EFFICIENCY OF PRIMARY EDUCATION IN KENYA: SITUATIONAL ANALYSIS AND IMPLICATIONS FOR EDUCATIONAL REFORM

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ABSTRACT

This paper examines issues of efficiency in the primary level of education in Kenya. Primary data were collected from 120 purposively selected primary schools based in 12 Districts. Secondary data were collected from official documents within the Ministry of Education, Central Bureau of Statistics (CBS) and the Women's Bureau. The position taken in this paper is that the conceptualisation of the term school or education efficiency in a developing country like Kenya should take a 'process perspective' as opposed to 'outcome perspective'. That is, there is need to go beyond the issue of "at what cost" is a school meeting its objectives - e.g. at what cost was the low or high score produced. In education, as opposed to a factory of physical goods, efficiency has to be pegged with how a system of education as a whole operates to meet its objectives - what we call 'holistic operation'.

This paper indicates that the operation of primary education system in Kenya faces the problem of inefficiency. Completion rates have remained very low (less than 50 per cent) for the last five years. Besides, national pupil-teacher ratio is also low, about 31:1. This study also indicates that teaching-learning time is not utilised efficiently in primary schools. Several factors are behind such inefficiencies. These include: Education policies and management processes - mis-allocation of resources to educational levels; school based factors - teachers attitudes, time utilisation, school environment; and household based factors - poverty, socio-cultural factors, and gender issues.

The most notable policy implication of the findings is that education in Kenya needs a complete overhaul, and not piece-meal reforms. There is need to review 8-4-4 curriculum in a comprehensive and holistic manner. The curriculum has to be reduced and made relevant. This would allow for other reforms to take place. Besides, viable and sustainable cost and financing mechanisms in education have to be instituted to stop drop-outs form the system, thus enhance completion rates. As a follow up to curriculum review, it is recommended that, the Ministry of Education consider increasing the pupil-teacher ratio to 40:1. There is also need for the introduction of shift or double system in primary education. This would create more learning opportunities for pupils, and hence increase the efficient utilisation of teaching-learning time. More training services for school mangers to enhance the utilisation of school resources is also needed.

1. INTRODUCTION

1.1 Background and the Nature of the Problem

Education reform efforts in less industrialised countries have aimed at making education an effective vehicle for national development. Governments, policy makers, and civil society have emphasised that developing countries need to invest more in education and ensure that systems of education are efficiently managed, that limited funds allocated to sector have maximum impact, and that cost-recovery measures are adopted (GoK, 1996; 1997; Inter-Agency Commission, 1990, UNESCO, 1996; World Bank, 1988; 1996).

This paper is motivated by the growing concern by various stake-holders about the status of education in Kenya. The government, parents, non-governmental organisations, and donors recognise that although major strides have been made in education in quantitative terms, there are serious shortcomings in Kenya's education system. Despite heavy investment in the 8-4-4 system of education, enrolment at various levels of education is characterised by regional and gender disparities and declining gross enrolment ratios. Similarly, the quality and relevancy of education at all levels have been questioned. Equally, the education system experiences high wastage as a result of repetition and drop-out rates (Abagi, 1997a; 1997b; GoK, 1995; 1996; MoE, 1996).

The slow rate of economic growth the country has experienced is likely to limit resources available for education. Therefore, in order to develop education and training, the government and its partners have to ensure that the education system is efficiently managed at both national and school levels. That the Government is in the process of producing a master plan in education and training to guide the development of the sector to 2010 is encouraging. In essence, there is need to analyse operations in order to monitor efficiency and effectiveness in the provision and delivery of education and training.

Arising from this background, our research focused on the operations of primary education in an attempt to map out policies and analyse institutional and structural factors which affect efficient utilisation of primary school resources. The purpose of the study was to discuss school efficiency and its effects on the quality of primary education and explore ways of improving it. In this way, the study would have contributed to the debate on "efficiency in education."

