed to support student learning (box 8.1). Changes in responsibility for the organization of instruction and the allocation of resources, more transparent decision-making processes, models of school-based management, and new forms of public-private partnerships (PPPs)² are emerging in almost every country in Sub-Saharan Africa (SSA) and are contributing to notable changes in the governance and management of secondary education. Decentralization 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, participatory planning

BOX 8.1 MANAGING TO IMPROVE STUDENT PERFORMANCE: INTERNATIONAL EVIDENCE

Improving the institutional environment of education to ensure the 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 delivering educational services. Those people 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 from the 1994/95 Trends in International Mathematics and Science Study (TIMSS) for 39 industrial and middle-income countries identifies the specific institutional features of the schooling system that will have a positive effect 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.

systems and incentives-based implementation strategies. However, the trend toward decentralization does 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 one-way accountability to central authorities is giving way to processes of reciprocal accountability (Elmore 2004) between all stakeholders.

Research literature is extensive on the management of education systems. Some of it analyzes the specific problems and context of SSA but is heavily focused on primary and higher education, with little attention to secondary education. Still, 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 experience are relevant for SSA.

The discussion in this chapter uses the following definitions:

- *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, thereby 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 are used to manage the challenges of secondary education for the common good.³
- *Management* denotes the process of leading the secondary education system toward the achievement of results, through the deployment of financial, human, and intangible resources.⁴
- *Accountability* refers to holding providers of education services answerable to hierarchical supervisors, beneficiaries, and other stakeholders for the process and outcomes of a program.⁵

This chapter first discusses how decentralization, governance, and management of the education sector are organized in SSA and how secondary education is affected by these changes in the overall management of the sector. It then discusses four main policy priorities for strengthening management of secondary education: (a) developing effective

schools, (b) moving toward increased local autonomy and central steering from a distance, (c) strengthening management information systems, and (d) extending public-private partnerships. The chapter ends with some concluding thoughts on the governance and management of secondary education.

DECENTRALIZATION OF THE GOVERNANCE AND MANAGEMENT OF EDUCATION

Since the late 1990s, 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 reform of education governance and management in SSA are usually embedded in these larger endeavors and have revolved around attempts to restructure centralized education bureaucracies. They create devolved systems with different administrative levels, multiple providers, varying degrees of institutional autonomy, and various 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, and faith-based organizations remain important partners for the supply of education in many countries, 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; to municipal, county, or district governments; and to schools. *Devolution*—the distribution of authority to local governments or local communities to make decisions and to take action independently of central administrative oversight—is occurring less frequently than *deconcentration*—wherein local entities act as the agents of central governments, manage personnel, and expend resources allocated to them by central authorities.⁶ Deconcentration is greater in Ghana, Niger, Nigeria, Tanzania, and Zimbabwe; devolution is more the norm in Mali, Senegal, South Africa, and Uganda, 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).

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. (Gershberg and Winkler 2004, 29)

These sectorwide findings broadly apply to secondary education. Many countries have a strong tradition of parental involvement, as in the examples cited earlier of Zimbabwe (box 4.7) and Kenya (chapter 4 and box 9.4). In many Anglophone countries, churches and boards of governors have considerable responsibility for running 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

Table 8.1 Assessing African Education Decentralization Experience

International lessons learned	African experience (rated 1–5, 1 is best)	Comments
<i>Accountability</i> is critical for results.	[5] Weak formal accountability mechanisms	Informal accountability mechanisms work well in community schools.
<i>Assignment</i> of functions and responsibilities must be clear and not overlapping.	[5] Role of local governments poorly defined, overlapping, or both	Divergence is significant between legal statements of roles and reality.
Parental <i>participation</i> 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 <i>principals</i> are crucial for well-managed schools.	[4] Role and capacity of principals not well developed	Very little evidence exists of serious attention to the issue.
Design of <i>financial transfers</i> determines equity and efficiency.	[3] Very mixed experience—some good, some bad	Use of capitation grants to subnational governments, schools, or both.
<i>Ministries of education</i> must be restructured to support the decentralization process.	[4] Few examples of restructuring to provide information, technical assistance, and so forth	Failure to restructure and reorient ministries is causing them to fight to retain their traditional role.

Source: Gershberg and Winkler 2004.

management of secondary schools in Francophone Africa is slowly changing as institutions, the legal and regulatory environment, and management culture gradually adjust to deconcentration policies. However, the role and responsibilities of the different stakeholders are often poorly defined or not respected in practice. In many countries, governments 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 together effectively, schools can perform well, even under adverse conditions. The decentralization processes are highly country specific and differentiated, but almost everywhere in SSA the various functions are being decentralized to different levels, thus 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 (Kaufmann, Kraay, and Zoido-Lobaton 2000). These findings hold across many 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, 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 in which resources are allocated on a competitive basis to different providers.

The first approach has been dominant in much of SSA for many decades, even though secondary schools usually have had somewhat

more autonomy than primary schools to manage their affairs. In recent years, there have been attempts in many countries to move away from the hierarchical models toward deconcentrated models. At the same time, networks are developing in many countries, while other countries have introduced competition on a limited scale as a mechanism for resource-allocation decisions.

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, 5).

In addition, the development of more democratic societies in SSA, the increasingly important role of nongovernmental organizations (NGOs) in policy consultations and implementation, and the rapid flow of information between stakeholders spurred by the increasing penetration of information and communication technologies in SSA are further changing the dynamics of education governance, especially at the postprimary level. In more and more countries, voters are holding elected officials and governments accountable for the performance of public 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.

Partly in response to these societal movements, the governance of education in many countries is 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 (Botswana and Senegal, for example). Local officials are being asked to take on responsibility for preparing local plans for service delivery within the framework of national education planning priorities. Yet, personnel

decisions are rarely decentralized; local levels usually have limited autonomy on personnel issues and remain largely dependent on provincial or district education offices.

Almost everywhere in SSA, concepts and expectations for accountability are broadening in parallel with these changes in the locus of decision-making authority. Not only are ministry staff at all levels expected to meet the requirements of their jobs, but also they are 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, the 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 boards of governors and the parent teacher associations that schools are 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, respectively, as "upward accountability," referring to the process of reporting to those above school management in the education hierarchy; "downward accountability," as in the obligation the school hierarchy has to learners; and "outward accountability," (Glassman and Sullivan 2008) as in the responsibility the school system has to community members. So, all education providers are accountable to the public for the education services 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 services expected from it.

Transparency in resource allocation is a central element of good governance. The negative impact of corruption on the economic, social, and political development of countries from increased transaction costs, reduced efficiency of service delivery, distortion of decision-making processes, and the undermining of social values is well documented. In education, examples abound of unethical and fraudulent behavior of administrators that undermines the efficiency and equity of service (Hallak and Poisson 2002), including corrupt practices in the public tendering of contracts; favoritism in the allocation of scholarships and allowances to students as well as recruitment and posting of teachers; and

bribes and pay-offs for admission, promotion, or preferential treatment to well-connected students for admission in prestigious elite schools. Similarly, unethical behavior of teachers undermines the moral purposes of public education. Public school teachers may teach more and better in private schools; be absent from their classes to attend to their private business or to 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 (for example, orphans and HIV/AIDS victims) who generate cost but do not bring in revenue for the school. Considerable benefits for education development can be realized in countries that 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 2000, para. 46). Unless and until issues of corruption and ethics are addressed, policies intended to benefit the poor—targeted scholarships, conditional cash transfers, and equitable opportunities to learn and proceed to secondary school—are unlikely to have the intended effect.

MANAGEMENT

Ineffective organizational structures and institutions, underdeveloped managerial skills, 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), which is much more complex than at the primary level, and by the system of governance. Although the objectives of access, quality, and efficiency are perennial, the strategies for achieving them have changed dramatically in many countries in the region. First has been the shift from an emphasis on efficient distribution of inputs to the delivery of results in 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 it is becoming the focus of change and improvement efforts. Third, the industrial production model—known as scientific 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.

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 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.

Source: Author's compilation.

Fifth, marked improvements in the timely availability of educational statistics make it possible to move toward data-based management strategies.

In this context, local management structures are increasingly important. Particularly in Anglophone countries, secondary schools 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 local management structures remains important. Each of these bodies can have a significant impact on the quality of schooling if their respective roles are well defined and effectively aligned with those of higher level administrators and professionals such as inspectors and counselors, and are understood by all parties concerned. In most countries, BOG members are appointed, but usually not on the basis of 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. These systems are changing, but slowly. Resource allocation decisions typically remain centralized, although parental and community contributions are becoming more significant and increasingly managed at the school level. An interesting development is the creation of funds that support the preparation and

BOX 8.3 BOARDS OF GOVERNORS AND PARENT TEACHER ASSOCIATIONS IN KENYA

BOGs were created by the Kenyan Education Act 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 budget, and participates in decisions on the use of these funds. An elected PTA executive committee member is the liaison to the BOG. In practice, however, the two bodies are often in conflict.

The school head is directly accountable to the District Education Office 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, to understand how money is spent, and to approach the education authorities.

Source: Glassman and Sullivan 2008.

implementation of school development plans (*projets d'établissement*). The replacement of national-level control with provincial or district controls has resulted in limited impact. However, where principals and communities are provided with adequate resources and are held accountable for their effective and transparent deployment, school performance has improved significantly as, for example, in Tanzania and Uganda.

TOWARD EFFECTIVE SCHOOLS

Deconcentration of management responsibility for secondary education and diversification of sources of funding for schools (chapter 5) are transforming 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 they all work toward administrative decentralization or deconcentration. The evolving approaches to governance and management of secondary education are resulting in (a) recognition of the school as the focal point for quality improvement and the unit of change in the drive toward the development of more effective schools, (b) increased autonomy and decision-making power at the school level, and (c) a new context for central direction and support.

SCHOOL IMPROVEMENT

A well-established body of research, largely from industrial countries, has identified the features of high-performing—effective—schools. Table 8.2 summarizes the principal findings. Most likely, these findings also broadly apply to schools in the developing world, including SSA. But preconditions—competent teachers, textbooks, and well-designed curricula—are often not in place (as discussed in chapters 6 and 7). This absence jeopardizes students' opportunities to learn, constrains the principal's ability to create a positive school climate, and limits the teachers' capacity to use classroom time effectively. Ensuring that key elements of effective instruction are in place and that schools are ready to provide well organized opportunities to learn is a first step toward school

Table 8.2 Key Factors of School Effectiveness

Factor	Components
Educational leadership	<ul style="list-style-type: none"> • Information provider • Initiator and facilitator of staff professionalization
Curriculum quality	<ul style="list-style-type: none"> • Establishment of curricular priorities • Opportunity to learn
School climate	<p>Orderly atmosphere</p> <ul style="list-style-type: none"> • The importance given to an orderly climate • Good conduct and behavior of pupils <p>Effectiveness orientation and good internal relationships</p> <ul style="list-style-type: none"> • Perceptions of effectiveness-enhancing school climate • Pupils' engagement • Appraisal of roles and tasks
Evaluative potential	<ul style="list-style-type: none"> • Monitoring of pupils' progress • School process evaluation • Use of evaluation results • Updated records on pupils' performance
Effective learning time	<ul style="list-style-type: none"> • Time • Monitoring of absenteeism • Time at classroom level

Source: Scheerens 2000.

improvement. Chapter 6 discusses curriculum issues in detail, and chapter 7 addresses issues related to school leadership, teacher competence, and textbook provision.

Even if 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 toward effectiveness and that move good schools toward continued improvement. Understanding these practices has been the focus of school-improvement research that aims to identify the processes that allow schools to improve and progress to higher levels of performance. The research initially focused on primary schools (Edmonds 1979), but soon included secondary schools, beginning with the work of Rutter et al. (1979) in the United Kingdom. The research documented the considerable difficulty of implementing on a sufficiently large scale what is known about good education practice so it can affect system performance. Reforms that affect the way teaching and learning are practiced, in particular, are rarely adopted in more than a small fraction of schools (Elmore 2004). The consistent conclusion of this research was 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, particularly through its emphasis on the following (Murphy 1992):

- *Educability of learners.* Given the right conditions and appropriate instructional strategies, all children can learn.
- *Student learning outcomes as the indicator of quality.* Examining indexes 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.

Research on effective schooling and school improvement in developing countries is limited and most 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” (ibid., 253), with implications that should be considered in all education systems.

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 support from local and district educators—is central to the process.
- An environment of high expectations will help produce results and share successes.
- The community needs active roles in funding and management of schools.

Source: Dalin 1994.

The implications of these findings for the design and management of secondary education reforms necessary to meet the challenges in SSA are important, especially for those reforms that aim to change curriculum content and methods of instruction and assessment, and to increase levels of student learning—and to do so on a large scale. Elmore (2004) identifies—drawing on mainly on a review of North American research—key elements that need to be in place to move toward 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 a focus on standards of learning that apply to all
- 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 SSA 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 that included 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 to low-performing schools. South Africa, for example, targeted interventions at “dysfunctional” schools—those with final exam pass rates of less than 20 percent—and to students and school personnel dealing 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 that such schools function more effectively under external accountability pressure. Building such an environment may be the first step on the path toward 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

Research on effective schools and school improvement 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. They are also expected to contribute to national performance objectives for quality and relevance of learning 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. An increasingly robust body of evidence suggests that school-based management reform strengthens the accountability relationship between teachers (and schools) and communities. Experience from

Latin America further suggests that 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 because 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 approach, in turn, results in less teacher absenteeism, more teacher work hours, more homework assigned, and closer parent-teacher relationships. This is the basis for higher student academic outcomes in community-managed schools as compared with traditional schools (Umansky 2005). Woessmann (2000) comes to similar conclusions for a large sample of middle-income countries (box 8.1). Such changes hold significant promise, especially in contexts of low educational quality where teacher absenteeism is high and where schools are often not functioning at all. Experience in SSA 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, for places 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 that found a positive and significant association between school-based management and test scores. However, a more detailed analysis suggests that schools in which principals, staff members, or communities have the capacity and willingness to manage their schools, will, in fact, benefit from decentralization. If this condition is not met, students actually do worse in decentralized systems. The authors conclude that decentralization does not seem to work well when coming from a central mandate, but when emerging from local capacity and interest, it often has positive results. Studies in SSA 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). Although virtually all of this research has focused on primary schools, it is likely that the findings also apply to secondary institutions, as is the case in the research in industrial countries.

