

Financing of Secondary Education in Kenya: Costs and Options

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Abstract

This study examines the financing of secondary education in Kenya and explores possible financing options for the next ten years. The study uses data from various sources, including education trend statistics, the 2003 school census, Teachers Service Commission data returns and the 1997 Welfare Monitoring Survey. The Education Simulation and Financial Projection model provides basis for projecting both growth in secondary school enrolment, resource needs and financial implications of various policy options over the target period.

Provision of quality secondary education is important in generating the opportunities and benefits of social and economic development. The long-term plan for secondary education sub-sector in Kenya is to include the sector under basic education. In the medium term, educational needs for secondary education are likely to increase due to the introduction of Free Primary Education in 2003 and the targeted 70 percent transition rate by 2008. Secondary enrolment is expected to grow by 115 percent from 0.9 million in 2004 to 2.7million by 2015. This will require increased resource mobilization towards secondary education sub-sector in recurrent and physical infrastructure expansion. Financing of the envisaged expansion of secondary education calls for identification of sustainable financing options that maximize on cost-effectiveness in resource utilization.

In 2004/5, expenditure on secondary education as a percentage of Gross Domestic Product and total education budget was 1.6 percent and 21.7 percent, respectively. Public financing is predominantly recurrent expenditure that goes to salaries while the proportion of secondary non-salary expenditure, including bursaries and development was estimated at 6.5 percent, implying high household financing mainly through user charges. According to public expenditure incidence analysis, the high-income quintiles benefit more from provision and financing of secondary education compared to the low-income quintiles.

Feasible financing options include: establishing mechanisms for increasing secondary education fiscal allocation on non-salary expenditures such as targeted bursaries and planned capital expenditure; reducing secondary unit costs through expansion and improved quality of day school; improving efficiency in teacher and classroom utilization; enhancing partnerships; and effective mobilisation of external assistance for secondary education through the re-profiled Sector Wide Approaches in education planning and financing in Kenya.

Abbreviations and Acronyms

ATL	Average Teaching Load
CBE	Curriculum Based Establishment
ECDE	Early Childhood Development and Education
EdSim	Education Simulation and Financial Projection Model
EFA	Education for All
FBO	Faith-Based Organisations
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GNP	Gross Net Product
IPAR	Institute for Policy Analysis and Research
KESSP	Kenya Education Support Programme
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNEC	Kenya National Examinations Council
NER	Net Enrolment Rate
MDG	Millennium Development Goal
MoE	Ministry of Education
MoEST	Ministry of Education, Science and Technology
NGO	Non-Governmental Organisation
OECD	Organization for Economic Cooperation and Development
PER	Public Expenditure Review
PTR	Pupil-Teacher ratio
TSC	Teachers Service Commission
TIVET	Technical and Industrial Education and Training
UPE	Universal Primary Education
WMS	Welfare Monitoring Survey

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1. Introduction

Education reforms that are aimed at increasing access to and participation in any level of education carry significant financial demands. In 2003, Kenya introduced the Free Primary Education (FPE) policy with a view to meeting the goal of Universal Primary Education (UPE). Having successfully initiated the implementation of this policy, the country is now gearing to widening access to and improve the quality of secondary and tertiary education. However, the country faces constraints in mobilizing additional public and private resources to meet the high cost of expanding access to quality secondary education. Resource constraints are compounded by inequalities in participation across regions, social class and gender. Any attempt, therefore, to expand access to secondary education must take into account the existing disparities within the society, failure to which such expansion will be a tool for propagating social-economic inequalities. The goals of expanding levels of schooling and maintaining equitable access to education are inextricably linked to issues of education costs and finance.

In Kenya, education financing is based on the cost-sharing policy introduced 1988, which requires most costs in education to be met through partnerships between public sector and Non-Governmental Organisations (NGOs), religious organisations, development partners, communities/individuals and private sector (Government of Kenya, 1988). Within this funding policy framework, overall government role includes professional development, teachers' remuneration in public institutions, provision of infrastructure, administration and management, and provision of bursaries and scholarships for needy students. Responsibilities for other players include physical infrastructure development and maintenance, payment of fees for tuition, public examinations, catering and accommodation in boarding schools and post-school institutions, school/college amenities (transport, water, energy and communication), student's personal expenses and remuneration of school/college non-teaching staff. Coupled with rapid education expansion, the policy has led to escalation of costs of schooling especially at post-primary level of school system

and increased pressured on the government budget over time (Government of Kenya, 2003a).

As the country moves towards achieving universal primary schooling, demand for education is shifting to secondary education. The global trends demand that more skills, values, and attitudes are necessary to exploit any global opportunity. Therefore, as has been noted by the World Bank (2005) provision of good quality secondary education is a critical tool in generating the opportunities and benefits of social and economic development. Educating people means putting opportunities into their hands, and is recognized as one of the best anti-poverty strategies. It is also one of the best ways of ensuring a country's economic prosperity and competitiveness. Secondary education training of future professionals such as doctors, lawyers, and policy makers. It is estimated that average earnings increase by 11 percent with each additional year of education. Each additional year of maternal education reduces childhood mortality by about 8 percent (World Bank, 2005).

Secondary education provides a vital link between basic education and the world of work, on one hand, and further training on the other. It is therefore an important sub-sector of education in the preparation of human capital for development and provision of life opportunities. However, despite its importance in the process of development, the costs of provision and expansion of quality secondary education have been escalating while resources for secondary education have been dwindling. The current status of education in Kenya suggests that the scenario is likely to remain the same, if not worsen, unless urgent interventions are put in place to address the problem. Various observations support this proposition. First, with the introduction of FPE, the number of pupils completing primary school is bound to increase in the near future. Second, doing nothing on transition rates into and access to secondary education may have adverse consequences for primary completion rates, as students lose hope of joining secondary school. Third, failure to expand secondary education will compromise human capital accumulation and therefore jeopardize economic recovery and development. Fourth, it should be realized that a more

meaningful way of achieving gender equity in schools is to expand enrolments. Fifth, gender, social class and regional inequalities in education will worsen as secondary schooling replaces primary education as the main determinant of life opportunities and subsequent employment and income in the absence of reforms that allow vulnerable groups to participate. Sixth, in Kenya, economic recovery and growth will prove elusive with small proportions of the labour force completing secondary education, and this will undermine the financial sustainability of Education For All (EFA) as envisaged in the national development goals.

It is against this background that this study is being undertaken to provide a detailed analysis on trends in expenditures, costs and financing options for envisaged expansion of secondary education in Kenya. Analysis in this study is guided by the following policy questions: What is the current status of secondary education financing in Kenya? What are the various forms of secondary education costs? What are the possible measures for improved utilization of available resources in the sector? How can the government and households best finance and allocate resources to best increase access to quality secondary education? And what are the feasible financing options for the expected expansion in secondary education in Kenya?

Given the current secondary school cost structure in Kenya, it is defeating to think about increasing participation at secondary school level without reforming these structures. Where secondary schooling has costs per student of Ksh 22,381 or 4.1 times those of primary, and 61 percent of GDP per capita in 2004/5, secondary schooling cannot be made universal without requiring massive consumption of the education budget. Even if secondary school places were provided, the high direct costs of participation (school fees) and the high opportunity cost of attending school by children from low-income groups would exclude most households. Reforms aimed at making quality secondary education affordable and improving access to majority of households are therefore inevitable. A study on financing lifelong learning in the global knowledge economy concludes that with the optimism for

achieving UPE, sub-Saharan African Countries, Kenya included, will require sevenfold increase in foreign assistance for primary education – nearly 4 percent of GNP to secondary schooling – in order to achieve 60 percent gross enrolment while achieving 100 percent secondary gross enrolment would require spending of more than 6 percent GNP (Lewin and Caillods, 2001).

The objectives of this study therefore are to: a) Establish the financing patterns of secondary education (2000/01-2004/5); b) Establish the unit expenditures of secondary education and its composition; c) Analyze the role of various stakeholders, including local communities and private sector, in secondary education financing; d) Based on enrolment projections, estimate financial resource needs in the medium term; and e) Synthesize alternative financing options for secondary education with a view to establishing the right financing mix for secondary education.

The rest of the paper is structured as follows: Section two presents a brief literature review on the economic and social justification of investing in secondary education and experiences from selected countries on financing of secondary education. This section also provides the conceptual framework under which the role of public and household financing of secondary education is highlighted. The methodology is provided in section three followed by a presentation of the findings in section four, especially for the education simulation and financial projection model. Section five provides strategies for cost reduction and financing options. Finally, section six provides a conclusion.

2. Selected Literature Review

This section looks at why the society is concerned with investment in secondary education, financing policy and experiences on financing education in other countries. The section also presents a conceptual framework upon which the analysis is anchored.

2.1 Economic and Social Justification for Investment in Secondary Education

Education is related to improved macroeconomic performance in the form of higher levels of growth rates through the associated levels of productivity and per capita income at the country level (UNESCO, 2005; Lewin and Caillods, 2001). However, Bray (2002) notes that the levels of education financing, both by public and private sector (including households) indicate a *defacto* of priorities. To a large extent, such financing priorities are based on the political, social, and economic factors. Arguments on possible impact of education investment on economic growth and development are mainly based on the social and economic returns on human capital development. It is argued that there may be a vicious cycle of greater investments in education leading to higher economic growth, which in turn provides financial support for even greater investments in education as it happened in East Asia (Bray 2002). There may also be a vicious cycle in which inattention to education ensures that a country remains poor, like in Latin America (US Department of Labour, 2000).

Mingat and Tan (1996) estimated the full social returns to education in various economies between 1960 and 1985. The study allowed for many externalities that normally accrue to the society, such as spillover effects of workers' enhanced productivity and the general level of education of the workforce. It concluded that education of workforce expands productivity by facilitating the discovery, adaptation and use of more economically rewarding processes. This study concurred with Bray's (2002) study. The generalised recommendation from the two studies is that low-income countries tend to benefit more from primary education

investment, while middle income countries, including those about to achieve universal primary education, tend to gain highest social returns from expansion of secondary education. On the other hand, high-income countries derive highest returns from tertiary education. This is, however, complicated by the weak labour structures in most low-income countries. Wei, Tsang and Chen (1999) established that rates of return to education vary across countries and tend to be high in developed economies where secondary education has higher returns compared to primary education.

Bray (2002) advances the argument that financing of education requires public spending on the levels of education for which social returns exceed private returns (e.g. basic education) and increased private spending on investments that yields higher private returns (higher and continuing education). The total social benefits of educating children equal the sum of the benefits that accrue individually to the children and their families plus benefits to society that arise from interaction with educated individuals. The benefits to education have been shown as going directly to an individual and the society. This includes such benefits as increased adult wages and income, increased participation in the political process, greater charity donations, reduced dependency on social support programmes, reduced criminal activity, increased savings, better health, lower mortality rates, and increased life expectancy. Lewin and Cailods (2001) underscore the importance of technical/vocational education at secondary school level, giving a strong justification that academic education does not provide sufficient base for labour market needs especially for learners leaving the system at secondary school level. Further, technical/vocational training is considered a necessary condition for both direct skills and attitudes that it inculcates in individuals. This proposition is observed to have led to significant expansion of technical and vocational secondary schools in both developing and low-income countries in the early 1980s.

Bennell and Segertrom (1998) feels that the reluctance of multinationals to fund vocational education and training in low income countries in the context of expanding education sector budget need to be reviewed,

given the development stages of various countries and overarching problems in post-primary education. Bray (2002) also outlines other factors to be considered, including adopting sustainable cost-effective strategies that ensure strong linkage between formal education, their costs, labour market outcomes and international flexibility. Indeed, if secondary education is linked to labour market, then returns would be higher, hence justifying increased public financing of secondary education.

In Kenya, private returns to education generally increase with the level of education as revealed in Manda, Mwabu and Kimenyi (2002). Human capital externality for male and female students has a positive impact on earnings for all workers. This analysis gives strong justification for design of sustainable financing mechanisms for post-primary education, particularly secondary education, which is a transitional level to tertiary and university education. This study notes that the government should always be the principal investor in education. Such a role cannot be left entirely to the private sector because future objectives of human resource development involve long-term planning and large financial resources outlays, which only the government is capable of mobilizing.

2.2 Secondary Education Financing Policy Reforms in Selected Countries

In this section, a review on financing secondary education expansion in developing countries (Zimbabwe, Malawi), fast growing countries (Sri-Lanka) and OECD countries (Sweden, Czech Republic) is presented. The section also addresses policy reforms instituted to allow for sustainable and affordable expansion.

Secondary school expansion in Zimbabwe can be attributed to high level of policy and financial government commitment and prioritised expenditures sustained for a long period (Lewin and Caillods, 2001). During the expansion period, budgetary allocation to education was maintained at 8 to 9 percent of GNP while secondary allocation increased with tertiary allocation held to less than 10 percent. At the same time,

unit cost of primary and secondary education remained stable and in small multiples of unit cost recorded at 1:2, respectively. This contributed to financial sustainability of enrolment growth at secondary school cycle. The country adopted a system of sharing the costs of increased participation among all stakeholders including local authorities, communities and community-based organisations, hence easing the cost burden on the government. Internal efficiency of both primary and secondary school level was improved through adoption of policy on automatic promotion and transition from standard one through standard 7 and to Form 1 through Form 4. Repetition rates were maintained at low to modest levels at primary and secondary levels, respectively. A policy of employing temporary teachers and double shifting were adopted while maintaining the wage bill at manageable levels.

Lewin and Caillods (2001) brings out the case of Malawi as one of low participation rates at primary (65 percent) and secondary (6 percent) levels in 1995 and nominal transition rate from primary to secondary of 10 percent. The low secondary enrolment rates were associated with low levels of participation at primary and low performance at final grade of primary level leading to minimal number of the pupils meeting the minimum requirement for transition to secondary. Repetition and dropout rates were estimated at 15-20 percent and 18 percent in primary education, respectively, during the same period. The implementation of FPE in 1994 placed severe budgetary constraints on financing of secondary education estimated at seven or more times higher than that of primary education (1:7).

Towards expanding secondary education in Malawi, the major policy and investment commitments included increasing transition rates from primary to secondary to 30 percent through building of more secondary schools; encouraging the development of private secondary schools; reduction in double shift system, curriculum review and rationalisation to ensure quality; deliberate efforts towards increasing girls enrolment in secondary schools; and improved in-service and pre-service training

and establishment of textbook fund to improve textbook provision in secondary schools.

The case of other countries brings out a different picture. For instance, Sri-Lanka's education is characteristic of low costs and its education organizational structure allows for integrated primary and secondary schools, and sustainability of secondary enrolment at affordable rates (6 percent of GNP). Sri-Lanka, though a low-income country, had high school participation rates estimated at 104 percent primary GER, 66 percent secondary GER, and 4 percent tertiary GER in mid-1980s and low population growth rate of 1.2 percent between 1980-1994. By 1993, the participation rates for 5-14 age population had reached 93 percent rural and 96 percent urban. This, as Lewin and Caillods (2001) notes, is attributed to rapid secondary school expansion and sustainable financing, including decentralization of management to principal councils free primary education with grade 1-13 supported with widely distributed school facilities, free text book scheme, high subsidiary secondary education, free uniforms; adequate provision of infrastructure for teacher training and in-service programmes, and high internal efficiency reflected by low repetition (2.6 percent) rates and dropout rates (4 percent).

Countries like the Czech Republic have made financing of secondary education more affordable by increasing the teacher load, increasing the teacher intensity in terms of the pupil-teacher ratio and merging of schools with low enrolment. Other cost reduction measures include individual teacher innovations such as the use of computers in teaching (OECD, 1999). Sweden on the other hand has transformed the steering system for the school from a highly developed resource steering system based on regulations to a decentralized system based on goals and result oriented steering. OECD (1998) notes that steering goals, results and financing are now a joint responsibility for the state and municipalities. Independent schools are responsible for their own activities, but their costs are covered either by municipalities or by the state. Each school and municipality, in the same way as the State, formulate goals for their area of responsibility, evaluate results and make the changes required

to maintain quality. The task given by the State to the central school authority, the National Agency for Education, now focuses on monitoring results achieved. The evaluation and follow-up procedures carried out by the National Agency for Education aim to provide a broad and sound basis for use by all interested parties needing up-to-date information and facts. However, the follow-up on how the school system uses resources, its conditions and qualitative results needed to be developed and made more efficient. The quality of education is subject to specific scrutiny by national educational inspectors in accordance with special government directives.

2.3 Financing Options in Selected Countries

Various countries that are on track in achieving UPE are now looking for innovative strategies and financing options for expanding secondary education, consistent with national human capital development goals. However, fiscal constraints prevent many, especially low income countries, from relying solely on government revenue to finance desired educational expansion. To solve these problems, most countries have adopted policies to: (a) charge tuition fees to recoup part of the cost of providing public education services; and/or (b) encourage development of private schools to handle at least part of the expansion. Demand-side financing mechanisms, such as vouchers, stipends, and capitation grants are also frequently employed especially in OECD countries. Demand-side financing mechanisms are used to help poor families invest in schooling. This is accomplished by reducing official tuition charges. School choice is promoted as a means of increasing competition in the school system. Competition leads to efficiency gains as schools, both public and private, compete for students and try to improve their quality while reducing expenses. By encouraging more private schools, vouchers allow school managers to become innovative and thereby bring improvements to the learning process.

Assie-Lumumba (2005) identifies five sources of financing education: the state, local communities, families, businesses and external sources. In general, for children from rural communities to access education at

lower costs, there is a tendency for the most broad-based contribution of rural communities to the costs of education to be situated in the framework of investment costs. The construction of school buildings is a significant area in which community participation is most visible and widespread, either owing to local initiative or at the request of central authorities.

Bangladesh introduced selective scholarships for female students while Colombia introduced targeted vouchers for learners from socio-economically disadvantaged groups. In Burkina Faso, where the government could not sustain the recurrent costs of significant expansion in secondary school enrolment, partnerships are being nurtured with the private sector, through distance learning and provision of good quality secondary education. This initiative involves construction of at least three low cost secondary schools in under-served areas and delegation of their management to non-public organisations at no recurrent cost to government. Other initiatives included providing lease financing for construction of 10 private schools to be operated and paid for on easy terms by private sector operators or self-financed municipalities, with transfers of ownership to the non-public operator after full payment, and joint construction of 160 additional classrooms at existing private schools (Gueye and Gauci, 2003).

Table 1 below presents selected options for financing lifelong learning in selected countries. These options include grants, scholarships, traditional loans, human capital contracts, income contingent loans, graduate tax, vouchers, entitlements, and learning tax credit, among others. From these options, bursaries and scholarships are the most commonly used in secondary education. Income-contingent loans (allocation of loans to students to cover tuition and maintenance costs) are offered. Management of such schemes varies across countries. For instance, in Latin American countries, the governments are the main source of educational credit programmes, while in some countries, private donations are significant and are encouraged through fiscal incentives.

Table 1: Financing options for education

Instrument	Details	Major variables	Strengths	Weaknesses	Examples
Cost-sharing mechanism					
Cost-sharing	Public pays for teacher remuneration while other partners pay for facilities and equipment	Public contributions; Private sector contributions; Community contributions; Household/ parents contributions; Other stakeholders contribution	Complement one another; Make all partners responsible	Poor households unable to pay so they may not access education services; Schools are dominated by non-poor groups	Kenya
Traditional loan	Fixed payments, specific period of time	Amount borrowed, interest paid, repayment period	Implementation relatively easy, instrument easy to understand	Requires collateral, thus benefits wealthier more; Not attractive to students as the terms of repayment do not adjust to capacity to pay; Poor collection record	Benin, Brazil, Korea, Liberia, Malaysia, Mexico
Human capital contract	Student commits part of future earnings for fixed period in exchange for capital for financing education	Percentage of future income to be paid, repayment period, collection of payments	Creates a market for investing in skills; Decreases risks of defaulter; Offers measure of expected value of education; Adjust payments to earning capacity; Equitable	Information on individual difficult to obtain; Requires developed tax collection (or similar) agency; Adverse selection; Could create disincentive to work	United States
Income-contingent loan	Collects percentage of income until value of loan repaid or maximum repayment period reached	Percentage of future income to be repaid, repayment period	Decreases risk to individuals; Eliminates default risk; Equitable; Promotes incentive to study	Requires developed tax collection (or similar) agency but does not fully reflect expected value of education	Australia, Ghana, Hungary, Namibia, New Zealand, Sweden, United Kingdom, Latin America

Instrument	Details	Major variables	Strengths	Weaknesses	Examples
Graduate tax	Tax on learner's future earnings	Tax rate	Universal, flexible, payments through lifetime individuals	Payment throughout lifetime; Requires developed tax collection (or similar) agency; All earnings treated equally, could create disincentive to study, no private initiatives	Proposed in UK
		Subsidized	mechanisms		
Voucher and other demand-side financing mechanisms	Channel public funds for public and private education individuals or their families	Costs of schooling, target population/ schooling level, demand-side financing	Funding-based on demand/ enrolments efficient; Equitable, quality of schooling	Need to market; Funds could be misused; May not be sustainable capacity to pay; Poor collection record	Bangladesh, Chile, Guatemala, Netherlands, Pakistan, Sweden
Entitlement	Voucher and loan combination	Amount of entitlement (voucher and loan), co-finance amount, repayment terms	Target individuals based on income and motivation; Helps build individual's assets; Sustainable	Need to market; Funds could be missed	Brazil
Individual learning account	Incentives for investing in education and training	Individual subsidy, co-finance amount, type of training	Individual responsibility; Private sector participation	Funds could be misused; need to market; May not be sustainable	Netherlands, Spain, Sweden, Switzerland
Education Savings Account	Incentives for savings for education and training	Individual subsidy, co-finance amount, tax discount	Individual responsibility, builds assets targeted	Need to market, may not be sustainable	Canada
Learning tax credit	Taxes reduced in proportion to spending on approved education and training	Tax discount, spending maximum	Individual responsibility, private sector participation	Lack of equity; May not be sustainable	UK

Source: World Bank (2003) p.88

Education vouchers, on the other hand, are commonly used to target vulnerable groups in post-primary education. Vouchers take various forms, including student entitlement, mixture of grants and loans, and allocation of higher grant element than loan.

In summary, various lessons can be learnt from the various countries. Sustainable financing of secondary education requires both feasible policy reforms and sustainable financing options. Besides, the government must play its central role in policy direction and encourage strong partnerships among all stakeholders including communities, NGOs, private sector and external support, among others. Main financing policy reforms relate to improved primary and secondary school internal efficiencies, improved efficiency in use of resources, improved school management and decentralization of some management functions, commitment to improved access to basic education (primary and secondary education), quality improvement through curriculum reforms relevant to labour market and livelihoods and teacher professional development. However, identification of feasible and sustainable financing options varies from one country to another, depending on the level of development and existing financing system. Some of the financing options that may work for developing countries, Kenya included, are: reducing schooling costs, public (government and external) financing of physical infrastructure, introduction of targeted vouchers accessible by both private and public schools, household subsidies and provision of incentives.