Thus, increasing the autonomy of schools and local stakeholders to act is an important element of secondary education management reform, but one that needs to be implemented with care, and that requires

- Strengthening local and, in particular, 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 of the teachers concerned
- Allowing for local adaptation of improvement strategies while maintaining a clear focus on the overall objectives
- Establishing institutions that can provide supervision and technical support to school-level action
- Ensuring the availability of the resources necessary for the implementation of improvement programs.

The school principal is vital to this process of school-level action. A well-established body of research (Mulkeen et al. 2007; Glassman and Sullivan 2008) emphasizes the critical importance of the principal in high-performing schools. Effective school leaders (a) focus their efforts in school on student learning, (b) mobilize stakeholder support to the school, and (c) ensure the effective allocation of resources. However, relatively few countries have acted by providing clear job descriptions for principals and by linking selection policies and training programs to these job descriptions (chapter 7). Moreover, the tradition in Francophone countries has been that school principals focus on administration⁷ while inspectors focus on pedagogical issues. This model is now being questioned as inappropriate, especially for schools in rural areas and in situations where school-based management models are being introduced.

EVOLUTION OF CENTRAL DIRECTION AND SUPPORT

The changes in the management of secondary education lead to changes in the role of central administrative authorities, away from the direct management of provision toward policy formulation, quality assurance, monitoring of performance, supervision, and support for school improvement programs. Central authorities will also need to maintain responsibility for ensuring that disadvantaged children—especially girls and those who are poor—are not precluded from attending secondary school because of discriminatory practices or 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.⁸

Although patterns of allocation of decision-making authority vary considerably across countries (McGinn and Welsh 1999), the government in this emerging management environment should be committed to ensuring that adequate resources are available to schools, while schools should be accountable for using their resources so that expected learning outcomes are achieved. These role changes are demanding for administrations that have been preoccupied with input delivery, are organizing examinations, and are administering teacher assignments without much 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 frequently politically controversial policy decisions (box 8.5).

But choosing the policy reforms will not suffice. Implementing them will be even more demanding, especially where changes in the nature and outcomes of teaching and learning processes are intended. Implementation will involve shifting the focus of action from inputs to outputs, allowing for flexibility in program delivery, insisting on accountability for results,

BOX 8.5 POLICY CHALLENGES IN SECONDARY EDUCATION

- Specifying the objectives of secondary education: structure, content, and duration of programs
- Establishing a policy for transitions from primary to secondary education; from junior to senior secondary education, whether general or technical and vocational; and for movement between tracks
- Clarifying the relationship of secondary education to 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 to disadvantaged students
- Defining roles and responsibilities of staff and stakeholders at all levels and governing bodies
- Creating standards for and assessment mechanisms to measure student learning
- Setting up a framework for private-public partnerships

Source: Adapted from Glassman and Sullivan 2008.

managing through incentives instead of directives, strengthening local capacity to take over previous 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 happen only with the leadership and support of district and central services. A change in culture will need to occur for the staff of many ministries of education—the adoption of a different set of values and beliefs about what is important and how things are done—and it will need to be led from the top and be accompanied by training of all staff and stakeholders and changes in incentive systems and work processes.

Regardless of 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

BOX 8.6 TASK SPECIFICATIONS IN SENEGAL

In 1997, task specifications were established for administrators and teachers in the Senegalese education system, 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 member has a clear understanding of how he or she can help improve the school's 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, in which no one 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, to emphasize collective responsibility for school and system performance.

Source: Gueye et al. 2003.

- Training programs that provide staff with the skills to do their jobs
- 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
- Mechanisms that promote evidence-based and transparent decision making.

DATA-BASED MANAGEMENT SYSTEMS

Steering an education system that aims to both provide central direction in pursuit of national policy goals and encourage local autonomy and decision making requires that reliable performance indicators be available to managers at multiple levels. However, the units responsible for education statistics are able to respond to these rapidly growing information demands in only a few countries in SSA. 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, are difficult to access, or are poorly presented. In fact, most education statistics remain oriented to the publication of historical data in a voluminous statistical yearbook. The data are often reported in considerable detail but primarily serve national administrators or researchers, if used at all. Even where these systems provide reliable data, policy makers often do not use them to guide education policy, in part because of unfocused presentation and the paucity of accompanying analysis.

Several countries have attempted to address these issues by introducing Education Management Information Systems (EMISs). An EMIS is 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—generally with significant international support⁹—few EMISs actually operate at the multiple levels necessary for effective management of education in most countries. Although data on enrollment and inputs are collected fairly regularly, data on outcomes and finance are often incomplete and unreliable. A set of indicators that should be available for planning and monitoring progress is suggested in table 8.3. Indicators and performance benchmarks should be determined separately for junior and senior

Table 8.3 Selected Secondary Education Development Indicators

Participation	Enrollment
	Male and female (number, percentage of age group)
	Public and private
	Rural and urban
	Boarding and day schools
	Key options and subjects
	Transition rates
	Primary to junior secondary
	Junior to senior secondary
	Graduates as a proportion of age group
Rural and urban by gender	
Learning outcomes	Performance on international assessments
	Examination results (by key subjects)
	Repetition and drop-out rates
Inputs	Student-to-teacher ratio
	Teachers per class
	Nonteaching staff ratio per class
	Class size
	Hours of instruction per student (planned and delivered)
	Proportion of qualified teachers
	In-service training days per teacher
	Student textbook ratio
	Student classroom 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 and boarding)
	Teachers
	Nonteaching staff
	Textbooks
	Supplies
	School operation cost
	Boarding cost
	System overhead
	Fees per student in government schools
	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

Source: Author's compilation.

secondary education. In addition to information on traditional input and process metrics, such as enrollment, teachers, facilities, equipment, drop-out rates, performance, and repetition, education systems should collect information on outputs using data about student performance on examinations and national assessments.

Most countries have an examination for entry into secondary school, at the end of junior secondary, and at the end of senior secondary education. Although well-designed examinations can provide useful information and can help improve school performance, especially when results are fed back to the schools (box 6.7), they are not effective instruments for monitoring student learning performance and managing quality improvement. They are typically designed for selection of students for further education rather than for certification of curriculum mastery; they are often not standardized and do not allow reliable tracking of performance over time; and they do not provide information on student home background or school characteristics necessary to interpret the results meaningfully (Kellaghan 2004).

Effective, results-focused management strategies need reliable assessments of student learning designed to describe the level of achievement, not necessarily of individual students, but of the whole education system or a clearly defined part of it (for example, grade 4 pupils, 11-year-olds, or a school). In South Africa, the National Education Policy Act of 1996 stipulates monitoring and evaluation of the education system. In 2001, a sample of grade 3 learners was tested in numeracy, literacy, and life skills. In 2004, a sample of grade 6 learners was tested in math, science, and literacy.

Few assessments of education achievement in SSA include secondary schools. This limits the ability of countries to move toward results-based management strategies and to focus national efforts on improving learning achievement. Several countries are moving toward the monitoring of school-level performance by district and region, using process indicators, repetition and drop-out rates, and examination results. In addition, decentralization of school management responsibilities, efforts to increase 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.¹⁰ The nature of these report cards can vary considerably.

The Uganda school profiles focus mainly on inputs using disaggregated national statistics. Fundamental Quality Reports in Kano State,

BOX 8.7 SCHOOL REPORT CARD AND DATA MANAGEMENT SYSTEM IN KANO STATE, NIGERIA

In Kano State in Nigeria, schools receive data from the districts. Multidimensional reports target 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 an easily assimilated graphic format that shows school indicators and comparisons with local government areas and the state. Not only are reports provided in paper format, but also education information is provided to the general public through radio shows that discuss the measures and the implications of various indicators and that 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 district and school levels about resources across all schools in local government areas and the state. Information is now being used by stakeholders to ensure transparency in system management and to create accountability between the school and the community and between the central and local governments. The school report cards provide a baseline measure upon which system goals and standards can be developed.

Source: Cameron, Moses, and Gillies 2006.

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 it includes comparators with other schools. In Ghana, the School Performance Assessment meetings use national math and English assessment data to identify strategies and to set targets for improving school performance. In Guinea, school assessment worksheets provide the basis for meetings for assessment of school performance by teachers, principals, and parents.

In Paraná State in Brazil, report cards even included a summary of parent satisfaction surveys.

Some countries follow a bottom-up approach, wherein local actors collaborate to develop a report card; in others the process is top down because existing statistical systems and standardized assessment systems can provide the necessary data. Where the report card emanates from a bottom-up strategy, data tend to be simplistic, with little opportunity for comparison with other schools, either in resources or performance. In several countries, aggregated school-level data are being used by district administrators to identify poorly performing schools, to target them for special support and supervision, and to improve equity in the distribution of teachers and discretionary resources across schools. In the United States, report cards are being used to monitor “adequate yearly progress” of schools, to enforce learning performance standards, and to promote public accountability of schools under the No Child Left Behind Act.

The AGEPA¹¹ project has helped several Francophone countries develop and implement instruments for this kind of outcome-based management for primary education using commonly available statistical performance indicators. Perhaps most important is the political will to sustain the effort, which becomes critical when high stakes consequences are associated with the report results or when considerable capacity building is required to ensure sustainability.

The review by Cameron, Moses, and Gillies (2006) concludes that performance data and cross-school comparisons are strong motivators for communities and school management committees to participate in the work and management of their schools. There are constraints, however, on the feasibility and sustainability of school report cards emanating from the capacity of EMISs to produce accurate and timely information that can be understood by its audience and that provides useful comparative information, and from the capacity of audiences to use the information effectively.

The quality and timeliness of educational statistics have improved markedly in recent years, but much of the effort to improve statistics, develop performance indicators, and measure results and outcomes has focused on primary education. Effective management of secondary education development will require a similar effort, focused not only on traditional education statistics but also on indicators of learning achievement. Expanding the coverage of programs such as SACMEQ,¹² PASEC,¹³ and AGEPA to include secondary education, and to strengthening the capacity of countries to conduct quantitative and qualitative

research to provide data necessary for policy reform, must be high priorities in many countries.

PUBLIC-PRIVATE PARTNERSHIPS

In many countries, the ministry of education has traditionally interpreted the task of managing secondary education to mean managing government secondary schools. This inclination is increasingly inappropriate as new ways of service delivery—distance education, short vocational courses, and informal training programs—emerge and alternative providers proliferate. The latter include public agencies—for example, municipalities and local governments—but also private, for-profit and nonprofit organizations, NGOs, faith-based organizations, and communities. In fact, even the provision of public schooling is increasingly organized through public-private partnerships (PPPs) involving formal or informal collaboration between government agencies and faith-based organizations, communities, and parents. Chapter 5 demonstrated that the financing of secondary education is progressively becoming a joint effort of governments and parents, as parents pay fees to government schools and as governments subsidize private providers (see table 5.9 for different models).

An international trend toward strengthened PPPs is developing (see, for example, box 4.3 for OECD countries), particularly in postprimary education. Although conditions in SSA are different from those in other regions—often private sector operators are fragile, the regulatory framework is ineffective, and the capacity for oversight is inadequate—PPPs are becoming increasingly common. 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 Guinea, for example, help communities operate private (community) schools and government schools in disadvantaged locations. Private training providers are ubiquitous—some operate with public support from national training funds, and many others do not. Côte 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 but often without. Textbooks are typically produced by private publishers. Parents contribute formal and informal fees for the operation of schools. Where well-designed, such PPPs have the potential to combine the benefits of private operation

Table 8.4 Benefits Associated with Public and Private Sector Involvement

	Public sector	Private sector
Provision	Inculcating beliefs and cultural values	Incentives for cost containment and qualitative innovation
Funding	Enabling choice for credit-constrained families	Increased accountability

Source: Woessmann 2005.

with public funding. Woessmann (2005) summarizes the positive aspects of public and private sector involvement as shown in table 8.4.

In the same paper, Woessmann analyzes the effect on student learning of different combinations of public funding and private operation for 29 mostly industrial countries that participated in the Programme for International Student Assessment survey. He concludes,

[A]cross 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. (Woessmann 2005, 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, especially where increased local autonomy allows them to adopt management models and operational methods similar to those found in the private sector. The key issue, therefore, is how to create productive arrangements for PPPs, that is, arrangements in which each partner takes responsibility for what it does best and where good practice is adopted across all schools. Frequently, the potential contribution of the private sector is not effectively mobilized. In some countries, the private sector is simply neglected; in others, bureaucratic processes create obstacles to the start-up and operation of schools (box 8.8).

BOX 8.8 HOW TO REGISTER 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, or city education officer.
- The 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 now 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 and Sullivan 2008.

The government's role in the management of secondary education is unquestionably important, but when the government fails to recognize, encourage, and support the potential of nongovernment actors and non-traditional modes of service delivery, it constrains educational opportunities, particularly for the poorest people.

A legal and institutional framework for such arrangements is an essential first step toward effective partnerships. Box 8.9 highlights some of the

BOX 8.9 ELEMENTS OF A 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 laws 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 backgrounds
- Arrangements for consultative mechanisms to discuss policy and operational issues.

Source: Adapted from LaRocque 2005.

key elements that an effective framework would ideally provide. In most countries, adoption of the essential elements in this kind of regulatory framework is meaningful only when the government's capacity to implement is strengthened and when tangible benefits are available to private operators. Departments responsible for registering private schools are typically so understaffed that they cannot visit schools to check for compliance with accreditation criteria. Moreover, private schools are rarely visited by Ministry of Education inspectors. Concurrently, many private operators see little benefit in a registration process that subjects them to taxation and health and safety regulations. Yet, accreditation can help them attract more fee-paying students and can make them eligible for public subsidies. Effective partnerships will happen only if private and public funding complement each other in a mutually beneficial framework.

Effectively addressing equity issues 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 incorporate concerns for equity (box 8.10).¹⁴

BOX 8.10 INTEGRATING A FRAGMENTED SYSTEM IN SOUTH AFRICA

The education system inherited by the democratically elected government in 1994 was highly fragmented and unequal. There were 17 different public systems plus a wide array of private and semiprivate schools. Funding inequities were extreme, with severe underfunding of schools in the homelands and townships that serve impoverished black communities. To redress these inequities and to 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 to the poorest students. The 1996 South African Schools Act recognizes only public and independent schools. The latter category includes community schools, religious schools, and nonreligious for-profit and not-for-profit schools. Many of the schools deliver valuable educational services but others deliver services of low quality. Almost 10 percent of the schools (enrolling less than 4 percent 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 that (a) includes indicators of sound management, such as whether it keeps proper admissions and attendance registers, (b) maintains fee payment and other financial records, and (c) 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 is paid to them. Schools that charge up to 0.5 times the provincial average public cost per learner are entitled to a subsidy equal to 60 percent of average public cost per learner.