2.4 Conceptual Framework

In the formal education system, secondary education is strategically placed in such a way that it connects primary schooling, tertiary education and the labour market. It can be regarded as the transitional level that connects those in the education system from low to higher echelons of education. It plays a key role as a transitional level of education that links basic education with skills and professional development, without which one cannot cross to or achieve them (World Bank, 2005).

Manda, Mwabu and Kimenyi (2002) note that the government should always be the principal investor in education. Such a role cannot be left entirely to the private sector because for the long-term objectives of human resource development. On the other hand, education, particularly post-primary education, can be treated as a profitable investment for individual graduates, who earn more than they would otherwise; and for the society, which is enriched not only by the knowledge of the educated people but also by the higher taxes paid by educated individuals. These benefits extend from the student's present household, future households and to the economy as a whole.

In financing education in Kenya, the government, households and other stakeholders are faced with competing needs between pre-primary, primary, secondary, tertiary and higher education. The government on the other hand is faced with the decision of allocating funds to different sectors with different needs. The amount it allocates to the education sector is affected by how much other sectors require. The decision to allocate a certain amount of funds to any sector is determined by some of the following factors: i) the importance attached to the sector in the country; ii) the perceived importance, lobbying, bidding and capacity of the sector in the budgetary process; and iii) the size of the sector (especially personnel level) – due to their remuneration, among others. These factors will determine allocation for recurrent and development expenditures and determine how fast the sector grows and meets its set goals. Thus, even before enough funds are given to the education sector, other ministries have to get their shares also.

Ranis and Stewart (2001) clearly note that health and education are important public goods. The allocation of resources for human development (improving public goods investments by various levels of government) is partly a function of the relative size of public expenditure. The proportion of these expenditures flow to the human development sectors is partly a function of how they are allocated within each of the sectors. This may be argued as proof by the government on the societal benefits of education. Whereas the societal returns to primary education are higher than other levels (Manda, Mwabu and Kimenyi,

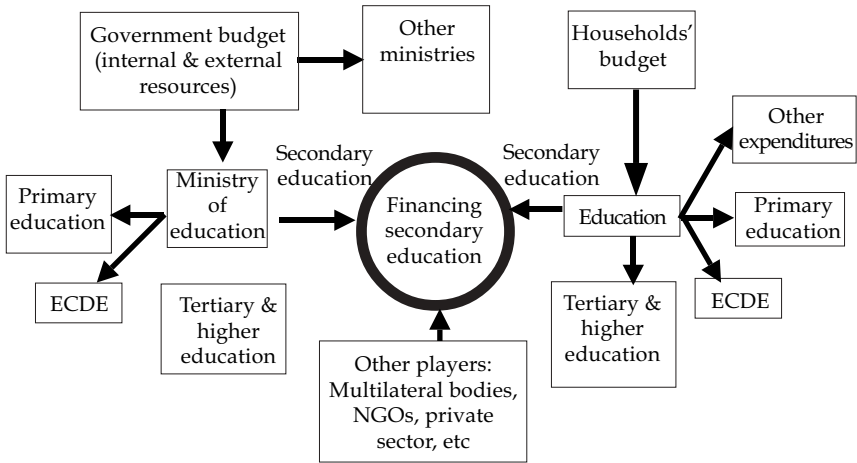
2002), it is not clear whether this is what informs the Ministry of Education, Science and Technology in allocating more funds to primary education. However, Kenya has recognized basic (primary) education as basic right of children and is therefore bound to provide it as per the Childrens Act, 2001.

Within the education sector, primary education has been given the highest priority in terms of resource allocation. This is especially after the introduction of the FPE in 2003. Primary school budget takes about 55 percent of the ministry budget, leaving 45 percent for distribution among other functions, including general administration (7.7 percent), ECDE (0.8 percent), secondary (22 percent), technical (2 percent) and university education (12 percent), among others. What is worth noting from these figures is that about 80 percent of primary schools' and 93.5 percent of secondary schools' allocations still go to personnel remuneration, which is the main role of the government in the sector. The budgetary allocation in secondary education implies that the other inputs not provided for by the government have to be borne by households. Even with the competing financing needs between the education sub sectors, there seems to be under-funding in other levels, including secondary education.

As shown Figure 1, households also contribute to the pool of financing secondary education. With the cost-sharing policy in secondary schools, the role of the government is limited to mostly training and remuneration of teachers, provision of bursaries for the needy and, to an extent, administration and management. Cost-sharing in secondary education can be seen as the biggest barrier to increasing access to secondary education. This is mainly because it impacts directly on household budgets. Households pay high fees to cater for infrastructure development, catering and accommodation, and other utilities. However, the households' ability to finance secondary education is first determined by the opportunity cost foregone. If the perceived benefits for educating a child in secondary school are higher, then education will be undertaken as an investment. However, the household is also faced with unlimited needs in form of other expenditures like food,

health, housing, and clothing, among others. Besides, even in its education budget, households are faced with the decision of spending either in primary, secondary or tertiary and higher education given the number of children to be educated. Other players like NGOs, FBOs, and the private sector under the corporate social responsibility play a minimal role. This analysis gives strong justification for design of sustainable financing mechanisms for post-primary education, particularly secondary education, which is a transitional level to tertiary and university education.

Figure 1: Financing of secondary education in Kenya



3. Methodology

The study uses secondary data obtained from various sources, including school census (2003), and education trend data on participation and financing. A unit cost analysis is carried out, based on both public financing of secondary education and household expenditure on secondary school fees. The Education Simulation and Financial Projection Model¹ is used to project secondary education expansion and associated financial resource needs for the period 2005-2010, using 2003 as base year. The Kenya Education Simulation and Financial Projection Model (EdSim) was developed within the Sector Wide Approaches (SWAPs) process in Kenya in 2004/5. It focuses on establishing a demand-based financing framework that integrates resource requirements with agreed educational standards and policy objectives. Main data sources included the Teachers Service Commission (TSC) data returns and school census (2003) data covering approximately 4,000 secondary schools in the country, comprising of public, private and community secondary schools. Education trend data on enrolments and teacher numbers is available at district, provincial and national levels, while financing data consisted of only national budgetary allocations, disaggregated by economic and functional classifications.

3.1 Unit Cost Analysis

Unit cost analysis is important in establishing what actually constitutes any form of investment. Education as an investment good comprises of certain costs that go into teaching and learning. According to Bray (2002), unit cost constitutes the costs of school space occupied by a single student at any given point in time, for instance one year. Although this definition does not cover much on the quality of teaching and learning processes in the classroom, it gives important indications in terms of

¹This model is based on core underpinnings of access, equity, quality and efficiency in resource allocation and utilisation. Currently, the model covers primary and secondary school sub-sectors.

attendance and amount of resources required for the same. In this study, the unit costs are calculated from teaching and non-teaching salaries, funds for scholarships and bursaries, maintenance, grants for laboratories and equipment, plus costs for learning materials. All these costs are directly related to enrolment levels in schools. Private costs are proxied by household secondary education expenditure in fees while public costs are proxied by public unit expenditure at this level. Therefore, based on school fees and public expenditure, it is possible to compute unit costs for major secondary education inputs:

$$\text{Unit cost} = (T + A + B + M + NT + G_{LE}) / E$$

where:

T=Teacher salaries; A=Administration salary; B= Scholarships/ bursaries; M=Maintenance; NT= Non-teaching salaries; G_{LE} =Grants for laboratories and equipment; E=Enrolment.

Since there is no consolidated accounting system for grants and user charges for individual schools and expenditure items, the analysis utilised official fees guidelines by the government that are categorised as district school (Ksh 10,500), provincial (Ksh 22,900) and National school (Ksh 28,500). The user charges are assumed to cater for such expenditures as teaching and learning materials, development, maintenance, operations, non-teaching staff salaries, and school equipment and sporting, among others. Public financing comprises of teachers' salaries, bursary allocation, administration salaries and grants and laboratory equipment for marginalized schools.

3.2 Simulation Model: Parameters, Policy Assumptions and Targets

This section focuses on the underlying assumptions and policy targets for the simulating secondary education growth and associated financial resource requirements. Changes in secondary education enrolments are a function of the outputs of primary education level. Thus any policy changes in primary education are bound to have long-term implications on secondary education and by implication, other post-primary

education levels. Some of the major national policy commitments that have implications on secondary education include government commitment to achieve UPE by 2005, EFA and MDGs by 2015. To this end, increase in primary education enrolments, following the government commitment to FPE programme² starting 2003 is likely to result into increased demand for secondary education. The summary of policy assumptions and targets is presented in Table 2.

Population growth rates and intake rate: The main driving parameter when projecting secondary school enrolment is primary school completion rate. Thus the model starts out by projecting total primary enrolment first for each grade, using assumptions about the population growth, and using actual data on the age-6 population in 2003, while projecting the age-6 population from 2004 onwards. These, together with assumptions about the public-system intake rate (percent of age-6 population admitted into Primary Grade 1 in public schools, a parameter) from 2004 onwards, enable the total number of Grade 1 new public-school admissions to be projected. The age 6 and age 6-13 population was obtained from projections of the 1999 population census data and is estimated to decrease from 2.3 percent in 1999 to 1.8 percent in 2003 before stabilising at about 1.15 percent from 2004 onwards. Standard 1 intake rate increased from 100.5 percent in 1999 to 150.2 percent in 2003, due to the introduction of FPE. From 2004 onwards, the intake rate to primary education is expected to stabilise at about 100 percent.

Internal efficiency (dropout, repetition and completion rates): One of the main goals in resource allocation to the education sector is to enhance internal efficiency by reducing both dropout and repetition rates at all levels of education. According to the MDG targets, dropout rates are targeted at 1 percent while repetition rates are targeted at 5 percent by 2015 for both primary and secondary education. Consequently, the model takes these targets into account and assumes, with the increase

² Kenya experienced substantial increase in primary school enrolment between 2002 and 2005, with gross enrolment estimated at 7.4 million in 2004 (105 percent gross enrolment rate), having risen from 5.9 and 7.2 million in 2002 and 2003, respectively.

Table 2: Policy assumptions and targets

	Baseline (2003)	Medium term (2008)	2015
Primary Education			
Intake rate (%)	150.3	100	100
Age 6-13 population growth rate (%)	1.8	1.15	1.15
Repetition rate (%)	11.7	5	5
Dropout rate (%)	2.1	1	1
NER (%)	82	-	100
Secondary Education			
Average teaching load	18 Hours ³	20 and 23 hours	25 hours
Student-classroom ratio	35	40	45
Repetition rate (%)	1.1	1.1	1.1
Dropout rate (%)	3.8	1	1
Share of private enrolment to total enrolment (%)	8	13.2	13.2
Transition rate (%)	47	70	70
Teacher attrition rate (%)	2.8		
Pupil-teacher ratio	17:1		35:1
Streams per class	1	3	3
Completion rate (%)	89	95	100
Proportion of secondary enrolment in private schools (%)	5	13.2	15

Source: Government of Kenya (2003b; 2005a; 2005b).

³ 27 periods per week.

in resource allocation to improving primary education, dropout rates are likely to be maintained at low levels and most children will progress at higher rate, thus keeping repetition rates at low levels. Improved internal efficiency in the education system implies less time spent in school to reach a given grade, hence a saving in terms of additional costs accruing due to repetition, resulting into higher levels of enrolment and completion rates. To a large extent, dropout and repetition rates are expected to decrease over the projection period following the implementation of various interventions aimed at reducing costs of education while improving access, equity and quality (Government of Kenya, 2005b).

Primary-to-secondary transition rates: To project total secondary enrolment (for each grade), the calculations are very similar to those in the case of the primary sub-sector. One key difference is that total new admissions into public secondary schools are calculated from the sum of two components: total admissions from public primary schools and from private primary schools. For each of these two components, the number of admissions in any one year is computed from: (i) the projected primary standard 8 enrolment for the previous year; and (ii) the assumed values after 2004 for the transition rate parameter. Calculations for the secondary school enrolment projections are similar as in the case of the primary sub-sector, except that the target age group is 14-17 years olds. The gross enrolment rate for the entire system (public plus private) is calculated by assuming that private enrolment increases from 11 percent of total secondary enrolment in 2003 to 13.2 percent over the plan period.

Assumed growth rates in private enrolment: The government appreciates the fact that for the country to achieve set policy targets in all education sub-sectors, the private sector (including NGO and community schools), must be provided with appropriate incentives and enabling environment to expand provision of education services, especially at pre-primary and post-primary levels. To capture private provision, the rate of growth in private education enrolments in each year is an assumed external parameter whose value is chosen externally, based on 2003 private education enrolments. Standard 8 private schools

enrolment is assumed to grow at the same rate as total private enrolment (in all grades). Thus, from the known Grade-8 private enrolment in 2003, and from the assumed percentage growth in total primary private enrolment in the years after 2003, one easily gets the total Standard 8 private enrolment. Projected public and private enrolments add up to total primary enrolment.

Teacher attrition: Teacher attrition results from various causes including teachers exiting the system due to death and retirement. The attrition rate is estimated to increase from 2.8 percent in 2003 to 3.3 percent in 2005. The AIDS-caused teacher mortality rate is not expected to change much over the 10 years after 2004 (0.1% or less), according to the ED-Sida model⁴. Teacher absenteeism is estimated at 2 percent of the total number of teachers.

Teacher numbers: Assumptions are made on teacher deployment at secondary school level based on curriculum establishment⁵ supported with significant efficiency measures of increasing the Average Teaching Load (ATL) from 18 hours per week (27 periods) to 20 hours per week (30 periods) and thereafter 23 hours (34.5 periods) and 25 hours (37.5 periods per week). Time taken, especially by head teachers and some

⁴ED-SIDA model makes projections of the number of teachers with and without HIV, using three different sets of assumptions about the HIV prevalence rate among the population as a whole, as well as among teachers.

⁵ Under the Curriculum-Based Establishment (CBE) system, Secondary school teachers in Kenya teach at least one subject of their specialisation in a designated school. To a large extent, most teachers are trained in two (or sometimes one) subjects either at diploma or degree level, with an Average Teaching Load (ATL) of 18 hours (27 periods, 40 minutes each) per week. There is also provision for administrative duties, with employment of more teachers under Full Time Equivalent (FTE) terms. These cover time taken for administrative duties by school principals, their deputies and heads of departments. Under the current curriculum, each student takes 10-12 subjects in Forms 1 and 2, and 7 to 9 subjects for Forms 3 and 4. Four subjects (English, Mathematics, Kiswahili and Biology) are compulsory while others are electives. Because the subjects vary in terms of number of periods per week (ranging from 1 to 6), the total number of periods per week will also vary among students, with core subjects having highest time allocation.

heads of departments in school administration is captured through Full Time Equivalent (FTE) ratios. Thus when computing number of teachers requirements, we assume that number of classes in a school multiplied by number of lessons taken by students must equal to number of teachers multiplied by teaching load. In other words:

Teachers Required = (Number of Classes * Student lessons in a week)/
Average Teaching Load)

Teacher unit salaries: To project teacher salaries, first we disaggregate number of teachers in secondary schools since 2003 by the official teacher professional categories. The disaggregation is based on estimated proportions from 2003 School Census and TSC data returns, where data was not available. Unit salary scales for the period 2002/3-2008/9 uses mid-point salary scale⁶ for each job group as per the Teachers-Government Salary Agreement of 1997, reviewed in 2002/3 for implementation between 2003/4 and 2008/9 (6 years). Teacher salary projections for period after 2008/9 are projected at 4 percent, the estimated rate at which the economy is projected to grow.

Class size and streams: Under the scenarios aimed at improving physical infrastructure utilization, the study adopts the reviewed secondary school class-size policy on increasing class size from 40 pupils per class to 45 students. Other assumptions include government requirement that each public secondary school should expand to at least three streams per class. These two parameters enable computation of number of classrooms required in order to attain some of the above policy targets, such as 70 percent transition rate.

⁶ Annual mid-point salary is computed by multiplying monthly salary by 12.

4. Findings

The analysis of results is presented in five sections. The first section analyses the current status of secondary education including participation and expenditure growth rates. The second section looks at secondary school financing policy while section three is on financing trends. In section four, analysis on secondary education unit costs and their composition is presented. Projections on expected enrolment growth, associated financial resource requirements and financial options are covered in the last section.

4.1 Secondary Education Gross Enrolment Rate in Kenya

To analyse what is currently being financed and what the future needs will be, it is important to assess the scale and existing nature of secondary education in the country. Since independence, the secondary education sub-sector has expanded in absolute numbers, with substantial increase in number of secondary schools, both public and private. The number of schools increased from 151 in 1963 to 4,021 in 2004. Although secondary school enrolment increased over time from 30,000 to 921,000 during the same period, the expansion does not correspond with the population increase for the children aged 14-17 years. Projections from the 1999 population census show that in 2000 there was 2.9 million (50% female) children aged 14-17 years and the number is projected to increase to about 3.3 million children of the same cohort by 2015.

Figure 2 shows that the country has relatively low participation rates at secondary school level. This stood at 29.5 percent in 2004, having improved from 26.8 percent in 1999. This implies that close to 70.5 percent of the secondary school age children are not enrolled in secondary schools and the situation is likely to worsen due to the impact of Free Primary Education, since the children who joined Standard 1 in 2003 are expected to progress to secondary education level in the medium term.

Figure 2: Secondary school GER by province, 1999-2004

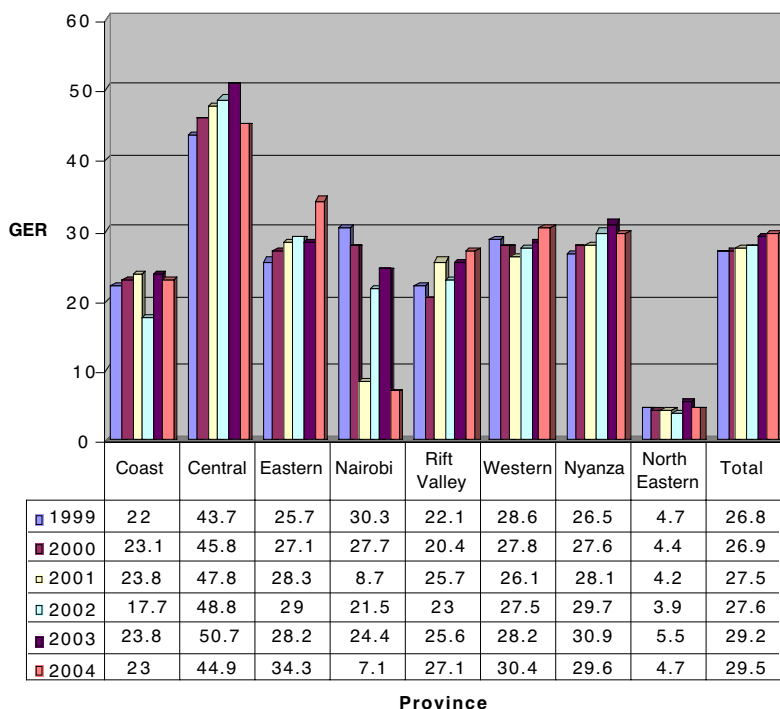
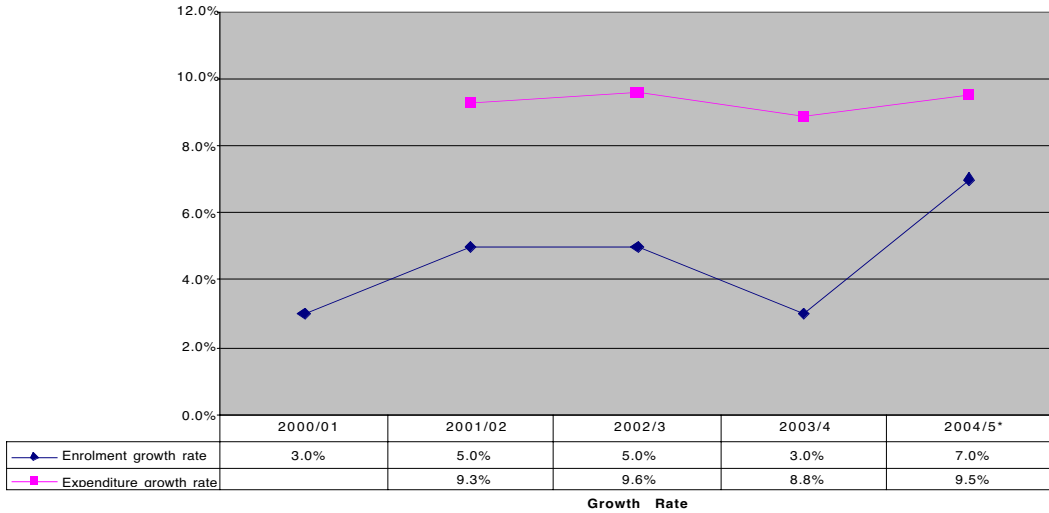


Figure 2 and data in Annex Table 2 further shows substantial inequalities among provinces, with North Eastern Province recording the lowest GER varying between 3.9 and 5.5 percent during the period 1999 and 2004. During the six-year period, Central Province recorded a low of 43.7 percent in 1999 and a high of 50.7 percent in 2003.

Growth in national secondary enrolment data in Kenya portrays an uneven picture with annual growth rate for the period 1999-2003 being quite volatile (Figure 3). Initially, there was an increase in enrolment by 5 percent in 2000 and 2001 before declining by 3 percent in 2002 and thereafter an increase of 7 percent in 2003. The secondary school enrolment growth rate was 4 percent in 2004.

On the other hand, secondary expenditure growth rate peak was recorded at 9.6 percent in 2002 following the review of teachers' salaries in 2002/3 fiscal year. The GER increased at a lower rate than expenditure levels. This can be attributed to the fact that the factors that influence

Figure 3: Secondary school enrolment and expenditure growth rates

demand for secondary education are mainly related to the socio-economic background of students in terms of household characteristics and availability of vacancies in schools (Onsomu, Muthaka and Manda, 2005). On the other hand, direct public funding is mainly on teachers' emoluments, with minimal allocation to capital and non-salary recurrent expenditures, including bursaries and operational grants to targeted marginalized secondary schools (Figure 4 in a later section).

The trends in enrolment and expenditure indicate bottlenecks in the country's education system when linking the role of secondary education to pro-poor growth and primary education. By implication, under-supply of secondary education graduates will affect supply of skill profiles for the modern and technologically changing labour market. This also has spillover effects manifested through weak linkages between education and the labour market.

A further analysis was undertaken using the 1997 Welfare Monitoring Survey (WMS) III data on the incidence of public and household expenditure on secondary education by income groups, capturing proportionate levels of school attendance. The results show that the share of students from low-income group enrolled in secondary schools

is lower (29%) compared to the share of high-income group (40%) enrolled, hence benefiting from education expenditures.

4.2 Secondary Education Financing Policy

The current government policy on financing of secondary education follows the cost-sharing principle. This is where the government covers some costs and the parents or the community shoulders the remaining costs. This section discusses the cost sharing policy as applied in secondary education together with the bursary scheme run by the government.