Source: South Africa, Department of Education, 1996.

Governments thus have established partnerships with private providers in several different ways and for different purposes: (a) direct subsidies for operating costs or capital expenditures, or both; (b) demand-side financing, that is, the provision of scholarships to help students pay private school fees (as in Côte d'Ivoire, described in box 5.6); and (c) partnerships with communities to help schools respond better to local needs, strengthen local ownership, and support school operations (box 8.11).

BOX 8.11 PARTNERSHIPS WITH COMMUNITIES

Two of the thematic studies commissioned for Secondary Education in Africa (SEIA) emphasize the important role that communities can play in the development of secondary education. The study on health and social issues in secondary education (Smith et al. 2007) 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 (2008) 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 connect local, small-scale, community-oriented measures with national policies and strategies, to the extent possible. Strong school-community links have a range of positive effects, including strengthening the involvement of parents or others from the community in steering schools and mobilizing local resources for the improvement of schools. The studies provide examples of communities taking part, not only by paying fees or building and maintaining classrooms, but also—and perhaps most important—by participating in extracurricular 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 to the needs and the problems of the community, including factors causing trouble for the children in their attendance and school work.

Sources: TRANSE Group 2008; Smith et al. 2007.

CONCLUSION

The trend toward decentralization of delivery of government services, combined with the changing configuration of the organization and delivery mechanisms for secondary schooling, has important implications for managing and governing the system. As the number of primary school graduates and secondary education students mushrooms, it will become increasingly important to diversify modes of delivery and to offer a range of programs that responds to students' 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 primary and all of secondary is offered in a single institution. Junior secondary programs will generally have a large common instructional core to be taught to all students. The senior level will more often be characterized by a large number of different programs and institutions, which are offered by a multiplicity of providers and delivery mechanisms.

Management of secondary education will need to be organized to support—not hinder—this differentiation and diversity. The key is to create flexibility and diversity in 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 SSA. In schools where principals are accountable for results and work together with communities to ensure local relevance and 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. These needs will make it imperative to develop public-private partnerships that ensure expanded provision of secondary schooling. The consequence will be an increasing number of participants in the management of secondary education caused by the rise in the number of schools, the deconcentration of administrative responsibilities, and the increased involvement of parents in the financing of the cost not only of private, but also of public, secondary education. Secondary education governance and management, therefore, will need organizational arrangements and institutions that create an environment conducive to a range of providers and financiers other

than governments. In such an environment, the operation of schools would be the responsibility either of private sector operators or of public institutions applying management principles that mirror those of privately operated schools. Funding will be mainly a public responsibility, with a significant proportion explicitly targeted to the poorest and most disadvantaged students.

In an increasingly decentralized and diverse system, arrangements for accountability toward different stakeholders are critically important. The traditional, hierarchical, upward accountability mechanisms will need to be complemented by external accountability mechanisms whereby schools and the education system as a whole share both the results they have achieved and the challenges they face with parents, communities, and society at large. Because schools have greater freedom to allocate resources and to organize teaching and become directly accountable for performance and outcomes, they need good data 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 levels; 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 effects 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 development can be managed effectively only if policy formulation is data driven and if 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 an annual report on progress toward the realization of national education development objectives. It is available free on the department's Web site.¹⁵

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 approach, in conjunction with a judicious

combination of local and school-level autonomy and with central direction and support, can go a long way toward ensuring that quality opportunities are available to all students in an expanding system.

NOTES

1. This chapter draws on SEIA Thematic Study No. 3 (Glassman and Sullivan 2008).

2. 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 toward shared education objectives. Partners may share responsibility for a wide array of tasks, including financial provision, pedagogical development, human resources development, service delivery, infrastructure, and facilities management, among others. Typically, education development is supported by multiple partnerships working in specific locations or targeting specific groups of students, or both.

3. Based on definitions found at <http://www.worldbank.org/wbi/governance/>.html and <http://en.wikipedia.org/wiki/Governance>.

4. See <http://en.wikipedia.org/wiki/Management>.

5. Slightly adapted from a definition provided by Ahmed (2000, 225). A similar definition can be found in World Bank (1994).

6. Rondinelli's conceptualization of decentralization distinguishes among 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, to local government, or to nongovernmental 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. 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).

7. Regulations in several Francophone countries prohibit principals from entering classrooms for pedagogical supervision of teachers.

8. South Africa, for example, has as an official policy objective that 60 percent of education spending should benefit the poor.

9. 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 EMISs.

10. This discussion draws heavily on Cameron, Moses, and Gillies (2006).

11. *Ameliorer la Gestion de l'Education en Afrique*, supported by the World Bank, France, and several other bilateral donors.

12. The Southern and Eastern Africa Consortium for Monitoring Educational 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.

13. The *Programme d'analyse des systèmes éducatif du CONFEMEN* has produced studies and analyses of learning achievement in 11 Francophone countries in Africa. Work has so far focused on primary education.

14. In the South African context, the effects of PPPs are marginal (independent schools account for only 4 percent of enrollment and are 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.

15. See <http://www.education.gov.za/>.

The Way Forward

[W]e 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. . . .

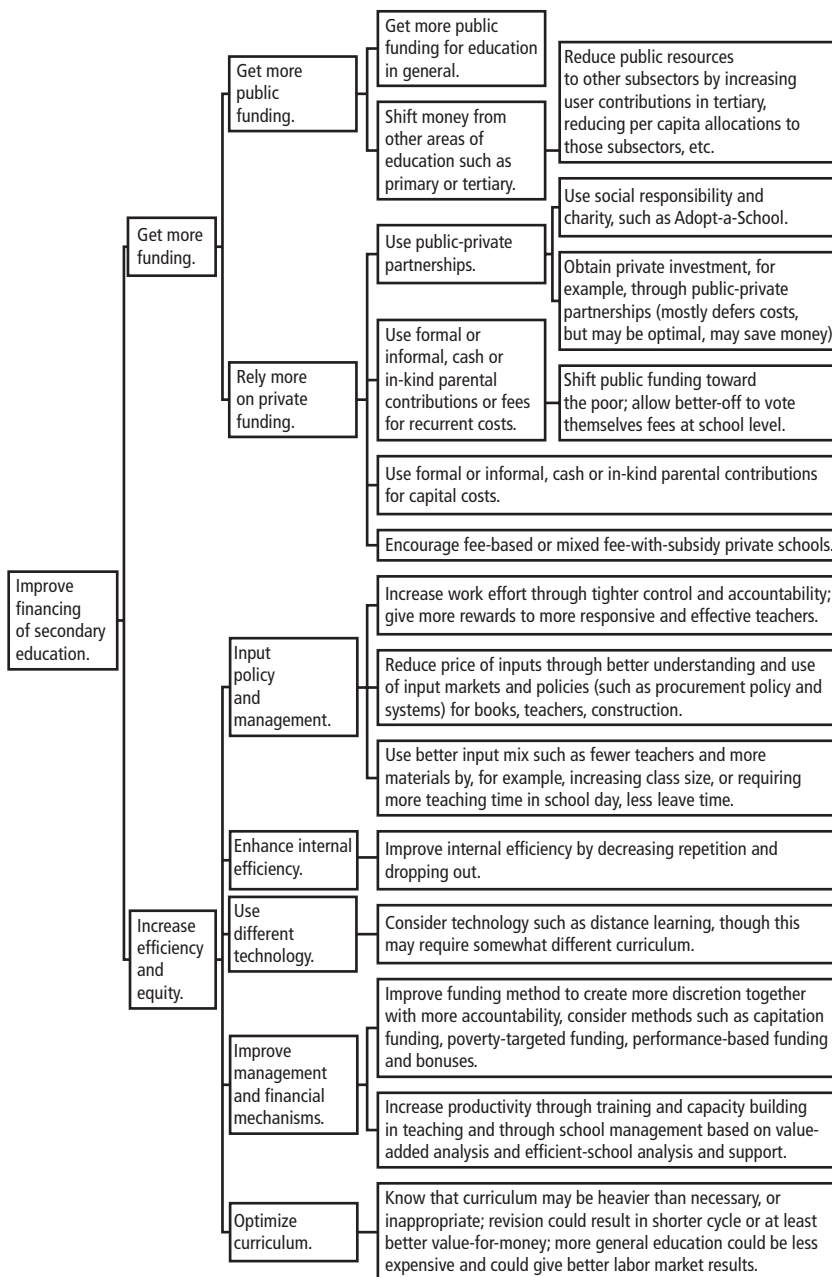
—Mamadou Ndoye

Executive Secretary, ADEA, at the opening of the first SEIA conference, June 9–13, 2003

The magnitude and urgency of the challenge of secondary education development in Sub-Saharan Africa (SSA) has been highlighted several times in this book. 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 to increase the educational 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) are inevitable. 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 deeply rooted in the education community. In many countries, education policy is detached from a longer-term vision for national development, and it remains the concern of professionals in the Ministry of Education and is captive to the pursuit of short-term problem resolution. Firefighting and politics rather than systemic development and capacity building too often typify the practice of education policy.

The lessons of international experience (chapter 4) are important for African policy makers as they face the often intractable challenge of secondary education development. However, there is a limit to the

Figure 9.1 Decision Pathways for Secondary Education



Source: Adapted from World Bank 2005b.

relevance of international experience. The economic and education environment in SSA is very different from the one that prevailed in other regions, when those countries were transitioning 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 taking advantage of it
- Prepare students for work in an economy that participates in a technology-driven global economy.

The evidence presented in this book shows the extent to which country situations in SSA vary. Differences in history, geography, demography, and policy choices have resulted in secondary education systems that diverge widely in 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. Reform to the content of the programs and in the way secondary education is organized, managed, and financed is 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, primarily from industrial countries, transitional economies, or developing countries in Asia and Latin America. Relatively few are based on analyses of African experience.

This chapter pulls together the main findings of the discussion in this book so far. It argues that (a) the conditions that historically have accompanied the expansion of access to secondary education of acceptable quality are not in place today in most of SSA and (b) 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 chapter explores the main elements of a strategic framework for secondary education development in SSA, including some indicative benchmarks for resource mobilization and deployment. Countries may want to consider these potential policy choices as they plan their own national strategies. Finally, the chapter discusses the nature and the pace of successful change processes.

Table 9.1 Summary of Policy Options for Secondary Education Development

Issue	Possible response	Options for specific actions
Cost is poorly aligned with domestic resources.	Reduce per student cost.	<ul style="list-style-type: none"> • Increase teaching load to 25 hours per week. • Adjust teachers' salaries in line with national resources. • Use double-shifts of infrastructure. • Use boarding only for students from remote areas. • Improve internal efficiency; reduce repetition.
	Integrate part or all of lower secondary with primary education.	<ul style="list-style-type: none"> • Extend duration of basic education to 8 or 9 years. • Simplify curriculum. • Upgrade primary teachers to subject-matter specialists for upper primary and junior secondary grades.
Curriculum is not relevant to demands of labor market and modernizing society.	Provide common core of general subjects in junior secondary schools.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Maintain selective access to senior secondary education. • Provide nonformal 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.	<ul style="list-style-type: none"> • Ensure that primary graduates master primary curriculum content. • Align enrollment growth with resources and policy reforms.
	Ensure instructional effectiveness.	<ul style="list-style-type: none"> • 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 that 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.	<ul style="list-style-type: none"> • Provide a safe environment and girl-friendly school policies. • Provide attractive role models. • Reduce distance to school.
	Provide opportunities for poor children.	<ul style="list-style-type: none"> • Ensure equitable access to primary schools of acceptable quality. • Provide means-tested scholarships. • Reduce or 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Strengthen central-level capacity to set standards, monitor quality, provide core financing, support schools in difficulty, and ensure equity.

Table 9.1 (Continued)

Issue	Possible response	Options for specific actions
Multiple delivery mechanisms are few.	Vary service delivery in response to local conditions.	<ul style="list-style-type: none"> • Create different organizational arrangements. • Allow variations in curriculum choice and delivery methods. • Encourage private training providers.
	Exploit potential of ICT and distance education.	<ul style="list-style-type: none"> • Establish teacher in-service support and development systems. • Provide opportunities for secondary education equivalence. • Create opportunities to pursue lifelong learning.
Public-private partnerships are underdeveloped.	Establish clear legal framework.	<ul style="list-style-type: none"> • Ensure transparency in resource allocation. • Create explicit accountability indicators. • Encourage demand-side financing schemes.
	Set up participatory processes.	<ul style="list-style-type: none"> • Open and participatory procedures for consultation on policy and implementation.

Source: Author's compilation.

Note: ICT = information and communication technology; TVET = technical and vocational education and training.

INITIAL CONDITIONS

Compared with the experience of many countries in other regions (chapter 4), the pace of secondary education development in SSA will be strongly affected by three factors. First, it will depend on continued progress toward the goal of universal primary completion and improvement in learning achievement. Second, sustained economic growth is essential if the public and private resources required for a broadly 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 in a rapidly growing school-age population and a high dependency ratio through at least the middle of the century (United Nations 2006).

PROGRESS TOWARD EDUCATION FOR ALL (EFA) AND THE EDUCATION MILLENNIUM DEVELOPMENT GOALS (MDGs)

Currently, only about one-third of each age cohort in SSA can demonstrate that they have satisfactory mastery of the knowledge, skills, and attitudes specified in the primary curriculum (Verspoor 2006). This is a weak foundation for accelerated expansion of access to secondary education. Progress toward 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 inevitably result in a large-scale waste of resources. Students who do not master the primary

curriculum are unlikely to be successful in secondary school, especially when increasing class sizes, underqualified teachers, limited availability of instructional materials, and insufficient time-on-task make it virtually impossible to address the needs of students with different learning capacities. Worldwide experience demonstrates that education development is a sequential process, in which 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 SSA is thus predicated upon the success of EFA, not only with regard to access but also, most important, with regard to learning achievement.

However, this does not mandate a rigid “first primary, 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 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 exact a high-priced trade-off in quality, from which it will not be easy to recover. It is important not to repeat this experience for secondary education.

A successful secondary education development policy will inevitably involve trade-offs and hard choices. Such arrangements can be made only within a longer-term, typically-10 year, comprehensive sector planning framework. Many countries have made considerable progress with the development of detailed financial and action plans for primary education—often without considering the implications for secondary education or the trade-offs in public expenditure allocations necessary to reach sub-sector education development objectives in a balanced way. Funding and resource allocation issues are a critical component of education policy making. The involvement of the Ministry of Finance will be necessary in the planning process to incorporate realistic resource allocations for the totality of the education sector in the medium-term expenditure framework and in 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 stagnated, unemployment of secondary school graduates is often a major social and economic problem (chapter 3). This is partly an education issue. Countries that responded to social demand and expanded secondary education without implementing reforms to enhance relevance and efficiency are, with few exceptions, facing severe problems in the quality of student learning achievement, as well as high drop-out and repetition rates. Moreover, with curricula often poorly related to national social and economic development needs, many students are inadequately prepared for entry into the labor market.