Cost sharing policy

Education financing in Kenya is based on the cost-sharing policy introduced in 1988 in the provision of social services, including education, and consistent with the Structural Adjustment Programmes introduced in the 1980s. The cost-sharing policy requires that parents/communities meet the costs of key non-salary inputs like tuition, textbooks and uniforms. The main aim of cost-sharing policy was to reduce education cost burden on the government while ensuring cost effectiveness in the utilisation of educational facilities, equipment, materials and personnel, with a view to maintaining the growth, quality and relevance of education and training. Thus, the government and other stakeholders have been having specific financing responsibilities as dictated by the cost sharing policy. These roles are listed in table 3.

In addition to cost-sharing in the financing of public systems, partners, especially NGOs, communities and the private sector are expected to continue providing private education services at all levels including pre-primary education, technical education, and informal and tertiary education.

On average, household funding of secondary education takes 60 percent while government financing constitutes 40 percent of the aggregate secondary financing as shown in table 4. To a large extent, the

Table 3: Role of education stakeholders in Kenya

Government Responsibility	Responsibilities for Government partners ⁷
1. Provision of grants for specialised equipment (for science and practical subjects) in marginalized secondary schools	1. Provision and maintenance of facilities, equipment and instructional materials in public and private secondary schools
2. Professional support: Curriculum development, teacher education, inspection and public examinations	2. Fees for public examinations
3. Administration and management, and bursary and scholarships for needy students	3. Catering and accommodation in boarding schools and post-school institutions
4. Teacher remuneration in public institutions	4. School amenities (transport, water, energy and communication), and student personal expenses
5. In-service Training e.g. Strengthening of Mathematics and Science Subjects (SMASSE)	5. Remuneration of school/college non-teaching staff and temporary teachers

Table 4: Public and household financing ratios, 2003/4

Sub-sector	Public schools		Private schools	
	Government %	Households %	Government %	Households %
ECDE	5	95	0	100
Primary	80	20	0	100
Secondary	40	60	0	100
TIVET	25	75	0	100
University	92	8	0	100

Source: Government of Kenya, 2005d

implementation of the cost-sharing policy at secondary school level gives a leeway for schools to charge higher fees compared to the fees guidelines (Annex Table 4) provided by the Ministry of Education, Science and Technology. Thus, secondary education has continued to increase the cost burden to households despite the levels of public funding.

⁷ Government of Kenya partners include development partners, NGOs, religious organisations, communities and households.

Bursaries

Bursaries provision was introduced in 1993 as a way of supporting poor but bright students access secondary school education. Until 2003, the Ministry of Education centrally administered the funds. The fund was decentralised to constituency level in 2003 under the management of Constituency Bursary Management Committees. In 2004/05 financial year, Ksh 770 million was allocated for bursaries. Given that the population of orphaned children enrolled in secondary schools is about 13 percent (KIPPRA, 2006) of secondary school enrolment, the fund is inadequate compared to demand and targets students already enrolled in school. Other private organisations such as the Jomo Kenyatta Foundation provide funds for needy students, but such funds are managed independently by the respective organisation.

4.3 Government Expenditure on Secondary Education in Kenya (2000/01-2004/5)

The government provides funds for secondary education through the national budget. Annex Tables 1 and 5 show trends on the level of public expenditure on secondary education as a percentage of total public education expenditures among other sub-sectors. For instance, education received 7.4 percent of GDP and 34.6 percent of total public expenditure in 2004/5 fiscal year with secondary education receiving 21.4 percent (1.6% of GDP) of which 93.5 percent went to teachers' salaries and 6.5 percent to non-salary expenditures.

The relatively high sub-sector expenditures on personnel emoluments indicate that minimal public resources are available for other important educational inputs such as learning materials, textbooks, and physical infrastructure, among others. Consequently, the burden is either shifted to households, or where not covered, quality of education provided is bound to suffer. The most affected though is provision of physical infrastructure, which takes about 1 percent of public secondary education budget.

Further, data in Table 5 show that over the review period, public education financing has been dominated by primary school education expenditure. For instance, in 2004/5 fiscal year, primary education expenditures constituted 55.5 percent, the largest share of aggregate education budget followed by secondary (21.4%), university education (12.3%), general administration (8%), technical education (1.8%), and 0.94 percent for others sectors. The proportion of secondary school non-recurrent expenditures, including bursaries and development, were estimated at 6.5 percent and 1 percent of aggregate secondary allocation, respectively, during the same period.

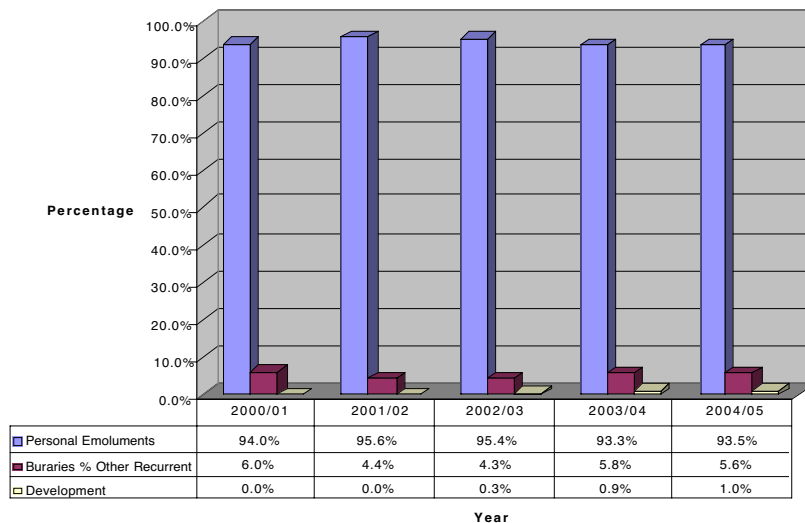
In Figure 4, the dominance of the personnel emoluments (93.5% in 2004/05) in secondary school public expenditure is primarily due to the growth rate in the number of teachers relative to that of students and salary levels, leading to low pupil-teacher ratios (19:1 in 2003) and an increasing teacher salary unit cost. Although secondary school allocation as a percentage of GDP and education increased from 1.4 percent in the 2000/1 fiscal year to 1.6 percent in the 2004/5 fiscal year. Secondary school personnel emoluments accounted for 22.4 percent of education budget in 2000/1 and 20 percent in 2004/5. An average of 1.4 percent of total education is allocated to secondary school sub-sector non-salary expenditures that includes bursaries and targeted operational costs such as laboratory equipment and development.

Table 5: Public education financing (%) by sub-sector

	2000/01	2001/02	2002/03	2003/04	2004/05
Primary education	54.0	51.4	49.4	56.6	55.5
Secondary education	23.8	28.0	25.3	22.6	21.4
University education	12.3	12.1	11.3	10.9	12.3
General administration & planning	7.0	5.4	11.5	6.7	8.0
Technical education	1.6	1.7	1.4	1.6	1.8
Miscellaneous services	0.5	0.5	0.3	0.3	0.4
Teacher education	0.3	0.3	0.2	0.5	0.3
Schools for handicapped	0.2	0.2	0.2	0.2	0.2
Early childhood education	0.3	0.4	0.3	0.5	0.04
Grand Total Expenditure	100.0	100.0	100.0	100.0	100.0

Source: Various Government Appropriation Accounts and authors' computations from Annex Table 1

Figure 4: Secondary school expenditures by economic classification



In addition, non-market factors such as pressure from trade unions have influenced the increase in expenditure on teacher salaries. The number of enrolled secondary school students increased by 5 percent between 1999 and 2003 while the number of secondary school teachers increased during the same period by 14 percent. Recent policy reforms that have direct implications on secondary education include the introduction of Free Primary Education in 2003, which would lead to a high number of primary school graduates that would secondary education.

This trend, by implication, reflects a situation where households with students in public and private secondary schools cover most of the secondary education non-salary expenditures. Unlike in public schools, households solely fund private schools. Most non-public expenditures take the form of fees, transport, tuition, and capital investments, among others.

4.4 Secondary School Education Costs and Composition

The burden of secondary school education borne by the government and households is made up of salaries for teaching and non-teaching staff, bursary allocations, capital investments, school fees, tuition and

transport, among others. This has been used to calculate the unit costs of secondary education. Tables 6 and Annex Table 3 provide data on fiscal unit costs for secondary education by school category for the year 2003/4. The secondary education spending was largely in the form of teacher remuneration and bursaries.

In 2003/4, the estimated total recurrent unit cost for primary, secondary, technical and university education were Ksh 5,438, Ksh 22,381, Ksh 35,932 and Ksh 136,882, respectively. Secondary education received 4.1 times per student the public unit cost of primary education, 1.6 times and 6.1 times public technical and university education unit expenditure, respectively. These ratios are high, especially considering that the figures do not include the fees charges. In absolute terms, secondary education unit cost increased from Ksh 14,262 in 1997/8 to Ksh 21,106 in 2004/5, an increase of 48 percent (Annex table 3).

Table 6 presents secondary school education unit expenditure by both households and government. The analysis shows significant fluctuations in relative proportions of unit costs among secondary school categories. Day schools are relatively cheaper (Ksh 10,500 per annum) compared to boarding schools (Ksh 28,900 per annum). They constitute 31 percent of household expenditure while national and other boarding schools account for 61 percent and 54 percent of household expenditure, respectively. Sixty nine (69) percent of day schools' expenditure is borne by government, predominated by teachers' remunerations. In national schools, 55 percent of public secondary school education financing is borne by the government and 45 percent by households. This analysis indicates a *defacto* impact of unit inputs or determinants of unit expenditure in various school categories. These include teachers' salaries, bursaries, physical infrastructure, and other expenditures.

This expenditure distribution structure is expected because education is a labour-intensive investment with substantial proportion of teacher salaries in unit costs. Secondary school teachers are specialist teachers with higher qualifications (graduate and diploma) compared with their primary education counterparts. However, this situation is worsened by the low pupil-teacher ratio while capital costs tend to be higher at

higher levels of education. For instance, the cost of constructing and maintaining such facilities as dormitories and laboratory equipment can be felt in level of fees charges across schools. These dynamics, however, indicate existence of malleable factors in analysing determinants of unit costs and effectiveness in secondary education financing, linked to curriculum delivery. For instance, low pupil-teacher ratio and subject class sizes indicate inefficient use of both capital and human resources. The next section gives a detailed analysis of the composition of unit costs before presenting the financing requirements for expanded secondary school education.

Composition of secondary education expenditures

In this section we give a brief outline of the composition of secondary education costs. Such composition is made up of teacher element, class size, physical infrastructure, bursaries and grants to schools, and costs associated with inefficiency.

Expenditure on teachers

Teachers are an important human resource in the teaching and learning process and constitute one of the main inputs of secondary education costs. Secondary school teachers are, on average, more qualified and hence attract higher salaries. As shown in Table 6, teacher costs constitutes 53.8 percent of both household and public expenditure on secondary education, followed by school fees (43.4%) and bursaries (2.8%). School fees go to financing non-salary expenditures.