Perhaps the more important issues concern uneven economic growth in SSA, the small size of the modern manufacturing and service sectors, and 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 25 percent between 1960 and 2005. In recent years, high commodity prices helped accelerate economic growth in several countries. Debt relief accorded to 25 countries is helping to improve public finances. Yet, about half of SSA's more than 750 million people still live on less than a dollar a day, while prospects for sustained growth remain uncertain. High oil prices are a major medium-term risk for oil-importing countries on the continent. Most foreign investment in Africa still goes to oil fields or mines rather than to factories, services, or farming. Mineral exploitation provides governments with cash but does not create many jobs. The business climate is often unattractive to foreign investors. Private business, especially job-creating small and medium enterprises, are developing 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 robust and broadly based economic growth, the desirable investments in secondary education will be unaffordable for most countries and difficult to economically justify as a priority for public expenditure.

DEMOGRAPHIC TRANSITION

In East Asia, the rapid expansion of enrollment 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, where the number of primary school-age children is expected to decline by about 20 percent over the next decade. This decline will

free up resources for quality improvement and expansion of secondary education. SSA faces a very different situation. Despite a projected increase in mortality from AIDS, its population will continue to increase—fertility is still so high that it offsets the effect of rising mortality.¹ With an increase of 734 million people over the next 30 years, Africa's population will double (United Nations 2006), which will limit the opportunity to gradually reduce the share of primary education and to increase the share of secondary education in the budget, as many East Asian countries were able to do (chapter 4).

THE IMPERATIVE OF REFORM

Providing a place in schools of acceptable quality for larger cohorts of children every year, and keeping these children in school longer, in an environment where prospects for sustainable economic growth remain uncertain while external assistance is confronted with many competing priorities, are daunting challenges for most SSA countries. Increasing public funding for education—with an increasing share for secondary education—is usually the preferred solution of education planners and policy makers. In practice, increased public funding will be difficult to realize, given competing priorities within the education system itself and in other sectors of the economy (chapter 3). In most countries, any reordering of priorities between sectors or within the education budget will have only a marginal effect on the availability of resources for secondary education² compared with the requirements of large-scale expansion of coverage with acceptable quality. Therefore, economic growth and increases in the share of gross domestic product (GDP) available for public expenditures will have to be the main sources of additional public resources for education. Policies designed to use resources more efficiently can make the most important contribution to the expansion of access and improvement in quality of secondary education (chapter 5).

Secondary education development is also seen in much of SSA as a pull factor for economic and social development, whereas, in most other parts of the world, it has accompanied or followed economic growth. All of this makes it clear that, rather than adopting secondary education development strategies that have been successful elsewhere, it will be imperative for SSA countries to develop their own models of provision that recognize the specificity of their context. Those models should not only be sustainable in the constrained resource environment of most countries, but they should also be equitable and able to deliver a service of acceptable quality. Although 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.³

This book has discussed a large array of policy options that governments may wish to consider as they define their secondary education development strategies (table 9.1). Clearly, there is no single best avenue for the development of secondary education and training; initial conditions in each country will determine the priorities and what is feasible over what time frame in different countries. Mapping the status and challenges of secondary education and identifying financial and political constraints and opportunities are essential preconditions for effective action. Table 9.1 should thus be considered 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 remains: how best to design a coherent strategy that responds to national development demands and constraints.

TOWARD AN AFRICAN STRATEGY FOR SECONDARY EDUCATION DEVELOPMENT

Lewin (2008) suggests a typology of five different country situations (chapter 5), but argues that most countries are likely to face the challenge of high (or at least rapidly increasing) coverage in their primary systems and low, or at best medium, coverage of secondary education. Most countries will consider limited secondary coverage to be socially unacceptable and inconsistent with national development objectives (chapter 3). However, few countries have put in place strategies that reconcile the constraints on public funds with the resource requirements of the expansion of quality learning opportunities beyond primary education. The lessons of experience in other regions can help with this process and can inform policy

formulation. However, as discussed earlier, today's educational, economic, and demographic conditions in SSA are so different that those models cannot be easily applied in SSA. Thus emerges the need to develop a framework of strategic options for secondary education development, including technical and vocational education and training (TVET), that 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 toward 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 the following:

- Resource requirements consistent with available means
- Content relevant to national development opportunities
- Emphasis on learning—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

Projections of the costs of secondary education development make it clear: enrollment 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 per week; buildings could be used in double shifts, 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; and the potential of public-private partnerships should be exploited in the most cost-effective way possible.

The cost variables that need to be managed with particular care are the deployment of teachers and the level of teacher salaries. In several countries in SSA, the costs associated with teachers effectively preclude significant enrollment expansion (chapter 5) because salary levels are a high multiple of gross national product (GNP) per capita. In other countries, salaries are so low that teachers will provide only minimal effort, with adverse consequences for quality. But the most critical challenge may be

inefficiencies in teacher deployment. An efficient use of the teaching force will require considering policies designed (a) to ensure that each teacher teaches a full load, even if it means teaching in more than one school; (b) to grant preferential increases to teachers who can teach several subjects; and (c) to pay those teachers who teach only a limited number of hours as part-time teachers in proportion to the number of hours that 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 fewer choices. Efficiency gains associated with such policies should result in changes in the cost structure of secondary education, with significant increases in spending on nonsalary items, especially textbooks and other instructional materials.

Bruns, Mingat, and Rakotomalala (2003) proposed indicative benchmarks to guide the development of primary education with support of the Fast Track Initiative. Accepting their resource mobilization parameters and assuming higher education's share of the budget is 15–20 percent (chapter 5, footnote 5) suggests that secondary education's share of the budget would be 25–30 percent (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-to-teacher ratio recognizes the inevitability of large classes similar to many East Asian countries—45:1 in junior and 40:1 in senior secondary education. With appropriate investment in teacher development and instructional materials (chapter 7), large classes should not preclude instruction of acceptable quality and a reduction in repetition rates.

These benchmarks would result in a cost of 25 percent of GDP per capita for junior secondary education and 40 percent for senior secondary education, considerably below current average levels in most SSA countries. Assuming sustained progress toward the EFA goals and a cost of primary education of 12 percent 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 peaks around 2015. Secondary enrollment could be targeted to increase at a rate of 5–10 percent per year (or, as Lewin [2008] has suggested, the rate of GDP growth plus 5 percent), thus resulting in a 60 percent junior secondary and a 30 percent senior secondary gross enrollment ratio by 2015, then continuing to increase further thereafter. Special efforts, including equitable quality improvement policies at the primary level, would be required to ensure that 50 percent

Table 9.2 Toward Indicative Benchmarks for Secondary Education Development (2015)

Domestic resource mobilization	Indicative benchmarks	Comments and explanations
Government revenues as percentage of GDP	14–18	As suggested in Bruns, Mingat, and Rakotomalala (2003)
Education spending as percentage of recurrent budget	20–25	As secondary education expands, this ratio may have to increase from the 20 percent suggested by Bruns, Mingat, and Rakotomalala (2003).
Primary as percentage of recurrent education budget	42–64	As suggested in Bruns, Mingat, and Rakotomalala (2003); in countries at the high end of this range, the share will decline as primary enrollment stabilizes and secondary increases.
Secondary as percentage of recurrent education budget	25–30	Assuming a higher education share of 15–20 percent
Junior secondary percentage of secondary budget	55	See estimates (Lewin 2008) under reform scenarios with 60 percent junior secondary and 30 percent senior secondary gross enrollment rates.
Senior secondary percentage of secondary budget	45	
Percentage of total secondary cost privately funded	35	Where share is currently low, it should increase; where it is high, it will have to decrease as more poor students with limited ability to pay need to be accommodated.
Cost of classrooms	\$10,000	Assuming simple structures and decentralized management of construction (see Theunynck forthcoming)
Service delivery indicators		
Average teacher salary (times average annual GDP per capita)		Based on World Education Indicators primary-to-secondary multiple and Bruns, Mingat, and Rakotomalala (2003) primary multiple; see chapter 5 in this volume.
Primary	3.80	
Junior secondary	4.75	
Senior secondary	6.25	
Pupil-to-teacher ratio		Based on East Asian multiples and assuming efficient deployment of teachers; see chapter 5 in this volume.
Junior secondary	40:1	
Senior secondary	35:1	
Nonteacher salary share of recurrent spending (percent)		See Lewin (2008) and the discussion on textbook provision in chapter 7 in this volume.
Junior secondary	35	
Senior secondary	40	
Repeaters (percent)		Some decrease from current levels; assumes senior level will remain more selective
Junior secondary	10	
Senior secondary	5	

Source: Author's compilation.

of the students admitted are girls and that students from the poorest 20 percent of the income distribution are not excluded because of inability to pay. The extent to which countries can reach these goals and move toward these service delivery conditions will vary considerably, depending on national conditions.

The costs of constructing classrooms and specialized facilities also need careful consideration. New schools are often four times or more as

expensive per square foot as additional classrooms. A good, low-cost design for basic secondary schools can yield significant cost savings. The traditional infrastructure specifications for secondary school buildings are prohibitively expensive to build in the large numbers that current expansion targets require. The typical specifications generally result in levels of infrastructure provision that are only 10 percent or so of what may be needed in low-enrollment countries.

Junior secondary level facilities can resemble primary school facilities and can often be constructed at reasonable cost by communities without expensive specialized rooms (as in Kenya, for example, where the government constructed classrooms only in the most disadvantaged areas). School infrastructure often stands unused for long periods. Double-shift use of facilities, even in rural areas, is an attractive option for generating cost savings. Singapore discontinued double shifts only in 2000. Year-round use—implying fewer hours of instruction per child each day but more school days, combined with double-shift instruction or staggering of holidays—is an option used in some school districts in the United States that face severe shortages of classrooms.⁴

Expansion of secondary education will have to take place largely through day schooling, in many cases by extending the duration of basic education and by adding classes to existing primary schools. This approach will result in a network of small schools (chapter 7). Boarding facilities are expensive to build and operate. Access to boarding schools should be limited to students who do not have access to day schools within a reasonable distance of their homes. Scholarships should be available for poor, academically qualified students who live too far from a day school.

None of the above options are easy to implement. They deviate from the way education has generally been approached in SSA, and they require different modes of thinking about the ways in which schooling is organized and 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 so resources are targeted at those inputs that most cost-effectively produce student learning and that use those resources intensively can result in reductions in the cost per student while improving achievement.

CONTENT RELEVANT TO NATIONAL DEVELOPMENT OPPORTUNITIES

Education development will need to be part and parcel of national development strategies. In situations in which education develops on a separate path, it will rapidly become irrelevant and will 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) suggests the importance of an education development strategy that evolves with the national economy and that helps young people adopt values and attitudes to help them function as responsible citizens and productive workers. Economic and social change can take place rapidly, as in East Asia. Education policy priorities and curricula will need to evolve accordingly.

Investment in secondary education is particularly important in African countries, many of which are starting the transition from factor-driven economies⁵ to investment-driven economies⁶ (World Bank 2005b; chapter 3 of this volume). But this transition will be successful only where it is supported by a well-organized infrastructure, a welcoming government administration, a stable political environment, and an appropriately educated labor force. Investment in secondary education by itself does not create jobs, but such investment will enhance the results of good economic policies. Without such policies, investment in secondary education will be wasted.

Vocational training is often considered a trigger for economic growth and a way to reduce youth unemployment. In fact, scant evidence supports these beliefs. However, in countries with strong economic growth, vocational training has played an important role in preparing a workforce that has supported a rapidly growing modern industrial sector. And where vocational education succeeded, students entered possessing strong basic education skills (most often nine years of education attainment). The development of vocational training should thus accompany, rather than precede, the development of a modern industrial sector. Some short, often nonformal 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 that are at the senior secondary level and that 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 countries. At this point in most African countries, the demand for personnel with such training is limited; predicting specific skill requirements far in the future is hazardous, especially when attempted by government agencies. Close cooperation with private sector employers to assess the demand for and to design the content of technical and vocational programs will be essential.

Preparing junior secondary students for further learning and technical training must be an essential objective of secondary education in the

21st century. Thus, curriculum change will be a key element of the transition from an elite system to a system that is inclusive and provides broad access. Curriculum change will involve adaptation of content to the requirements of further education and training and of 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 information and communication technology (ICT) are at a premium in the labor markets of growing economies in SSA (chapter 4) as in the Organisation for Economic Co-operation and Development (OECD) economies (chapter 4, box 4.3). But more fundamental curriculum change will also involve redefining the concept of quality to reflect the needs and the capacity of the majority of students in a system with increasingly broad coverage, instead of the requirements of a small elite preparing to pursue senior secondary and tertiary education.

Education logic and the demands of economic growth suggest an education development sequence observable in the experience of most economically successful countries (chapter 4) in East Asia (for example, in Thailand, see box 9.1) and in the industrial world, that would apply today to most countries in SSA:

- Establish a primary education system with wide coverage and with acceptable quality
- Broaden 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 impetus toward an investment-driven economy
- Provide 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 requires policy decisions about transition processes and an expansion rate for junior and secondary education that is financially and educationally feasible. These policy decisions are critical to determining 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 firm requirement for quality makes it imperative to invest scarce resources

BOX 9.1 EXPANDING SECONDARY EDUCATION IN THAILAND

Until 1970, secondary schools in Thailand prepared students mainly for employment as civil servants, professionals, and teachers. Enrollment in secondary education was only 14 percent of youth ages 13–18, although primary education reached more than 83 percent of children ages 7–12. The continued lack of investment in secondary education led to an undereducated workforce: by 1990, 83 percent of the workers had finished only primary education. With a rapidly growing economy, the need to modernize the workforce created a sense of urgency for rapid expansion of secondary education.

Such expansion was brought about primarily by the revised conceptualization of secondary education as basic education for the general public and the workforce, as well as preparation for professionals. Compulsory education was expanded to nine years from six. A multipronged strategy for secondary education development included the following:

- Expansion of more than 4,000 primary schools to teach lower secondary, and conversion of primary facilities that were underused because of a declining birthrate
- Establishment of more than 500 new secondary schools in rural areas where no secondary or extended primary schools existed
- Revision of the highly competitive admission policies of the exclusive secondary schools to provide enrollment opportunities for students from differing backgrounds
- 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 nonformal 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 percent and junior secondary education had become almost universal, enrolling 90 percent of the age group.

Sources: Khunying Kasama Varavarn, Permanent Secretary, Ministry of Education, Thailand, presentation to East Asia study tour (June 2006); World Bank 2006d.

in those inputs that most cost-effectively strengthen student learning achievement:

- *Capable and motivated teachers*, that is, teachers with the necessary subject-matter knowledge, expertise in teaching, and classroom management skills. Teachers should be paid reasonable salaries and should work under conditions where effective instruction can take place. Conversely, they will be expected to take on a full teaching load and to 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, and basic equipment and supplies for teaching math, science, and ICT (chapter 7). For textbooks, this will require reforms in the way curricula are designed; requirements are determined; production and presentation standards are established; and books are published, procured, and distributed.
- *School leaders* who create an environment focused on learning, where all school personnel accept accountability for results measured by 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 be (chapters 5 and 7).
- *District and central services* that monitor school progress in improving student learning and provide support as and when needed (chapter 8).
- *Communities* that provide supportive home environments to students and that assist schools in carrying out their missions (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, the “quality imperative” must determine the pace of development of secondary education. Teacher development is particularly critical to quality. Practice-oriented training, ample opportunities for professional development, and certification for teaching at higher levels—perhaps using distance education and vacation classes—are essential for developing a cadre of teachers who 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 frequently cannot afford the

direct and indirect costs of secondary education. In addition, distance and sociocultural traditions can make rural parents reluctant to enroll their children, especially their daughters, in secondary schools located so far away that either long walks or formal or informal boarding is inevitable. Making secondary education accessible to more African adolescents will mean increasing the density of day-schooling opportunities, beginning at the junior secondary level. A system of local junior secondary schools would meet the needs of local communities that cannot afford boarding fees and would expand equitable access. Such schools could be associated with nearby basic schools, possibly as a combination of upper primary classes and rural secondary schools, as in Thailand (box 9.1) and Zimbabwe (box 4.7) immediately after independence. This model was also adopted at the beginning of the 20th century in the industrial countries (chapter 4). Such a strategy will need to ensure the quality of the opportunity to learn that is provided in these smaller schools. This will require a secondary curriculum that is closely linked to the primary curriculum and that provides for a smooth transition, while minimizing drop-out and repetition rates. It should be delivered efficiently in smaller schools and provide equivalent opportunities to learn.

Perhaps most important will be targeted 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 percent, plus a significant increase in secondary enrollment, will be feasible only if public expenditures are explicitly allocated to promoting equity in access and quality of instruction. Establishment of a dense network of senior secondary schools or technical and vocational training institutions is unlikely to occur in the immediate future, which 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 help establish secondary schools in disadvantaged areas are key instruments that can be considered for this purpose.

These strategies will need to pay particular attention to the specific needs of girls who attend secondary school at a time when they have reached sexual maturity, when parental safety concerns are very strong, and where opportunity costs are often high. Several countries are implementing conditional cash transfer programs that not only reduce the direct costs of schooling but also help cover the indirect and opportunity costs incurred when parents let children go to school. These programs 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 influence of scholarships

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, transportation, 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: (a) she attends school regularly, (b) she achieves certain minimum grades, and (c) 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, the enrollment of girls 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' enrollment climbed to 55–60 percent, but girls' enrollment climbed faster than boys'. The program also encouraged more girls to sit for exams and to go to intermediate colleges. The stipend program's costs are substantial, but the government has found the influence on girls' enrollment and attainment (as well as delayed marriage) to be impressive enough to continue it on a national scale.

The Mexican *Programa de Educación, Salud y Alimentación* (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, and the payments 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. Payments are contingent on children maintaining 85 percent attendance. Participants also receive free health care services, which are 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' enrollment 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 effects, it was expanded within Mexico, and by 2000 it

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 GDP). The program has now expanded to urban areas and is called Oportunidades.

Source: Herz and Sperling 2004.

on girls' enrollment. 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 effects, especially for girls.

MULTIPLE DELIVERY MECHANISMS

Secondary education provision takes place in several different ways: (a) upper primary classes covering a few or all years of the secondary curriculum, (b) separate middle schools, (c) combined junior secondary and senior secondary schools for an academic track (for example, gymnasium and prep schools), and (d) a wide range of formal and informal vocational programs (see box 9.1 for the different secondary education delivery mechanisms in Thailand). Secondary education policy in SSA will need to be pragmatic and flexible to allow multiple methods of secondary education provision to respond to the very different conditions in different parts of the region and its countries and to respond to the diverse demands for education and training of its students, especially beyond the junior secondary level.

Similar flexibility will need to apply to curricula, especially at the senior level, where options and choices become increasingly important. Not all schools will be able to offer all options. Smaller schools especially will be able to offer only a core curriculum with limited choices. Even in larger schools, offering many options chosen by only a few students can be costly and can offer little additional value to the education experience. On the other hand, multigrade teaching provides opportunities for quality learning in small schools at reasonable cost. Vocational training can 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 programs⁷ are increasingly important delivery mechanisms that provide alternative pathways to learning and certification for students and teachers. When combined with ICT, they provide effective mechanisms to overcome some of the constraints of traditional schooling (box 9.3).

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 from some education delivery mechanisms. Although many of the new computer-based technologies are inaccessible to African schools for cost and infrastructure reasons, these technologies have such great potential and could be so important to the students' futures that cost-effective ways to introduce them, especially at the senior secondary level, must be explored. However, this should not result in neglect of more traditional distance education technologies, such as print and radio, that 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 conventional 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 can 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 to drive down costs per student. The Internet also offers many resources to support teachers with lesson planning and to 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 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 2001b.

Encouraging this diversity and providing a qualification framework that establishes equivalence and ensures portability are important elements of postprimary education policy. Southern African countries have made considerable progress in this regard.

LOCALLY MANAGED SCHOOLS

Strengthening local autonomy for the operation of schools (chapter 8) will have to be an essential feature of African secondary education strategies. Local autonomy allows local administrators and schools to choose the most appropriate way to provide secondary education, given the opportunities and constraints in the local environment. It will also allow local stakeholders to take responsibility for the development and improvement of secondary schools. Localization can provide incentives for the efficient use of resources and the reduction of unit costs.

Decentralization of resources and decision making to districts and schools is occurring in almost every country in SSA. So far, results have been mixed and progress hampered by weak institutions and local capacity constraints. But considerable evidence (chapter 8) indicates that local autonomy in the management of schools can have positive effects on school performance. Within a framework of national instructional objectives that are supervised and supported by central and district authorities with money and technical assistance, schools can be asked to take responsibility for student learning.

Most African countries are experiencing 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 United States at 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

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 selected 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 frequently less academically qualified and poor; most had not been able to qualify for government schools or to afford the expense of studying far from their homes. Subject offerings were often limited because of the lack of resources to teach, as in science, for example. Facilities were almost entirely built through community efforts. The proportion of qualified teachers was lower and class sizes were larger. Communities that constructed good housing provided a high level of support and respect for their teachers, and they were better at attracting and retaining teachers. Students could take an exam at the end of the second year and, if they did well, could 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>.

secondary schools in their communities by providing resources to complement those that can be locally generated and by strengthening the capacity of local stakeholders—school personnel, community leaders, members of school management committees and boards of governors 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, to make available core financing, to provide support to schools in difficulty, and to ensure equity in access and opportunities 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 will 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 (that is, students, parents, and communities). But this can happen only in environments with competent local administrations. These systems exist in some countries but not in others. In the latter case, strengthening the capacity of local administrations is a prerequisite for effective decentralization.

BROADLY CONCEIVED PUBLIC-PRIVATE PARTNERSHIPS

Partnerships with nongovernment providers will generally be a key element of successful secondary education development strategies (Verspoor 2008). In East Asia, such partnerships played a crucial role in creating an environment that allowed rapid expansion of secondary education. A similar strategy could be attractive for several countries in SSA. Partnerships can occur in several ways but will usually include government financial support to private provision, including community provision, and often equally important private financing for publicly provided schooling. In virtually every country in SSA, parents contribute a large share of the cost of private and public secondary education (chapter 5). The challenge is to structure these partnerships so that the partners work together effectively and contribute in those areas where they have a comparative advantage and in which they are best positioned to contribute. 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). If partnership arrangements are not well designed, the public policy objectives will not be realized (box 9.5).

BOX 9.5 PUBLIC-PRIVATE PARTNERSHIPS IN BURKINA FASO

To respond to rapidly expanding demand in the face of severe constraints on public resources, the Ministry of Education in Burkina Faso has established a formal partnership with the private sector, including secondary schools with religious affiliations; schools owned and operated by individuals, nongovernmental organizations, or voluntary associations; and evening classes operated by associations and teachers unions. Agreements with the Catholic Church, the Association of Private Secondary Schools, and individual private secondary general and technical schools have been signed. These agreements allow the private providers to establish secondary schools reflecting their specific objectives, to recruit staff and students, to provide religious instruction, to benefit from public subsidies, and to charge the fees necessary for their operation—provided they respect national legislation, implement the national curricula, ensure quality of instruction, and accept pupils assigned to their schools by the government. New junior secondary schools that are created are provided with two government-paid teachers. Communities and other providers are expected to contract for additional teachers as needed. Furthermore, the government has been providing no-interest loans for the construction of classrooms in private schools, on the condition that the owner builds one classroom within, at most, a year for each one constructed with government funds. The ministry scholarship scheme for students from poor families to attend private schools has proven effective in allowing students from low-income families to get secondary education.

Source: Verspoor 2008.

The secondary education development strategy described so far is parsimonious in resource allocations. It is explicitly quality focused and sequential from the bottom of the education pyramid up in its emphasis. To make progress toward these goals the strategy must be school- and community-based, and value the importance of diverse partnerships and alternative delivery mechanisms. This suggests an evolving role for the

government—moving away from being the single provider and toward a focus on key priorities:

- Policy formulation, setting of standards, and monitoring progress toward national goals
- Provision of funding to support a broadly based, equitable expansion of junior secondary education of acceptable quality, as well as selective expansion of senior secondary education and TVET in conjunction with incentives for private provision and subsidies to ensure equality of opportunity
- The offering of incentives and partnership arrangements to nongovernment providers that are ready to provide education opportunities of acceptable quality, including to disadvantaged children.

Different countries will have very different initial conditions and longer-term objectives; countries will emphasize different features and will combine them uniquely. Nevertheless, it will help almost all to consider the options for strategy and practice that have emerged 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.

REFORM IMPLEMENTATION

Much of the discussion on education reform focuses on the substance of reforms that countries may want to consider. This book so far is no exception. Yet, much of the literature on school reform and change emphasizes that ultimately, the quality of local implementation—that is, the extent to which schools adopt the reform—will determine its success. 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 grades 8 and 9 (Bennell, Bulwani, and Musikanga 2007; CIDT 2005). The difficulty of changing classroom teaching practice is well documented (chapter 8). The readiness of schools and local administrators for change will largely determine the feasible pace of implementation. However, the mental models of change will be determined by the way reform strategies are designed and practiced by central authorities.

THE POLITICS OF CHANGE

Secondary education policy reform is controversial, reflecting the fact that secondary education is not just a technical matter. It is usually a political

issue, too, with potential winners and losers lobbying to protect their interests. Successful implementation requires political will and efforts to build national consensus and support for policy and reform objectives. Progress will depend predominantly on the political will to make difficult decisions and to sustain them over the long period it usually takes to implement them. Political will consists of more than “the will to act.” It also involves readiness for consultative practices for policy development, effective communication strategies, transparency in decision making and resource allocation processes, and willingness to consider evidence and lessons of experience—even when they contradict preconceived ideas and conventional wisdom. Success has more often been associated with pragmatism than with ideology or seeking political advantage.

Political will is most powerful when it derives from a national development vision that links education development with national development strategies. This connection involves the interaction between education and the economy, with a clear understanding that these two national development priorities are mutually dependent and reinforcing. However, as the East Asian experience demonstrates, the emphasis on education’s development role is driven by priorities that go well beyond economic issues because education has been assigned a key role in nation building, including building the moral values and national cohesion required to make a multiethnic society work. And it is at the secondary level—with adolescents—that both labor market preparation and the moral aspects of education are particularly important.

Where a national vision is combined with the will to act, rapid change is possible. For example, over the past 40 years, both Finland and the Republic of Korea implemented education policies that led to large increases in the number of adults with at least a secondary school education. Korea’s policies took only 20 years to achieve this level, whereas the same process took 40 years in Finland. Thailand increased its secondary enrollment ratio from 30 percent in 1990 to more than 70 percent 15 years later. Educational development in the East Asian “tigers,” the United States, and Europe began with improvements at the bottom of the pyramid, through strong and sustained efforts to provide secondary education (World Bank 2005b).

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 in 1994, reform of the education system became a priority for the first democratically elected government (see box 8.10). Sweeping changes were implemented within three years. Further reforms were implemented to deal with concerns about low “matric”⁸ pass rates, which resulted in an increase from about 50 percent in the mid-1990s to 70 percent a

decade later, although arguably not with the same standards and with 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 4.7). The Harambee movement in Kenya has an impressive record of rapidly expanding secondary opportunities in rural areas (box 9.4).

THE PRACTICE OF CHANGE

Education reform, particularly secondary education reform, is a complex and multifaceted process that has often failed to produce the promised results. The best ideas have faltered on the rocks of implementation. Fortunately, experience is accumulating and lessons are being learned as countries—in Africa and in other regions—grapple with the challenges of secondary education development. Several trends are becoming apparent.

First, *school systems* are increasingly transforming themselves into *systems of schools*, in which the responsibility for improvement and performance is shifting from central-level managers to the school level. However, it makes little sense to ask schools to implement complex reforms when the capacity for change at the school level is limited and when teachers are unfamiliar with the instructional methods they are asked to implement. There are no quick fixes to the problems of secondary schools. Reforms that aim to change instructional practice and improve learning achievement, especially, must be devised as processes, not as events. These kinds of interventions cannot 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 that permeates the system. Schools can learn from each other. Administrators can share their experiences with colleagues in other districts. Central administrators can learn from their own experiences and from the experiences of other countries in the region and beyond.