However, two policy implications emerge. One, teacher numbers are directly linked to the curriculum offered at secondary education level. Unlike primary school level, staff establishments at this level is curriculum-based meaning that a school receives a number of teachers on the basis of the size of curriculum offered. Two, secondary school teachers are expected to teach 18 hours (27 periods of 40 minutes each) per week but on average, they teach 15 hours per week (Government of Kenya, 2005c). The under-utilization of teachers is one of the factors

Table 6: Public secondary schools cost analysis, 2003/4

	National Schools	Other Boarding Schools	Day Schools	Schools with Day and Boarding**	Total
Number of public schools	17	987	1,643	976	3,623
Number of classes	12,818	330,511	263,786	215,942	22,000
Enrolment					823,057
Maximum fees per annum (HH Average Expenditure) (Ksh)	28,900	22,900	10,500	16,700	17,393
Total spending on fees (Ksh '000)	370,440	7,568,702	2,769,753	3,606,231	14,315,127
Number of teachers	614	16,848	16,183	12,076	45,721
Pupil-teacher ratio	20.9	19.6	16.3	17.9	18.0
Teachers per school	36.1	17.1	9.8	12.4	12.6
Enrolment per school	754	335	161	221	227
Government spending on teachers (Ksh. '000 ***)	227,135	6,232,518	5,986,517	4,467,230	16,913,400
Government grants for bursaries and targeted operational costs (Ksh '000)	11,680	320,490	307,841	229,715	869,726
Total spending, government & fees (Ksh '000)	609,255	14,121,711	9,064,111	8,303,177	32,098,253
Average cost per student by teachers	17,720	18,857	22,695	20,687	20,549
Average cost per student by bursary	911	970	1,167	1,064	1,057
Average spending per student, government & fees	47,531	42,727	34,362	38,451	38,999
Average class size					37
Proportion paid by households	0.61	0.54	0.31	0.43	0.45
Proportion paid by government	0.39	0.46	0.69	0.57	0.55
Percentage of schools by category	0.5	27.2	45.3	26.9	100.0
Percentage teachers' salaries	37.3	44.1	66.0	53.8	52.7
Percentage school fees	60.8	53.6	30.6	43.4	44.6
Percentage bursaries	1.9	2.3	3.4	2.8	2.7

Source: Ministry of Education, Science and Technology Statistics Section, School Census (2003) and Authors' computations

** Assuming that schools with day and boarding have equal numbers of day and boarding students

*** Assuming that each teacher receives average pay + allowances

See Table 2 for optimal and targets for key variables, and annex table 4 for disaggregated fees composition

leading to high unit costs. To reduce the unit costs, one could vary the teaching load, giving cognisance to teacher morale, professional support, supervision, and availability of teaching and learning materials.

Physical infrastructure

Financing of physical infrastructure is mainly in the domain of households and communities. This includes safe, bright and well-ventilated classrooms at reasonable costs, supported with office accommodation and sanitary facilities. Households and communities also provide operating costs such as water, electricity, and stationery, among others. In most cases, however, and given the diversity of catchment areas, user fees seem to be the most convenient means of financing physical infrastructure. In effect, schools are bound to increase the school fees levels to expand infrastructure while hindering access to secondary education.

Bursaries and grants to schools

Bursaries to needy students and grants to disadvantaged schools constitute one of the poverty mitigation measures in secondary education. In 2003/4, bursaries constituted 2.7 percent of unit expenditure on secondary education, at a unit allocation of Ksh 1,057 per annum. Although not all students qualify for bursary award, the low unit allocation is an indication that the bursaries are inadequate given the unit fees charges. Therefore, Njeru and Orodho (2003) assert that although the country is spending on bursaries, the process needs review to increase the unit allocation and track the expenditures to ensure beneficiaries actually complete the specific school cycle, otherwise inefficient bursary management is bound to escalate the level of wastage of the scarce and costly education inputs.

4.5 Secondary Education Expansion and Financial Resource Requirements (2005-2015)

Secondary school enrolment projections are determined by an interplay of interactive factors both in primary and secondary education levels. These include demographic trends of secondary school age population, improvements in primary education internal efficiency and improvement in secondary education internal efficiency. Primary education repetition, dropout and survival rates are expected to improve due to the implementation of various programmes that are likely to yield higher participation rates. Specific initiatives include provision of teaching and learning materials under the Free Primary Education programme and planned primary education physical infrastructure under the Kenya Education Support Programme (Government of Kenya, 2005b). Giving cognisance to these initiatives, we project expected secondary education resource requirements in the medium term under three policy scenarios presented in clusters for purposes of exploring appropriate mix of financing options using basic malleable inputs. These include teaching resources, classrooms, bursary allocation and private secondary education provision. Under all scenarios except baseline scenario, transition rate is targeted at 70 percent by 2008. The specific scenarios include:

- (i) Baseline scenario: Maintaining teachers' Average Teaching Load (ATL) of 18 hours and class size of 30 students; private enrolment estimated at 8 percent; and bursary allocation increased at a rate of enrolment growth, and gradual increase in transition rate to about 60% by 2008.
- (ii) Efficiency scenario a): The ATL is increased to 20 and 23 hours per week, class size of 40 students; private enrolment estimated at 15 percent from 2006; and full bursary allocation at 10 percent.
- (iii) Efficiency scenario b): Increased ATL to 25 hours and class size of 45 students; private enrolment estimated at 15 percent from 2006; and full bursary allocation at 15 percent.

Simulation results including secondary education enrolments, resource (capital and human) and financing for the various scenarios are presented in Tables 7, 8, 9 and 10. Whereas the enrolments are projected for the next 10 years, the resource requirements are projected up-to 2010 for various reasons. Although the simulations constitute a sound education policy analysis tool through which policy makers are able to make trade offs between various policies options, the results tend to weaken as we move further from the base year. This requires regular updating. It is thus prudent to give results for the next five years while the projections for the years after 2010 can be projected closer to the period.

Results of the simulations in table 7 show that if transition into secondary school is raised from 47 percent in 2003 to 70 percent in 2008, GER in secondary school will increase from 27 percent in 2003 to 60 percent by 2009. Similarly, the cost of secondary education will increase by a factor of 1.04 over the same period on assumption that GDP grows at increasing rate in real terms and resources are efficiently used. Enrolment increases from 0.845 million students in 2003 to 2 million students in 2008 and 2.7 million students by 2015.

Envisaged enrolment increase can be attributed to improved primary education internal efficiency gains yielding further enrolment expansion as more eligible secondary school age students are expected to demand secondary education.

a) Baseline Scenario

The baseline scenario maintains the current levels of secondary education service utilisation levels. Primary to secondary transition rate is maintained at current level of 47 percent but increasing gradually to 60 percent in 2008; class size of 30 pupils per class and teacher utilisation of 18 hours (27 periods) per week; while bursary allocation is assumed to increase at the level of secondary school enrolment growth rate over the projection period. Private secondary school enrolment is maintained at the current rate of 8 percent. Although the education targets are held constant, costs remain high due to inefficient utilisation of teaching and

capital resources, and need for physical infrastructure expansion. Consequently, as public enrolment increases from 775,564 students in 2003 to 1.7 million students in 2010, the number of teachers required is expected to rise from 46,721 to 90,779 while that of classrooms is expected to increase from 22,914 to 54,467 over the same period.

The number of classrooms required over the projection period is computed on the basis of the annual secondary school population projections, taking into account the targeted transition rate and maintaining class size at 30 students per class. The unit cost is estimated at Ksh 700,000⁸ standard secondary school physical infrastructure. This cost takes into account the costs associated with construction of science laboratory and library in a particular school. The data further shows that until 2004, no additional classrooms were required, but rather efficient utilisation of existing ones. Thereafter, an annual mean of 5,258 classrooms will be required between 2005 and 2010.

Therefore, assuming scenario 1 holds, that is, if no changes are instituted in improving resource utilisation and given the expected secondary sub-sectors enrolment growth, there will be a sharp increase in demand for resources, mainly teachers and classrooms. The aggregate costs (in today's prices) are estimated at Ksh 47,489 million and Ksh 57,876 million in 2008 and 2010, respectively. The question that arises is whether it is cost-effective to operate at these current levels of service delivery. In the next scenarios, the study explores possibilities for improvement in resource utilisation.

b) Medium efficiency scenario

Scenario one shows that inefficient utilisation of teachers at secondary school level is one of the main factors contributing to high public cost of secondary education in Kenya. Currently, although secondary school teachers are expected to teach 18 hours (27 periods of 40 minutes each) per week, the average teaching load is 15 hours (Government of Kenya, 2005c). By implication, fewer teachers could be required (37,767 teachers

⁸ This figure assumes a classroom in a new school that has to be accompanied by an administrative block, toilet, laboratory, among other basic facilities (Government of Kenya, 2005b).

Table 7: Enrolment Projections ('000)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Std 8 enrolment	556	637	714	721	729	762	786	873	955	958	935	905	900
Total public secondary enrolment	776	867	1,020	1,238	1,486	1,703	1,874	1,992	2,133	2,295	24,33	2,534	2,556
Total private secondary enrolment	70	77	85	93	102	113	124	136	150	165	181	199	219
Total public & private secondary enrolment	845	944	1,104	1,331	1,588	1,815	1,998	2,128	2,283	2,459	2,614	2,733	2,775
Gross enrolment rate (%)	25	28	32	38	45	51	56	59	62	66	69	71	71
Gross enrolment rate (public & private) (%)	27	30	35	41	49	55	60	63	67	71	75	77	77

Source: Generated by the authors using Education Simulation and Financial Projection Model, 2005

in 2006 if ATL of 18 hours is achieved). Scenario 2 and 3 present options of increasing efficiency in teacher utilisation. First, teaching load is simulated at 20 hours, then 23 hours and 25 hours per week.

This efficiency scenario seeks to analyse the impact of improved access and efficiency in resource utilisation in the sector through increase in transition rate to 70 percent by 2008, increase in teaching load to 23 hours per week, and increase in class size to 45 students. The level of private enrolees and bursary growth rate are estimated at 15 percent and 10 percent, respectively. Secondary school repetition and dropout rates are targeted at 5 percent by 2015. Since these are MDG targets, it is possible that some targets could have been achieved at national level.

Under scenario 2b (Table 9), the number of teachers and classrooms required in public secondary schools is projected at 43,077 and 33,026 in 2008, respectively. The number of teachers is lower than in scenario 2a (Table 9a), where 49,538 teachers will be required by 2008 owing to the lower average teaching load. This translates to a financing requirement of Ksh 31,403 million and Ksh 38,741 million in 2008 and 2010, respectively.

c) Higher efficiency scenario

The envisaged secondary education expansion may not be attained using public resources alone. This scenario gives provision for enhanced partnerships in secondary education provision with a target of 13.2 percent of secondary enrolees expected to attend private secondary schools, having increased from 8 percent in 2003. Unlike other scenarios, bursary allocation is targeted at a rate of 15 percent of Standard 8 enrolment. The additional 5 percent bursary allocation is for targeted not-for-profit private secondary schools. For this scenario, the cost of building additional classrooms for expanded secondary education is estimated at Ksh 3,863 million by 2008 while teacher and bursary costs are estimated at Ksh 19,031 and Ksh 6,854 million respectively (Table 10).

Despite resources for secondary education being scarce at the national level, policy makers have options that could address the issue of

Table 8: Baseline Scenario (1)

Year	2003	2004	2005	2006	2007	2008	2009	2010
Public enrolment	775,564	855,961	983,543	1,160,214	1,353,804	1,511,165	1,634,015	1,716,999
Transition rate	47%	50%	52%	55%	57%	60%	60%	60%
Teachers needed (Public)	46,721	43,126	50,533	54,641	64,456	75,211	83,954	90,779
Classrooms needed (Public)	22,914	22,914	28,532	32,785	38,674	45,127	50,372	54,467
Additional classrooms (Public)	0	0	5,618	4,253	5,889	6,453	5,245	4,095
Implied PTR (Public)	17	20	19	21	21	20	19	19
Financial Implications (Ksh Million)								
Teacher salaries	16,601	16,679	20,724	23,686	29,447	36,118	41,929	47,151
Cost of additional classrooms	0	0	3,933	2,977	4,122	4,517	3,672	2,867
Bursary provision	770	850	976	1,152	1,344	1,500	1,622	1,705
Total basic costs	21,606	22,416	31,087	33,155	40,130	47,489	52,671	57,876

Source: Generated by the authors using Education Simulation and Financial Projection Model, 2005

financing secondary education. To alleviate the challenges associated with resource constraints for secondary education and, therefore, enhance enrolment at this level, two main strategies are feasible. *First* is to focus on interventions that reduce secondary education costs both at national and school level. *Second* is to explore financing options that go beyond the traditional revenue sources. In the following section, cost reduction strategies and financing options are presented.

Table 9a: Efficiency scenario 2a

Year	2003	2004	2005	2006	2007	2008	2009	2010
Teachers needed (public)	46,721	41,638	31,812	33,991	41,261	49,538	56,760	62,473
Classrooms needed (public)	22,914	22,914	19,269	22,660	27,507	33,026	37,840	41,649
Additional classrooms (public)	0	0	0	0	4,593	5,518	4,814	3,809
Implied PTR (public)	17	21	32	36	36	34	33	32
Financial implications (Ksh million)								
Teacher salaries	16,601	16,103	13,046	14,734	18,850	23,789	28,347	32,449
Cost of additional classrooms	0	0	0	0	3,215	3,863	3,370	2,666
Bursary provision	3,336	3,825	4,287	4,328	4,374	4,569	4,713	5,239
Total basic costs	19,938	19,928	17,333	19,062	26,439	32,221	36,431	40,354

Source: Generated by the authors using Education Simulation and Financial Projection Model, 2005

Table 9b: Efficiency Scenario 2b

Year	2003	2004	2005	2006	2007	2008	2009	2010
Teachers needed (public)	46,721	39,742	28,981	29,557	35,879	43,077	49,356	54,324
Classrooms needed (public)	22,914	22,914	19,269	22,660	27,507	33,026	37,840	41,649
Additional classrooms (public)	0	0	0	0	4,593	5,518	4,814	3,809
Implied PTR (public)	17	22	35	42	41	40	38	37
Financial implications (Ksh million)								
Teacher salaries	16,601	15,370	11,886	12,813	16,391	20,686	24,650	28,216
Cost of additional classrooms	0	0	0	0	3,215	3,863	3,370	2,666
Bursary provision	5,005	5,737	6,430	6,492	6,561	6,854	7,070	7,859
Total basic costs	21,606	21,107	18,316	19,304	26,168	31,403	35,090	38,741

Source: Generated by the authors using Education Simulation and Financial Projection Model, 2005

Table 10: Efficiency Scenario 3

Year	2003	2004	2005	2006	2007	2008	2009	2010
Teachers needed (public)	46,721	38,653	27,414	27,193	33,009	39,631	45,408	49,978
Classrooms needed (public)	22,914	22,914	19,269	22,660	27,507	33,026	37,840	41,649
Additional classrooms (public)	0	0	0	0	4,593	5,518	4,814	3,809
Implied PTR (public)	17	22	37	46	45	43	41	40
Financial implications (Ksh Million)								
Teacher salaries	16,601	14,949	11,243	11,788	15,080	19,031	22,678	25,959
Cost of additional classrooms	0	0	0	0	3,215	3,863	3,370	2,666
Bursary provision	5,005	5,737	6,430	6,492	6,561	6,854	7,070	7,859
Total basic costs	21,606	20,686	17,673	18,279	24,856	29,748	33,118	36,484

Source: Generated by the authors using Education Simulation and Financial Projection Model, 2005

5. Towards Reducing Cost of Secondary Education and Financing Options

This section looks at the financing options available for the country in financing secondary education. These include the role of private sector in provision of secondary education; enhanced efficiency in resource utilisation, including increase in class size and teaching load; and improving efficiency in bursary utilisation. It is also worth noting that some of the resource requirements could be covered indirectly through community and extra-budgetary allocations. In this case, direct burden on government is likely to be lower, while enhancing feasibility of the various options.

The financing challenge of expanded secondary education is large in relation to the public resources. The foregoing analysis indicates that Kenya needs sustainable and cost-effective financing options to cater for the envisaged enrolment expansion. One option is to ensure that the students who are not likely to benefit from formal secondary schooling are provided with options to access secondary education, even through alternative methods such as distance learning and skills training. Another option is to put more emphasis on strong and sustainable partnerships with other stakeholders (private sector, NGOs, and communities) and institutionalise incentives for inducing such a framework. Other innovative ways of financing secondary enrolment include selective scholarships and targeted financing vouchers and bursary schemes, which allow students from vulnerable or lower socio-economic groups to attend secondary schools. The scheme should be designed to ensure cost-effectiveness and review of the current bursary scheme.

Expansion of secondary education at unit costs comparable to those in government day schools to achieve a gross enrolment rate of over 50 percent during the next 10 years requires up to five times the current expenditure of secondary education. The total public cost of secondary education to the overall government education budget at current prices is estimated to go beyond 4 times current expenditure levels. Unless the GDP grows and education budget as percentage of GDP increases

faster, then the cost cannot be achieved by the government. Since any additional increase in secondary school GER will require additional financing, the secondary education budget is high in terms of Kenya's budget and proportion of education budget to GDP may not be sufficient to sustain the envisaged expansion of secondary education. Furthermore, the inter-sectoral budgetary distribution, which tends to be in favour of primary education, implies a major challenge with regard to expansion in post-primary level. Other financing options relate to resource allocative and utilisation efficiency and increased resource allocation to the sector.

5.1 Options for Reducing Secondary Education Costs

This section outlines options for reducing education costs at the secondary school level. Such options include increasing resource utilisation, expansion and construction of more day schools, increasing class size and improving school management systems.

Improving Resource Utilization

The overall pupil-teacher ratio at all levels of education is one of the major determinants of recurrent costs, partly due to the associated teacher wage bill. The teacher-pupil ratio depends on the distribution, curriculum and staffing norms, number of students and number of schools. In 2003, the pupil-teacher ratio was 1:17 at national level with the lowest ratio of 1:5 recorded in North Eastern Province and a high of 1:23 recorded in Western Province. However, unlike primary education where teacher establishment is based on enrolment and number of classes, secondary school staffing is based on curriculum establishments and most teachers are specialist graduate teachers who specialize in at most two subjects.

The available option towards reducing secondary education cost burden on government is thus to gradually increase the average teaching load from 18 hours per week to 20 hours, 23 hours and 25 hours. Ideally, secondary education teaching load should be more than 18 hours per

week, with teachers having an option of either teaching more than two subjects or cluster of schools in order to achieve the target teaching load. Other options include increasing enrolment through expansion of schools to at least 3 streams; retrain/in-service serving teachers to ensure that they are able to teach demand subjects; offering optional subjects in specific schools with provision for small subject classes being handled by part-time teachers.

Expansion and construction of more day schools

Comparing the proportions across school categories, unit cost is estimated at Ksh 34,362 for the day school and Ksh 47,531 for national schools (table 6). This, in part, indicates that any cost effectiveness strategy in secondary education should be targeted at expanding day schools (have lower PTRs and unit costs on part of households) and maintain quality. The high teacher wage bill for day schools is basically due to the number of day schools (45.3 percent) compared to other categories.

Boarding schools could, however, be justified in areas with sparse population distribution. Some boarding schools will have to be constructed in ASAL areas and larger proportion of enrolments could be encouraged by increasing the number of day students even in boarding schools, as is the case currently.

Increasing class size

In 2003, secondary school class size ranged between 20 and 35 students per class. Therefore, to reduce secondary education unit costs by enhancing cost-effectiveness in education, education policy makers could target the upper limit of optimal class size, which ensures efficient use of both human and capital resources.

Improve school management systems

Although the Ministry of Education has set clear fees guidelines, implementation and enforcement systems, including procurement at school level need to be closely monitored. This could address weaknesses in management that lead to schools charging higher fees than official levels, and putting in place mechanisms for ensuring any school revenues are efficiently utilised and ensure quality education provision. Furthermore, expenditure on school inputs should reflect their market price.

5.2 Financing Options

Secondary school education financing options include: 1) Increasing public budgetary allocation to secondary education; 2) Rationalisation of education budget with a view to reallocating within the sector; 3) Enhanced bursaries and targeted cash transfers; 4) Enhancing partnerships in secondary education provision and financing; and 5) Mobilising external assistance for secondary education through the re-profiled Sector Wide Approaches (SWAPs) in the education sector.

Increasing overall allocation to secondary education sub-sector

Like many African countries with low secondary school GER, Kenya has experienced low and/or negative growth rates over the last two decades with the lowest GDP growth rate of negative 0.3 recorded in the year 2000. The GDP growth rate was estimated at 4.3 percent in 2004 fiscal year. Although the proportion of public budget to all sectors, including education, increased over the same period, the real value may have declined or remained the same. Some points are, however, worth noting. The budgetary allocation to education has remained high over the years, estimated at about 7.4 percent of GDP and 27 percent of the aggregate public budget in 2004/5. The question then remains: how appropriate, efficient and effective are the resources.

The foregoing analysis under section 4.2 indicates that 93.5 percent of secondary public financing go to personnel emoluments, leaving less than 6.5 percent for development projects, bursaries, operations and maintenance. Approximately 56 percent of the aggregate education budget is allocated to primary education, 21.4 percent to secondary education, and 12.3 percent to university education, among others. At secondary education level, the amount is spent on personnel emoluments while bursaries and grants to government-maintained secondary schools are allocated close to 6.5 percent of secondary budget in 2004/5. Therefore, even though overall allocation to education has increased in the recent past, much of the resources go to achieving Universal Primary Education (UPE) and teacher emoluments, compared to other sectors. This would require clearly defined government expenditure policies and budget priorities that encourage direct expenditure to expanding secondary education non-salary expenditures such as physical infrastructure, bursaries and targeted grants for low cost boarding schools.

Data on secondary education projections show that to achieve a target of 70 percent transition rate by 2008, secondary education financing strategies should target those completing primary education and not only those who have been able to register in secondary education. This calls for increase in bursary allocations from the current levels. Physical infrastructure will also have to be expanded. This proposal could also be supported with more work on secondary education physical infrastructure plan. Under the high efficiency scenario, direct secondary financing is expected to increase from Ksh 21 billion in 2003 to Ksh 36 billion in 2010.

Rationalization of resources from other expenditure items within the sector

At the national level, secondary education unit expenditures by the government averaged 4.6 times those of primary education while university education unit expenditure is 5 times that of secondary and 20 times that of primary education. Another option is that additional

resources from secondary education can be mobilized through redistribution of current patterns of allocation between levels. Mechanisms could be sort of redistributing expenditure from other education sub-sectors in favour of secondary education, particularly after 2010 when primary enrolments are projected to stabilise. However, given the high unit cost of secondary education, reforms have to be instituted towards reduction of unit costs of secondary education covered by households.

Enhancing bursaries and targeted cash transfers

In addition to the decentralisation of the secondary education fund to constituency level, gradual increase in allocation⁹ and setting of higher minimum allocation per beneficiary, it is apparent that the current bursary provisions and cash transfers should be enhanced to sustain deserving students within the system (Government of Kenya, 2005d). According to the WMS II of 1997, 30 percent of the population live under the core poverty line while 56 percent of the population live below the absolute poverty level. The government has also instituted decentralised systems aimed at channelling resources to local levels for poverty reduction and regional development. Some of the relevant programmes include Constituency Development Fund, Poverty Eradication Fund and Community Development Trust Fund especially in Arid and Semi Arid Lands. Some of these programmes provide funding to various community-based projects, including school construction, while the bursary fund aims at increasing access to secondary education. Perhaps, for sustainability purposes, the government with both external stakeholders and communities could institutionalise the secondary education fund with initial funding of bursary allocation and encourage contributions from both NGOs and development partners towards the same. This mode of allocation is more appropriate for secondary

⁹ In absolute terms, bursary allocation increased from Ksh 770 million in 2004/5 fiscal year to Ksh 800 million in 2005/6. During the latter fiscal year, minimum allocation per student beneficiary was set at Ksh 15,000; Ksh 10,000 and Ksh 5,000 for national, provincial and day schools, respectively.

education than education loans that are more appropriate at tertiary level. Targeting mechanisms will also need to be enhanced to ensure deserving and vulnerable groups benefit. Further, the bursary allocation should be improved to target deserving standard 8 leavers. Under the current system, identification of deserving students covers only those students already admitted within the system.