Second, the selecting, the packaging, and the sequencing of the different elements of reform programs are critically important. No country will be able to implement all necessary reform measures simultaneously. Setting priorities, determining what is politically and technically feasible at a particular time, and negotiating with stakeholders packages that combine desirable policies with some that are more difficult to accept are key elements of successful implementation strategies. Sequencing also has an important professional rationale. If teachers and schools are asked to implement changes that require unfamiliar teaching and management

practices and require skills not in their possession, 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 investment 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. If rigorous evaluation based on quantitative and qualitative information is absent, policy becomes based on anecdote, 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, although 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 education 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. Examination results can provide feedback to schools on student performance. Assessments can provide policy makers with information on the overall performance of the system and can compare it with that of neighboring countries. Continuous classroom assessments can help teachers identify the need for remedial instruction. Randomized sample surveys are useful for gathering evidence on the performance of particular interventions.

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 contradict conventional wisdom. Conversely, South Africa,⁹ which has closely monitored the implementation of reform programs and was willing to take corrective action when the results were not as anticipated, has 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 will threaten vested interests or will challenge established service provision methods and instructional practices. Consultations with stakeholders and open and honest sharing of information with the public can help build 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 a system that provides opportunities for further learning to a rapidly increasing proportion of adolescents is occurring throughout the region. But the challenge is not expansion only; it involves concurrent improvements to quality, relevance, and equity. Linear expansion of existing systems—more of the same—is not an option.

The challenge is particularly daunting because 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 of developing 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, recognize the bottom-up sequential nature of education development, be closely aligned with national development priorities, anticipate labor market demand, strengthen school autonomy, ensure effective central direction, and support and build public-private partnerships reflecting relative competencies. It also implies an evolution in the role of the government toward forming policy, setting standards, and monitoring of progress toward national goals, as well as the provision of funding to support a broadly based, equitable expansion of 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 require additional public resources involving trade-offs with other sectors and allocation choices within the education sector. Making these choices explicit and presenting a case to the Ministry of Finance will require a sectorwide medium-term expenditure framework and a longer-term sector development plan with realistic financial projections. Planning for secondary education development cannot be done in isolation from other priorities in the sector. Clearly, there is no single best way for the development of secondary education and training; initial conditions in each country will determine the priorities and the feasibility over time.

Implementing change along these lines will require capacity development throughout the system, effective management information systems, and, most important, long-lasting political commitment and leadership.

Such a commitment entails the obligation to provide essential resources, as well as to build broad public support for a reform agenda. Only then will it be possible to tackle the challenge of secondary education with confidence.

NOTES

1. The exceptions are Botswana, Lesotho, South Africa, and Swaziland.
2. There are some countries where the share of education is far below the regional average, and some others where current allocations are skewed in favor of higher education; in those cases, some reallocation may be possible. But these are the exceptions in the region.
3. Remarks at the opening ceremony of the second ADEA conference, Dakar, June 6–9, 2004.
4. There even is a National Association for Year Round Learning (NAYRL) with a Web site that provides many past and present examples: <http://www.nayre.org/>.
5. Economies that derive their competitive advantages from low-cost labor or access to national resources.
6. Economies where efficiency in the production of standard products and services is the source of competitive advantage.
7. 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 independent or part-time study, which permits entry without formal 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.
8. Grade 12 examination certifying secondary school completion.
9. See, for example, South Africa Department of Education (2003a, 2003b); <http://www.education.gov.za/dynamic/dynamic.aspx?pageid=329&catid=10&category=Reports>.

Supporting Secondary Education: The Contribution of Development Partners in Sub-Saharan Africa

[A]s 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 . . .

—*Meeting the Challenge of Africa's Development:
A World Bank Group Action Plan*
(World Bank 2005c)

As argued in chapter 5, domestic public and private resources will continue to be the main source for funding secondary education development in Sub-Saharan Africa (SSA). International development partners can play an important role by complementing national efforts in several ways; however, given the challenges donor agencies face in living up to their Millennium Development Goal (MDG) commitments, their ability to mobilize additional large-scale financial resources for secondary education development is likely to be limited. Conversely, their support for planning and analysis could be important, especially if such support is provided in the context of aid modalities designed with a sectorwide perspective. This chapter reviews trends in aid to secondary education in SSA; examines newly emerging modalities; discusses the experiences and planned commitment of the World Bank, which remains the largest single source of external funding for education in SSA; and concludes with strategic priorities that donors may want to consider as they prepare to provide support to secondary education.

AID TO SECONDARY EDUCATION

Aid priorities and practices within the education sector have changed dramatically since the 1980s. Lockheed and Verspoor (1991, 214–15) 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 than supporting them indirectly by funding teacher education programs and central agencies. . . .

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 by 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” Education for All (EFA) plans. Conversely, analytical work on secondary education in SSA has been limited, because the often-disappointing results of past investments—including those in technical and vocational education and training (TVET)—as well as the political difficulty of implementing the reforms necessary for sustainable provision of secondary programs of acceptable quality and relevance made donors reluctant to get involved in these subsectors.

DECLINING AID ALLOCATIONS TO SECONDARY EDUCATION

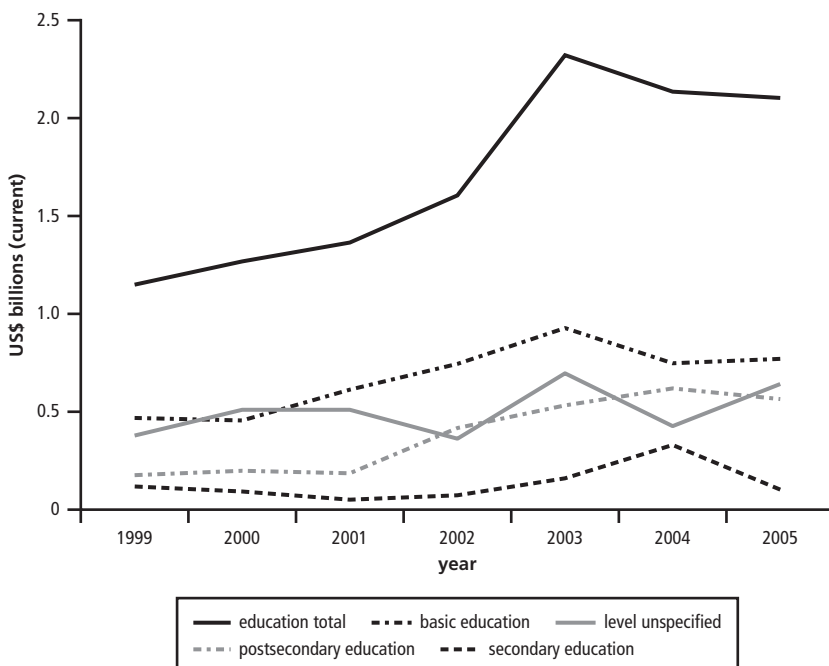
Trends in the share of secondary education in aid allocations show the magnitude of these changes. During the 1980s, some 95 percent of all aid

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 2000) called for a doubling of international aid to basic education. In response, many donors redefined their aid priorities for the education sector and increased support for basic education. By 1999, the share of primary education in education aid commitments to SSA exceeded 50 percent¹ while secondary education received about 12 percent. The shift in aid priorities has continued. Between 1999 and 2004, total aid commitments to education in SSA increased by 75 percent, from \$1.2 billion to \$2.1 billion. Virtually all of this increase was allocated to primary and tertiary education. Although commitments to secondary education have considerable year-to-year fluctuations, on average they have not changed much in dollar terms and have declined to about 5 percent as a share of education aid (figure 10.1). This finding raises important questions about 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 junior secondary education as part of the goal of providing 8–10 years of basic education.

CHANGING AID MODALITIES: DEVELOPMENT POLICY LENDING

The external support to education in SSA is delivered increasingly through new aid modalities and is linked with Poverty Reduction Support Papers (PRSPs) 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 mechanism used more often now by the World Bank for this purpose is the Development Policy Loan (DPL). DPLs provide rapidly disbursing, policy-based budget support assistance,

Figure 10.1 Education Official Development Assistance Disbursements in SSA

Source: OECD/DAC database.

with considerable emphasis on defining and measuring results. The majority of DPLs use a programmatic approach, where a program of reform is agreed upon with the government, as is a timetable for implementation. The program is supported by a series of normally single tranche operations that come into effect as certain benchmarks defined in the policy matrix are met. A DPL policy matrix, usually with about 10 core triggers, summarizes the key results that will trigger further assistance (Hicks 2006). In many instances, other donors support 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 DPLs are designed to support the expansion of access and improvement of the quality of primary education. Tanzania and Uganda are exceptions to this pattern, with each approaching 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 Reduction Support

BOX 10.1 SECONDARY EDUCATION DEVELOPMENT PROGRAM IN TANZANIA

Tanzania has one of the lowest secondary enrollment rates in Africa. Fundamental changes are needed to increase enrollment and to improve quality in both government and nongovernment 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's Secondary Education Reform Program. The most important of these donors is 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 a foundation for a system of quality secondary education that is relevant, effective, and efficient. Development grants will assist communities to build schools. Incentives for nongovernment 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 to their use. A new examination syllabus will be completed and issued, and a new preservice 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 will be put in place with capacities to perform more functions effectively at lower levels.

Tranche conditions for the World Bank loan are linked to implementation of the reform package. Two tranches were released upon completion of the following:

- Enactment of regulations on capitation, development, scholarships, 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 and private sector publishers for publishing existing textbook titles and for revision of the textbook evaluation process

- Budgetary allocations for staffing, scholarships, capitation grants, and development grants for facilities and pedagogical improvements according to agreed-on norms
- Government reduction in fees for public secondary schools from 40,000 Tanzanian shillings (T Sh) to T Sh 20,000 (that is, from \$34 to \$17) starting with the 2005 school year
- Regulations for a package of benefits to attract teachers to underserved areas
- 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-on norms
- Revised curricula completed and introduced; revised examination structure approved and distributed to all schools
- New regulatory framework and organizational structure in place for decentralized management of secondary education.

Source: World Bank 2004c.

Credits (PRSCs) provide general budget support for the implementation of the national Poverty Eradication Action Plan (PEAP), which has five pillars. Secondary education and technical and vocational training are 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).² Policy dialogue and assessment of implementation progress take place annually during an education sector review that includes the PPETP. Implementation of the government undertakings agreed to during these sector reviews is a prior action for the PRSC. In both Uganda and Tanzania, World Bank DPL support is part of a multidonor SWAp.

INCLUDING MACRO LINKAGES: POVERTY REDUCTION STRATEGY PAPERS

Education is usually included in PRSPs.³ A review of the place of education in PRSPs completed by 2003 concludes that postprimary levels “are not considered” (Caillods and Hallak 2004, 149). Skill development

BOX 10.2 PEAP POLICY AND RESULTS MATRIX FOR SECONDARY-LEVEL EDUCATION IN UGANDA

	End June 2005	End June 2006	End June 2007	End June 2008
Increased postprimary enrollment (gross enrollment ratio by gender)	Government continued enhancing access through the construction of 60 secondary schools	Construction continued	Construction continued	All seed schools (60) constructed; target of 270 schools reached
<i>Increase access to secondary schools and to business or technical and vocational education and training institutes (TVET).</i>	More teachers recruited Government continues granting aid that targets 270 community and private schools Pilot implemented establishing a maximum of 30 community polytechnics, of which 14 are to be fully funded by the government while 16 are to be cofunded by IDB	More teachers recruited Pilot implementation continued	More teachers recruited Pilot reviewed and evaluated	Implementation conducted according to review
<i>Improve equity of access and effectiveness of system through providing bursaries to poor, bright students.</i>	Bursary scheme implemented with each secondary class of education now having two beneficiaries per subcounty; scheme to include girls who have had a child and wish to return to school	Number of beneficiaries per subcounty increased to three to be shared by gender in a ratio of 2:1 in favor of girls	Implementation of the 2:1 (girl:boy) ratio per class per subcounty continued	Implementation of the 2:1 (girl:boy) ratio per class per subcounty continued
Improved quality of postprimary education (Completion rate of senior 4, disaggregated by gender)	Curricula review to transform them into credit units weighed according to the level of the institution Science and technology subjects made compulsory Existing laboratories rehabilitated	Vocational Qualifications Authority developed Curriculum reviewed and implemented Science and technology teachers trained and retrained Laboratories and libraries constructed	Modularized programs in the TVET institutes implemented Curriculum reviewed and implemented Science and technology teachers trained and retrained Laboratories and libraries constructed	Modularized programs in the TVET institutes implemented New curriculum implemented, monitored, and evaluated Science and technology teachers trained and retrained Laboratories and libraries constructed

End June 2005	End June 2006	End June 2007	End June 2008
	Existing laboratories and libraries rehabilitated and equipped	Existing laboratories and libraries rehabilitated and equipped	Existing laboratories and libraries rehabilitated and equipped
Community polytechnics curriculum modularized	Technical and commerce colleges curriculum modularized	Technical schools and farm schools curriculum modularized	Implementation of modularized programs and evaluation continued

Source: Adapted from World Bank 2005e.

Note: IDB = International Development Bank.

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 personnel 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 nongovernment schools. A target is to have one secondary school in every ward (about 2,500 secondary schools, compared with 1,000 at present).

World Bank country assistance strategies (CASs) that specify planned Bank support for PRSP implementation usually recognize the importance of a better-educated labor force, but CASs 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 Faso CAS for 2006–09 includes support for junior secondary education as one of its priority objectives.

TRENDS IN WORLD BANK SUPPORT

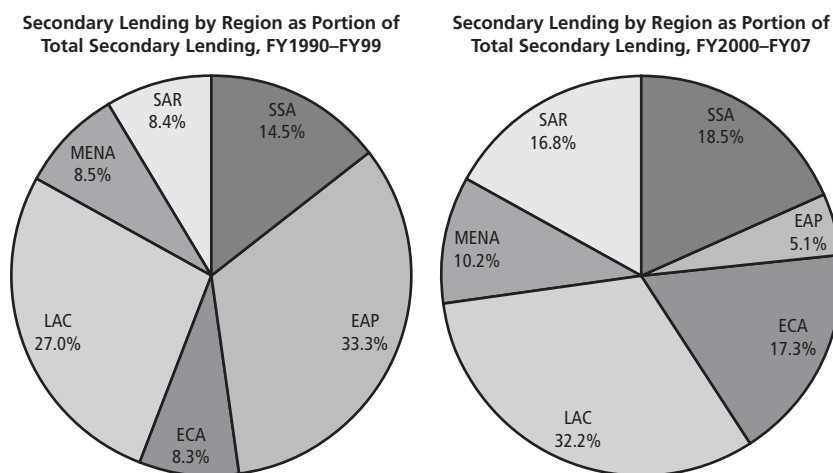
The World Bank has long been the single largest source of funding for education development in SSA. Its policies and practices have an important influence on the agenda for and the direction of external support to

education in the region. World Bank support for education development is implemented through financial support—in SSA, mainly International Development Association credits (low interest loans) or grants—and through analytical work typically carried out in close collaboration with the staff from ministries or research institutions in the countries concerned.

Well before the EFA 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 FY90,⁴ two-thirds of secondary education lending was concentrated in the middle-income countries of Latin America and the Caribbean (LAC), Europe and Central Asia (ECA), and East Asia and Pacific (EAP), although the relative shares changed considerably in the more recent period, with significant increases in the shares of South Asia and ECA and with a notable decline in EAP (figure 10.2). The share for SSA has been remarkably stable throughout both periods, at about 13–14 percent. Given the much larger annual lending commitments in the later period, the average annual investment in secondary education in SSA increased from \$27 million in FY1990–FY99 to \$37 million in FY2000–FY07.

The regional distribution of the number of projects with secondary education components similarly shows SSA with the lowest proportion of “all secondary education” projects of all regions, although the region is close to

Figure 10.2 Changes in the Regional Shares of World Bank Commitments for Secondary Education



Source: Edstats.

Note: EAP = East Asia and Pacific region; ECA = Europe and Central Asia region;

LAC = Latin America and the Caribbean region; MENA = Middle East and North Africa region;

SAR = South Asia region; SSA = Sub-Saharan Africa region.

Table 10.1 SSA Region Proportion of Projects Supporting Secondary Education

Project data	SSA	Total Bank
Projects approved FY80–FY02		
All education projects	137	477
Projects with any secondary (%)	39	37
Projects all secondary (%)	15	19
Projects closed FY90–FY01		
All education projects	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

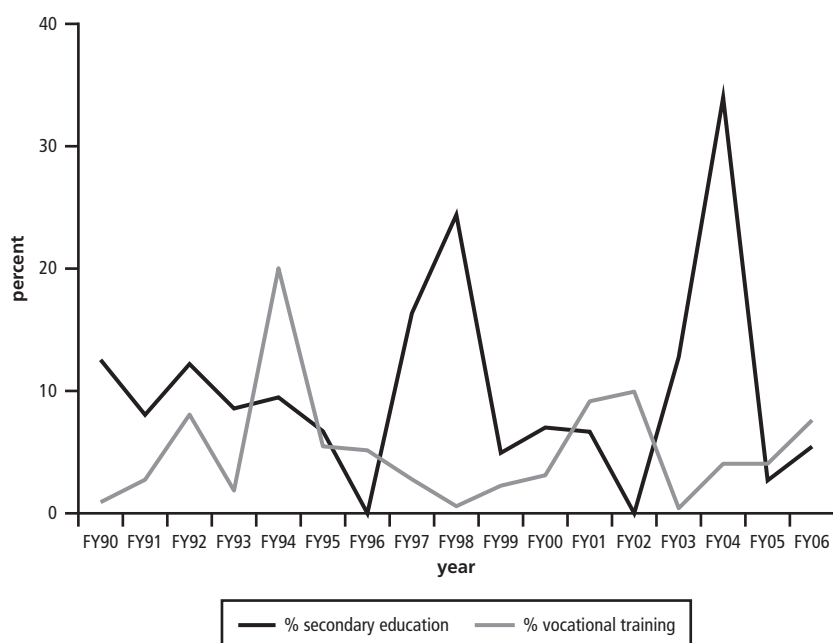
Source: Perkins 2004.

Note: Categories overlap: “Projects with any secondary” includes the “all or mainly secondary education projects,” that is, those allocating a larger share of costs to secondary than to either primary or tertiary.

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 enrollment 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—as well as the limited public resources available for secondary education and the small size of the modern sector of the labor market, where most secondary graduates look for employment.

LENDING FOR SECONDARY EDUCATION IN SSA

Figure 10.3 shows the trend in lending for secondary education and vocational training in SSA since 1990. Annual amounts of lending tend to fluctuate significantly: secondary education was 35 percent of total education lending in SSA in FY04 but 0 in FY96; vocational training was 20 percent in FY94 but only 0.5 percent in FY93. Single investments can have a significant impact. The high share of lending for secondary education in FY04 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 percent (\$15 million) of the lending for secondary. Above-average lending for vocational training in FY06 was due to a vocational training project in Mozambique with a total

Figure 10.3 Percentage of World Bank Education Lending to Africa for Secondary Education and Vocational Training, FY90–FY06

Source: Edstats.

cost of \$30 million. Notwithstanding these fluctuations, averages for the FY90–FY94, FY95–FY99, and FY00–FY06 periods are remarkably stable at 10.3 percent, 10.6 percent, and 11.6 percent, respectively, for secondary education and at 7.0 percent, 3.6 percent, and 7.0 percent for vocational training. Secondary education has been supported in 10 countries in SSA since FY03 (table 10.2), or two to three projects every year. Support for

Table 10.2 Bank Lending for Secondary Education and Vocational Training in SSA, FY01–FY06

	FY01	FY 02	FY 03	FY 04	FY 05	FY 06
Secondary education						
Projects (number)	1	0	3	2	2	3
Amount (\$ million)	14.4	0	53.9	124.2	11.2	18.3
Vocational training						
Projects (number)	1	3	1	3	5	5
Amount (\$ million)	19.8	47.1	2.1	16.5	15.8	27.2
Total education lending (\$ million)	209.5	472.6	423.6	362.9	369.0	339.3
Secondary and vocational as percentage of total	16	10	13	39	7	13

Source: Edstats.

vocational training projects is more widespread across countries—three to five a year—but the scope, as reflected in the amount committed is usually limited to small purchases of equipment and some refurbishing of facilities.

With the exception of a few projects that focus almost exclusively on secondary education in Tanzania and Burkina Faso, the amounts committed for secondary education tend to be small: \$5 million to \$6 million in FY05 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 FY96 with a follow-up project in FY06. The first project supported innovative approaches to promote public-private partnerships for the construction and operation of schools (chapter 9, box 9.5), for reform of teacher education (chapter 7, box 7.3), for systematic assessment of student learning, for progress toward gender equity, and for better access by poor students. The FY06 operation continues these efforts, incorporating the lessons of experience while supporting a large increase in enrollment, especially at the junior secondary level, with an increase in the intake ratio from 22 percent in 2004 to 40 percent by 2009.

REVIEWING PROJECT PERFORMANCE

A review by the World Bank's Independent Evaluation Group (IEG)⁵ of secondary education projects worldwide that were closed between 1990 and 2001 found that the performance of about 30 percent of the projects in SSA was rated unsatisfactory, higher than in any other region (Perkins 2004). Completion and evaluation reports identified several factors causing poor performance: lack of government or national ownership and underestimation (or lack of adequate assessment) of institutional constraints. In addition, an overly complex project design, the 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 it was caused by 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 assessments, supply of inputs), combined with demand-driven interventions (such as school-managed improvement funds and book selection) were found to be important factors in projects that successfully supported improvements in education quality or equity, or both.

The older generation of projects in SSA in the IEG review mainly emphasized improvement in quality, expansion of capacity, and improvement in planning and management. Reducing the obstacles associated with 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 nonexistent. Many pursued multiple objectives across subsectors. Few projects successfully contributed to major policy reform.

This picture began changing in recent years. Considerable attention is being paid to gender and equity issues. The Uganda PEAP and The Gambia Third Education Sector Project (FY05), for example, provide financing of scholarships for poor girls. The Burkina Faso Post Primary Education 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 (FY04) provides development grants for classroom construction to the poorest communities and 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

Secondary education is becoming, in most instances belatedly, a key element of national education policy, and governments are putting pressure on donors to include it in their aid programs. This change reflects many political leaders' strongly held view⁶ that secondary education cannot be dealt with in isolation from other education subsectors 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. Junior secondary education is increasingly considered 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 that provide for a detailed review of policy and financing issues for these subsectors. Donors are increasingly ready to provide financial support for secondary general and TVET programs. For example, U.K. Department for International Development (DFID) recently published a brief on the importance of secondary, vocational, and higher education for development, thereby committing itself to a sectorwide approach and to support for partner government plans that distribute funding in a balanced way across all levels of their education systems, with junior secondary education increasingly considered part of basic education (DFID 2006). The African Development Bank has provided support to secondary education in many of its education operations, often focusing on math and science teaching. The Japan International Cooperation Agency is supporting the improvement of secondary math and science education. The Netherlands is cofinancing the Post Primary Education Project in Burkina Faso. Several agencies—the Danish International Development Agency (DANIDA) and the German Agency for Technical Cooperation (GTZ), for example—have a longstanding commitment to support TVET. External financial support for secondary education still varies considerably between donors.

The World Bank Africa Action Plan (World Bank 2005d) and the recently issued progress report (World Bank 2007a) also identify 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 to accelerate expansion of access to junior secondary education and diversification of opportunities for further education and training at the senior secondary level. The Secondary Education in Africa (SEIA) program has initiated reflection and discussion on priorities and policies for secondary education development in SSA.

However, considerable uncertainty remains on the extent of external support for secondary education. PRSCs in Ethiopia, Madagascar, Niger, and Uganda are likely to be linked explicitly to progress in secondary education development. The World Bank has free-standing secondary education or TVET operations in the pipeline only in Zanzibar, and possibly in Uganda and Benin. Additional efforts focused more narrowly on secondary

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 2005d). The review reports good progress in increasing primary enrollment but expresses concern about the quality of secondary education and the low completion rates (30 percent for junior secondary and 12 percent for senior secondary education). It notes that since 2005, the following have occurred:

- African policy makers and development partners have placed greater emphasis on postprimary education and primary school completion.
- Private secondary education and training are 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 emerging in public discussions.

Given 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 postprimary system. Management attention can shift toward postprimary education and can 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 small and medium enterprises, 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 sound and fiscally sustainable policies and comprehensive education programs to meet education MDGs; improve learning outcomes throughout the system; manage the growing pressures on postprimary education; respond to employers' demands for skilled labor; and ensure that the postprimary 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 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 shared are likely to be key priorities.

Sources: World Bank 2005d, 2007a.

education policy choices to underpin the policy dialogue among government, development partners, and other stakeholders are required almost everywhere. It remains to be seen how the intentions of other donors will be translated into actual aid allocations.

STRENGTHENING THE ANALYTICAL FOUNDATION

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* (World Bank 2005b) 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 framework and evidence-based policy dialogue grounded in robust analysis of financial issues, labor markets, and poverty impact (Perkins 2004), the conditions for lending are often not in place. A robust analytical foundation is often a first step toward 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, for example, in 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 previously. Other donors have also supported analytical work on secondary education policy (see, for example, CIDT [2005]). Several countries—Kenya, Mozambique, and Uganda, for example—have assembled planning teams to analyze possible policy options for secondary education development. The SEIA initiative has supported country studies in Benin, Cameroon, Ghana, Nigeria, and Zambia. Economic analyses carried out as part of World Bank appraisals of education projects in Malawi (Education Sector Support Program) and Burkina Faso highlight the parameters for financial sustainability of secondary education investments. Many Country Status Reports (CSRs) include analysis of secondary education issues and recommendations for policy reform, although typically in less depth than for primary education; but few reports actually provide a framework for action, and they are followed by financial support to the secondary education sector.

In several countries, secondary education development is already gaining importance in analytical work. Increasingly, Fast Track Initiative programs analyzing the implications of EFA on junior secondary education include that level 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, plus Public Expenditure Reviews in Eritrea, Zambia, and Zanzibar, for example, have included reviews of secondary education expenditure allocations and requirements. In several other countries (Burundi, Ethiopia, and Uganda), informal analyses are planned, usually with support from

other development partners. The World Bank is planning specific sector work on postprimary education only in Zambia (FY09). Several recent World Bank projects (Burundi and Kenya) include financial provisions to support the development of secondary education development strategies.

The challenge in many countries is to move beyond subsector analysis toward a national program that provides a policy framework to deal with intrasectoral resource allocations within a resource envelope agreed upon by all concerned government agencies, including the Ministry of Finance. Such a strategic plan can then be the basis for a medium-term expenditure framework. The importance of this kind of approach cannot be underestimated. Many countries are simultaneously moving toward the MDGs for primary education, expanding access to secondary, developing TVET, and strengthening higher education. They need to consider trade-offs between subsector 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 percent of the education budget to more than 20 percent, 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 2006b). An integrated, sectorwide policy framework and analysis of financial sustainability is usually a precondition for moving toward the DPL instruments for support to postprimary education.

CONCLUSION: STRATEGIC PRIORITIES

Adequate and credible support for secondary education from international development partners will mean that those partners must reconsider their current aid priorities, especially their allocations related to secondary and higher education. This is, of course, not easy; yet it is imperative, especially given the importance of linking Africa with the international knowledge economy. 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. It is hard to justify allocating a share of education financing to higher education that is six times the share of secondary education.

External support for secondary education development, which is increasingly available from multiple sources, must be well coordinated and coherent and, where possible, must be provided in the framework of a sectorwide approach. Support for secondary education can be provided through an array of financing mechanisms, and country conditions will determine the most appropriate one. Several examples have been

discussed earlier: PRSC-linked general budget support in Uganda (box 10.2), a Sector Adjustment Loan in Tanzania (box 10.1), and the Specific Investment Loan in Burkina Faso. The World Bank is also supporting secondary education through Adaptable Program Loans⁷ (APLs). In Mali, 20 percent of the second phase of an APL for the Secondary Education Sector Investment Program is supporting the development of secondary education—in particular, the second cycle of basic education (grades 7–9). In Senegal, the second phase of an APL (FY07) is supporting mainly junior secondary education. All of these are designed as part of a coherent package of financial support funded by several donors. But in many instances, especially in World Bank–funded projects, support to secondary education and TVET is limited and is part of larger operations, which limits the ability of agency staff and government officials to pay attention to policy issues.

The task ahead is to capitalize on the knowledge base provided by this analytical endeavor while 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 will need to include the following:

- Sharing the findings of this report and other analytical work with a broad audience of African decision makers, education professionals in SSA and out, and development partners 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 CASs and in supporting its inclusion in PRSPs
- Supporting secondary education as much as possible in a sectorwide policy framework, that is linked to the national PRSP and medium-term expenditure framework, to improve visibility of the longer-term financial basis for action
- Using flexible lending instruments, such as APL, DPLs, or PRSCs, whenever possible
- Monitoring carefully the implementation progress of reform programs, learning the lessons of experience, and adapting interventions accordingly
- Making explicit support of quality, equity, and financial sustainability the hallmark of Bank support.