Strengthen public-private sector partnerships

Increasing public financing alone is not adequate given the envisaged expansion of secondary education both in medium term and long term. Other factors constant, secondary education provision should expand to meet the envisaged enrolment increase of 115 percent by 2008 and 152 percent by 2010 in order to meet the 70 percent transition target by 2008 and Education for All (EFA) gross enrolment ratio target of 60 percent by 2010. In 2004, private school enrolment constituted 8 percent of the total secondary education enrolment. Therefore, the private sector will also be expected to expand the provision of education in this level. Feasible financing options could include expansion of physical infrastructure and contributions towards the proposed secondary education scholarship fund at district level, targeting the poor and vulnerable groups.

Mobilizing external assistance through the re-profiled SWAPs in the education sector

The logic of SWAPs is, at least in part, that governments define priorities and requests for external assistance over the medium term. Therefore, as this is institutionalised in Kenya, the Government needs to prioritise secondary education as an area for external assistance, next to primary education. This would make it possible to identify forms for general recurrent and development external support, at least in the short term and with the anticipated significant transition from primary school. This can be done through the MTEF budget support framework.

6. Conclusion

Financing of secondary education will face major challenges if no efficient resource utilisation measures are put in place. In addition to budgetary constraints, the negative impact of inequitable resource allocation and spending on inputs has been accentuated by intra-sectoral misallocation of resources in secondary education. The percentage share of teachers' salaries accounted for over 93 percent of the sub-sector allocation, while the corresponding level for non-salary expenditure, including bursaries and development, account for only the remaining 7 percent. It is evident that non-salary expenditures at secondary education level are generally under-funded to enable provision of supplies and equipment, operations, maintenance, and repairs, which are considered as prerequisites for quality service delivery. The tendency of persistent inequalities in distribution has resulted into low growth in the number of secondary schools, particularly where households cannot afford.

Inefficient targeting has negative effects on returns from both public and household financing and provision of educational services. Analysis of the 1997 Welfare Monitoring Survey (WMS) III data provides useful information about the incidence of public expenditure on various income groups, as captured through proportionate levels of school attendance. The share of the low-income group is lower (29%) than the share of high-income group (40%) benefiting from education expenditures.

Reduction in repetition and dropout rates over the plan period and attainment of EFA and MDG targets especially at primary school education level are bound to accelerate demand for secondary education through the expected increase in enrolment. This, however, can only be achieved if a feasible and sustainable financing mix is identified, which, among other things must focus on efficient human and capital resource utilisation; improved internal efficiency at all levels; and support for partnerships in secondary education provision and financing, including private sector, and increasing capital investment.

For sustainable financing of expansion in secondary education, therefore, the government will have to adopt one or a mix of the above financing options. It is obvious that trade-offs and cost balancing must be made. Policy reforms for improving efficiency in spending could contribute to considerable savings. These include improving delivery systems, and eliminating the expenditure biases with a view to spending well without necessarily spending more. Finally, a study on actual secondary education unit costs is necessary in order to assess and give recommendations on what secondary education should actually cost (on the part of both government and households), without compromising equity and quality targets.

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Annex

Table 1: Financing secondary education by public sector (1997/8-2004/5)

	2000/01	2001/02	2002/03	2003/04	2004/05
Gross Domestic Product	796,342.00	878,730.00	962,686.00	1,091,640.30	1,124,389.50
Total Government Recurrent	153,807.46	157,445.17	182,248.00	203,816.00	227,082.00
Total Government Development	35,737.99	24,209.62	32,027.12	59,670.57	86,751.70
Total Government	189,545.45	181,654.79	214,275.12	263,486.57	313,833.70
Recurrent					
310: General Administration & Planning	3,100.93	2,415.60	5,374.67	3,916.29	6,019.06
311a: Primary Education including FPE	733.76	610.89	3,166.06	5,202.94	6,514.41
311b: Primary Education Teachers	25,312.42	26,861.72	28,159.33	33,617.11	36,564.82
312: Teacher Education	128.18	138.70	144.29	192.83	210.89
313: Schools for Handicapped	98.88	107.46	121.39	175.13	205.31
314: Miscellaneous Services	237.61	254.24	217.40	240.90	300.36
315: Early Childhood Education	4.83	6.72	5.22	5.51	25.59
316a: Secondary Education including Bursaries	691.85	654.45	693.22	942.81	992.91
316b: Secondary Education Teachers	10,786.04	14,300.90	15,324.27	15,280.50	16,667.56
317: Technical Education	748.02	888.34	889.94	1,171.40	1,449.38
318: University Education	5,849.80	6,369.09	6,795.74	7,470.08	9,720.25
Total Expenditure	47,692.32	52,608.11	60,891.53	68,215.50	78,670.54
Development					
310: General Administration & Planning	292.17	472.54	1,893.70	955.00	651.00
311: Primary Education	0.00	3.10	25.97	2,214.10	3,196.90
312: Teacher Education	29.21	27.77	6.09	155.12	80.27
313: Schools for Handicapped	0.00	0.00	0.00	0.00	0.00
314: Miscellaneous Services	0.00	0.00	0.00	0.00	1.00
315: Early Childhood Education	129.57	204.02	197.52	362.60	6.60
316: Secondary Education	0.00	0.00	52.24	151.90	205.50
317: Technical Education	0.00	0.00	0.00	4.19	70.00
318: University Education	68.43	117.61	372.03	471.40	560.20
Total Expenditure	519.38	825.04	2,547.55	4,314.31	4,771.47
Recurrent and Development					
310: General Administration & Planning	3,393.10	2,888.14	7,268.37	4,871.29	6,670.06
311: Primary Education	26,046.18	27,475.71	31,351.36	41,034.15	46,276.13
312: Teacher Education	157.39	166.47	150.38	347.95	291.16
313: Schools for Handicapped	98.88	107.46	121.39	175.13	205.31
314: Miscellaneous Services	237.61	254.24	217.40	240.90	301.36
315: Early Childhood Education	134.40	210.74	202.74	368.11	32.19
316: Secondary Education	11,477.89	14,955.35	16,069.73	16,375.21	17,865.97
317: Technical Education	748.02	888.34	889.94	1,175.59	1,519.38
318: University Education	5,918.23	6,486.70	7,167.77	7,941.48	10,280.45
Grand Total Expenditure	48,211.70	53,433.15	63,439.08	72,529.81	83,442.01

Source: Government of Kenya, 2005

Table 2: Secondary school gross enrolment rates by gender and province

Province	1999			2000			2001			2002			2003			2004		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Coast	24.3	19.8	22.0	25.5	20.8	23.1	25.5	22.1	23.8	19.9	15.6	17.7	24.8	22.9	23.8	26.7	19.5	23.0
Central	40.6	46.8	43.7	44.6	47.1	45.8	46.0	49.5	47.8	47.0	50.6	48.8	49.4	52.0	50.7	44.8	45.1	44.9
Eastern	25.9	25.4	25.7	27.0	27.3	27.1	28.7	28.0	28.3	29.3	28.7	29.0	28.4	27.9	28.2	35.2	33.5	34.3
Nairobi	41.8	21.9	30.3	15.2	9.4	27.7	12.0	6.4	8.7	29.8	15.7	21.5	32.5	18.8	24.4	6.9	7.2	7.1
Rift Valley	20.5	16.6	22.1	22.6	18.2	20.4	27.9	23.4	25.7	25.0	20.9	23.0	27.2	23.9	25.6	29.9	24.5	27.1
Western	16.3	14.6	28.6	28.9	26.6	27.8	26.2	26.1	26.1	27.6	27.3	27.5	28.8	27.5	28.2	31.9	29.0	30.4
Nyanza	28.3	22.7	26.5	31.4	23.8	27.6	32.2	23.9	28.1	34.2	25.2	29.7	34.9	26.9	30.9	34.4	24.9	29.6
North Eastern	6.3	2.8	4.7	5.7	2.8	4.4	5.2	2.9	4.2	4.8	2.7	3.9	6.5	4.2	5.5	6.1	3.0	4.7
Total	25.5	22.9	26.8	27.6	24.5	26.9	28.9	26.0	27.5	29.2	26.0	27.6	30.7	27.8	29.2	31.5	27.4	29.5

Source: Ministry of Education, Science and Technology, Statistics Section

Table 3: Trend analysis of primary and secondary public unit costs (Ksh)

Year	Salary (Ksh million)	Non-salary (Ksh million)	Total (Ksh million)	Enrolment (Pub) (million)	Salary unit Exp(Ksh)	Non-salary unit Exp(Ksh)	Total unit Exp (Ksh)
Primary Education							
1997/08	23,846	654	24,500	5.68	4,200	115	4,315
1998/09	24,258	521	24,779	5.92	4,098	88	4,186
1999/00	24,760	768	25,528	6.06	4,083	127	4,210
2000/01	25,312	1,052	26,364	6.16	4,112	171	4,283
2001/02	26,817	892	27,709	6.31	4,247	141	4,388
2002/03	28,159	4,118	32,277	6.90	4,081	597	4,678
2003/04	33,617	8,181	41,798	7.12	4,723	1,149	5,873
2004/05	36,565	9,773	46,338	7.38	4,951	1,323	6,275
Secondary Education							
1997/08	9,486	320	9,805	0.69	13,797	465	14,262
1998/09	10,054	320	10,374	0.70	14,352	456	14,808
1999/00	10,589	104	10,693	0.66	16,000	157	16,157
2000/01	10,789	707	11,496	0.66	16,324	1,070	17,394
2001/02	14,304	670	14,975	0.69	20,828	976	21,804
2002/03	15,330	720	16,050	0.69	22,322	1,048	23,370
2003/04	15,686	1,097	16,783	0.82	19,058	1,333	20,392
2004/05	16,673	1,140	17,813	0.84	19,755	1,351	21,106

Source: Republic of Kenya, Appropriations Accounts

Table 4: Secondary school fees schedule, 2002

Vote Head	National School	Other schools	Day Schools	Average cost
Tuition	3,600	3,600	3,600	3,600
Boarding	10,000	9,000	-	6,333
Repairs	1,500	800	500	933
Transport	1,500	1,000	400	967
Electricity, water and conservancy	2,000	1,000	500	1,167
Contingent	800	700	100	633
Medical	500	400	200	367
Activity	1000	900	900	933
Personnel Emolument	6000	3,500	2,000	3,833
Approved Development projects	2000	2,000	2,000	2,000
Total	28,900	22,900	10,500	20,767

Source: Government of Kenya, 2003a

Table 5: Secondary GER and expenditures as a percentage of total education expenditure and GDP, 2000/1-2004/5

	2000/01	2001/02	2002/03	2003/04	2004/05
Education % GDP	6.1	6.1	6.6	6.6	7.4
Education Rec % Public Recurrent	31.0	33.4	33.4	33.5	34.6
Education Dev % Public Development	1.5	3.4	8.0	7.2	5.5
Education % Public Expenditure	25.4	29.4	29.6	27.5	26.6
Secondary % GDP	1.4	1.7	1.7	1.5	1.6
Secondary % Education	23.8	28.0	25.3	22.6	21.4
Secondary Salaries % Education	22.4	26.8	24.2	21.1	20.0
Secondary Non-Salary % Education	1.4	1.2	1.2	1.5	1.4
Secondary GER	26.9	27.5	27.6	29.2	29.5

Source: Authors computations