NOTES

1. This figure assumes that at least 50 percent of the aid that is not specified by subsector, for example, “education budget support,” is in fact allocated to basic education.

2. This Uganda plan was superseded by a move toward universalizing access to secondary education by offering—free of charge—access to secondary schools to eligible primary school graduates. The government is planning to underpin the program by a set of policy reforms that include the large-scale introduction of double shift systems; the introduction of a streamlined curriculum and a timetable with many fewer optional subjects, increases in the minimum teaching load for secondary teachers, and an expanded collaboration with the private sector; as well the accelerated provision of textbooks, science equipment, and core physical infrastructure.

3. 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 to hold them accountable for subsequent actions, are key components of PRSPs.

4. The World Bank fiscal year (FY) runs from July 1 to June 30; FY90 starts on July 1, 1989.

5. At that time known as the Operations Evaluation Department (OED).

6. This key message was conveyed by education ministers at the third SEIA conference in Accra, Ghana (April 1–3, 2007).

7. An APL provides support for a long-term development program by releasing three tranches in support of specific investments that are based on a set of agreed-on performance indicators known as triggers.

Appendixes

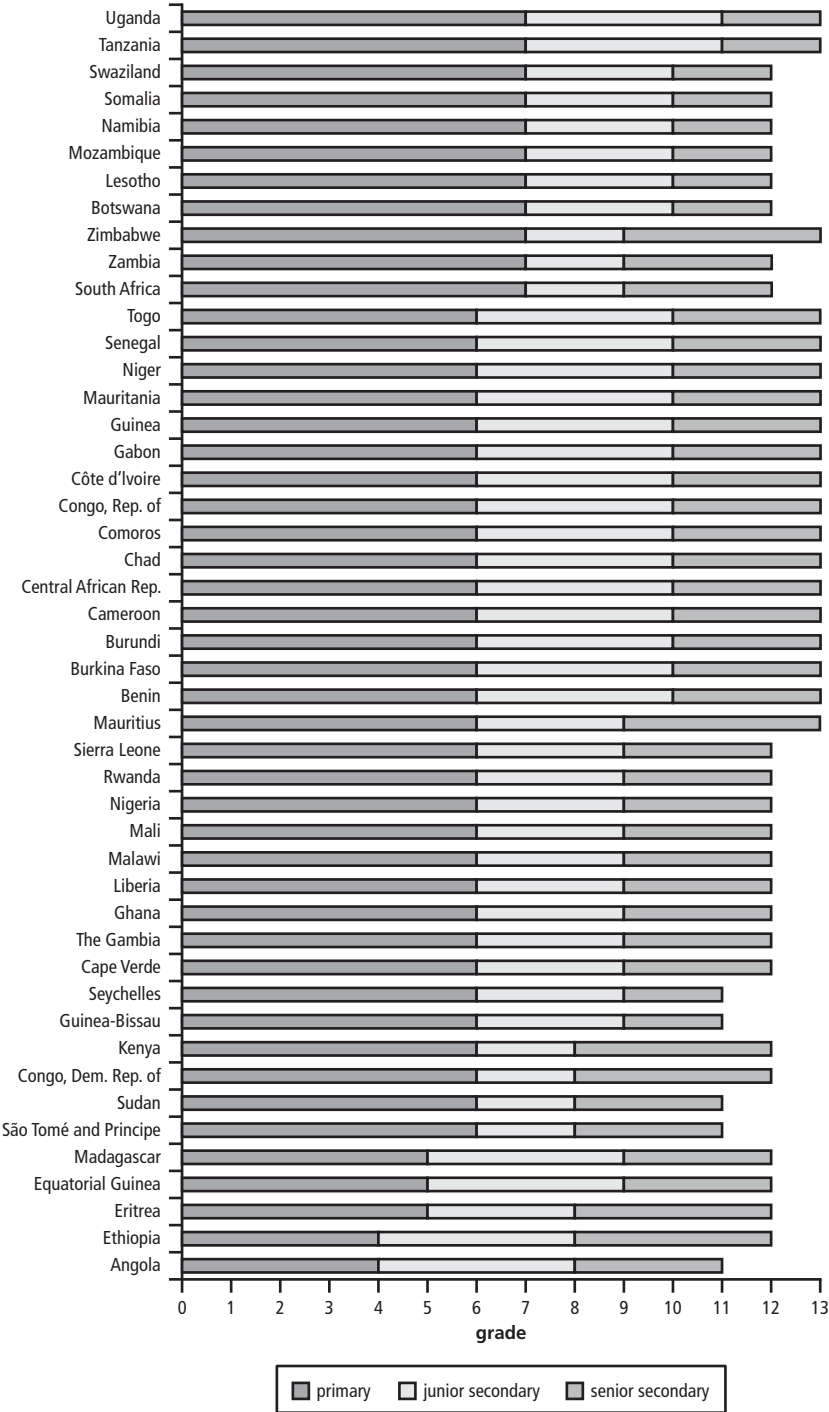
APPENDIX A: COUNTRY STATUS REPORTS (CSRs) IN EDUCATION

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 **Bénois**: 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 et 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'état 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 (September 2007)
23. Le système éducatif **Béninois** (in progress)
24. Le système éducatif au **Burkina Faso** (in progress)

Most CSRs are published by the World Bank in the Africa Human Development Series and are available at <http://www.worldbank.org/afr/education>.

APPENDIX B: SECONDARY EDUCATION STRUCTURE IN SUB-SAHARAN AFRICA



Source: UIS database.

Note: Data from 2007 or latest year available.

APPENDIX C: SECONDARY EDUCATION STATISTICS

Table C.1 Participation in Secondary Education

Country	Age group (2004)	Secondary school-age population (thousands)	Dependency ratio	Total secondary enrollment (school year ending in 2005)		Enrollment in TVET (school year ending in 2005)		Private enrollment as percentage of total secondary enrollment (school year ending in 2005)
				Total (thousands)	% female	Total (thousands)	% female	
Angola	10–16	2,828	91	—	—	—	—	—
Benin	12–18	1,339	83	435	35	58	43	25
Botswana	13–17	226	58	170	51	11	38	4
Burkina Faso	13–19	2,104	91	295	41	22	49	39
Burundi	13–19	1,291	86	174	43	14	48	12
Cameroon	12–18	2,704	76	1,198	44	381	36	40
Cape Verde	12–17	76	70	52	52	3	39	—
Central African Republic	12–18	668	80	—	—	—	—	—
Chad	12–18	1,526	91	237	25	3	41	—
Comoros	12–18	123	76	43	43	0.2	7	41
Congo, Dem. Rep. of	12–17	7,900	94	1,655	37	443	38	—
Congo, Rep. of	12–18	629	76	235	46	43	48	22
Côte d'Ivoire	12–18	3,078	76	—	—	—	—	—
Equatorial Guinea	12–18	78	79	—	—	—	—	—
Eritrea	12–18	690	79	217	37	2	36	6
Ethiopia	11–18	14,529	84	5,185	41	124	50	6
Gabon	12–18	227	60	—	—	—	—	—
The Gambia	13–18	188	75	85	45	0.4	82	39
Ghana	12–17	3,099	68	1,409	46	31	50	14
Guinea	13–19	1,390	81	423	33	8	48	10
Guinea-Bissau	13–17	172	96	—	—	—	—	—
Kenya	12–17	5,053	78	2,464	49	14	46	6
Lesotho	13–17	244	74	94	56	1	52	2
Liberia	12–17	461	92	—	—	—	—	—

Table C.1 (Continued)

Country	Age group (2004)	Secondary school-age population (thousands)	Dependency ratio	Total secondary enrollment (school year ending in 2005)		Enrollment in TVET (school year ending in 2005)		Private enrollment as percentage of total secondary enrollment (school year ending in 2005)
				Total (thousands)	% female	Total (thousands)	% female	
Madagascar	11–17	2,959	83	—	—	—	—	—
Malawi	12–17	1,822	94	515	45	—	—	15
Mali	13–18	1,827	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	2,323	84	306	41	25	30	15
Namibia	13–17	263	68	148	53	—	—	5
Niger	13–19	2,079	98	182	39	5	39	11
Nigeria	12–17	18,681	84	6,398	45	—	—	—
Rwanda	13–18	1,432	80	204	48	73	48	44
São Tomé and Príncipe	13–17	18	77	8	51	0.1	18	—
Senegal	13–19	1,903	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	4,932	50	4,593	52	276	40	3
Sudan	12–16	4,001	73	1,370	48	18	28	10
Swaziland	13–17	151	70	68	49	—	—	—
Togo	12–18	988	81	399	34	22	18	28
Uganda	13–18	4,074	103	760	44	32	32	45
Tanzania	14–19	5,403	84	—	—	—	—	—
Zambia	14–18	1,445	89	409	45	8	8	4
Zimbabwe	13–18	2,105	69	758	48	—	—	—

Sources: UNESCO 2007; UN Population Division.

Note: — = not available.

Table C.2 Secondary Education: Access and Equity
(school year ending 2005)

Country	Junior secondary GER			Senior secondary GER		
	Male	Female	GPI	Male	Female	GPI
Angola	—	—	—	—	—	—
Benin	51	30	0.58	27	14	0.52
Botswana	84	89	1.07	57	58	1.02
Burkina Faso	22	16	0.73	9	5	0.60
Burundi	20	15	0.76	9	6	0.68
Cameroon	52	47	0.91	46	28	0.61
Cape Verde	87	92	1.06	43	47	1.10
Central African Republic	18	10	0.54	—	—	—
Chad	28	10	0.35	16	4	0.26
Comoros	47	35	0.75	30	24	0.78
Congo, Dem. Rep. of	37	23	0.63	23	12	0.54
Congo, Rep. of	53	47	0.88	25	17	0.69
Côte d'Ivoire	—	—	—	—	—	—
Equatorial Guinea	—	—	—	—	—	—
Eritrea	54	34	0.64	27	14	0.52
Ethiopia	56	41	0.73	24	14	0.58
Gabon	—	—	—	—	—	—
The 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
São Tomé and Príncipe	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
Tanzania	—	—	—	—	—	—
Zambia	47	41	0.87	20	15	0.73
Zimbabwe	56	53	0.95	29	25	0.86

Source: UNESCO 2007.

Note: — = not available. GER = gross enrollment ratio; GPI = gender parity index.

Table C.3 Secondary Education: Transition and Internal Efficiency

Country	Primary completion rate	Primary to junior 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
Central African Republic	—	—	—	—	—
Chad	—	51.3	21	22	21
Comoros	—	63.2	15	18	16
Congo, Dem. Rep. of	—	—	—	—	—
Congo, Rep. of	—	58.1	24	25	24
Côte d'Ivoire	—	—	16	16	16
Equatorial Guinea	—	—	—	—	—
Eritrea	68	88.6	16	18	17
Ethiopia	—	85.4	8	12	9
Gabon	—	—	—	—	22
The 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	—	—	—	—
São Tomé and Príncipe	—	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
Tanzania	—	46.1	2	4	3
Zambia	—	55.3	5	5	5
Zimbabwe	—	69.7	—	—	—

Sources: UNESCO 2007; UIS 2006a.

Note: — = not available.

Table C.4 Secondary Education: Teachers

Country	Pupil-to-teacher ratio		Percentage trained teachers		
	Junior	Senior	Male	Female	All
	secondary	secondary			
Angola	—	—	—	—	—
Benin	30	22	—	—	—
Botswana	17	11	94	93	93
Burkina Faso	—	—	—	—	—
Burundi	—	—	39	28	37
Cameroon	—	—	—	—	—
Cape Verde	23	23	59	64	61
Central African Republic	—	—	—	—	—
Chad	—	—	—	—	—
Comoros	16	11	—	—	51
Congo, Dem. Rep. of	—	—	—	—	—
Congo, Rep. of	45	18	—	—	—
Côte d'Ivoire	—	—	—	—	—
Equatorial Guinea	—	—	—	—	—
Eritrea	55	39	48	64	50
Ethiopia	57	47	—	—	—
Gabon	31	—	—	—	—
The 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	—	—	—	—	—
São Tomé and Príncipe	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
Tanzania	—	—	—	—	—
Zambia	38	28	—	—	—
Zimbabwe	—	—	—	—	—

Source: UIS 2006a.

Note: — = not available.

Table C.5 Education Expenditures

Country	Public expenditures per student (% of GDP per capita)			Total public expenditures on education		Public expenditures per JSE student as % of GDP per capita	Public expenditures per SSE student as % of GDP per capita
	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	—	—
Central African Republic	—	—	—	—	—	15	25
Chad	—	—	—	—	—	19	25
Comoros	12.4	33.9	—	3.9	24.1	—	—
Congo, Dem. Rep. of	—	—	—	—	—	19	19
Congo, Rep. of	7.9	18.3	245.9	3.2	—	12	36
Côte d'Ivoire	—	—	—	—	—	34	63
Equatorial Guinea	—	—	—	0.6	—	—	—
Eritrea	9.8	17.4	1,105.4	3.8	—	25	35
Ethiopia	—	—	—	4.6	—	21	40
Gabon	—	—	—	—	—	—	—
The 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	—	—	—	—	—	—	—

Table C.5 (Continued)

Country	Public expenditures per student (% of GDP per capita)			Total public expenditures on education		Public expenditures per JSE student as % of GDP per capita	Public expenditures per SSE student as % of GDP per capita
	Primary	Secondary	Tertiary	% of GDP	% of total government expenditures		
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
São Tomé and Príncipe	—	—	—	—	—	—	—
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
Tanzania	—	—	—	—	—	44	44
Zambia	9.3	11.9	—	2.8	—	17	25
Zimbabwe	—	—	—	—	—	23	23

Sources: UIS 2006a; Ledoux and Mingat 2007.

Note: — = not available.

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Expanded access to and improved quality of secondary education in Sub-Saharan Africa are key ingredients for economic growth in the region. This Secondary Education in Africa (SEIA) synthesis report makes this point by bringing together a significant volume of analytical work sponsored by the World Bank and by many African and other international partners.

At the Crossroads: Choices for Secondary Education in Sub-Saharan Africa argues the case for broad and equitable access for a basic education cycle of 8 to 10 years, as well as for expanded education and training opportunities. This book provides a timely resource on good practices and potential solutions for developing and sustaining high-quality secondary education systems in Africa. It includes the main elements of a roadmap to improve Africa's secondary education systems' response to the demands of growing economies and rapidly changing societies.

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