1.2 The Survey: Sources of Data and Analysis

The data and information used in this study were collected as part of a larger Education Sector Research Project on Enhancing the Efficiency of Primary Education in Kenya: Critical Challenges and Policy Options. The data came from both primary and secondary sources. Primary data were collected from 12 purposively selected districts. Both rural and urban based districts were included in the sample in a bid to compare and analyse primary school operations in the two regions. In each district, ten schools were included in the study, representing both public and private schools, and hence 120 primary schools were surveyed. The districts where the study was based are Kisii, Siaya, Uasin Gishu, Nairobi, Kisumu, Baringo, Kakamega, Thika, Murang'a, Kajiado, Kitui, and Machakos. Questionnaires, interview guides, and focus group discussion guides were administered to school heads, selected Standards 7 and 8 teachers and pupils. In addition, observation guides were used to record school operations, inside and outside the classrooms. Secondary data were collected from official documents from the Ministry of Education (MoE), the Central Bureau of Statistics (CBS), and government records. Existing research reports on the quality and efficiency of education have also been examined. Information from schools' official records, such as registers, accounting books, and budgets, supplement the reports. Our survey generated national, cross-district and cross-school data which were triangulated, then coded, computer formatted and analysed using SPSS and MS-Excel. Descriptive data from Focus Group Discussions (FGDs) and from informal interviews were analysed descriptively, and hence 'voices' of some key respondents (what they exactly said) used and reported as given. The specific objectives of this study are to:

(i) contribute to the debate on conceptualising "efficiency in education" and how this would inform educational reform initiatives in Kenya.

(ii) examine and provide state-of -the art indicators of efficiency in Kenya's primary education in terms of (a) completion rates, (b) pupil:teacher ratios, and (c) utilisation of Teaching-Learning contact hours.

(iii) analyse the saving mechanisms that exist at primary education level.

2. UNPACKING "EFFICIENCY" IN EDUCATION

This section presents the findings of the study in four parts. The first section reconceptualises efficiency in education and reviews perceptions of and studies on school efficiency. The second section discusses components of efficiency of primary education: completion rates and pupil-teacher ratios. The third section examines the utilisation of teaching and learning contact hours. The fourth section discusses wastage in primary education.

2.1 Efficiency in Education: What Do We Know?

Confronting education policy challenges and options in Kenya needs systematic policy oriented research and strategic planning. More pertinently, it needs operational understanding of how terms like "efficiency" and "effectiveness" as used in education. This understanding is crucial because of the need to synchronise education policy with outputs of schooling and the demand of such products.

The term "school efficiency" or "efficiency in education" features highly in debates on education. However, the term is imprecise and, like "governance" or "democracy," is frequently used but never unequivocally defined. More often than not, the term is associated with learners' cognitive achievement, which is usually measured through examinations results. In this connection, the unpacking of the term has been based on a closed system model of analysis which deals with matching inputs (for example, availability of textbooks) and outputs (number of students completing, examinations scores) in education. Models such as policy analysis (Anderson, 1975; Dror, 1968) and product-function analysis (Blaug, 1980; Psacharopoulos, 1981; 1982) have not captured the processes under which school inputs (that is, school environment and/or classroom dynamics) are processed in order to produce educational outputs. However, since "efficiency" implies maximising inputs in an endeavour to produce optimum goods or services, the processes for which the available inputs are allocated and used are crucial. In a service sector like education, the processes themselves form part of the inputs (Owino, 1997b).

Analyses of efficiency in education have generally been based on the cost at which the output is optimised. For example: if the students' mean score in national examinations is A in schools I and II, but is achieved at a higher cost in school I than in school II, it is concluded that the latter is more efficient than the former school. While this kind of analysis would suffice in a closed analysis

model, extra- and intra-school inputs (that is, the processes, such as official policies, attitudes towards education, classroom management, utilisation of teaching-learning time, and pupils' motivation), which are also important in assessing school efficiency, would not be explained. Some studies have examined processes under which school variables work as inputs in education (Omari & Mosha, 1987; Maliyamkono, 1982; Strickler, 1974). In summary, efficiency and effectiveness in education have became part and parcel of the debate on reform in education and development in Africa. Yet, the conceptualisation of efficiency at various levels of education seems to vary considerably. Several issues emerged from the analysis of available literature on the issue:

Firstly, efficiency of education has been camouflaged by the desire to promote access to education by increasing education opportunities to school-age population. Many countries in Africa, have focused attention on increasing resources to the education sector in a bid to achieve universal primary education (UPE) by 2000, a goal which seems to be unattainable. Countries like Kenya are now faced with the problem of a trade-off between enhancing the efficiency of the education sector and increasing primary, secondary and tertiary education.

Secondly, our knowledge about what education/school efficiency entails is limited. Very little is known about the efficiency with which various school raise pupils' learning and/or achievement. But as the official budgetary allocation to education shrinks, inefficiency is a problem that needs to be understood and solved.

Thirdly, as poverty increases and the level of investment in education declines, policy makers and planners are looking for innovative and viable strategies for improving the operation of the education system and making education promote national development. A question confronting policy makers is: How can available resources be used more efficiently in a bid to make education achieve its objectives at household and national levels? If efficiency is not or is narrowly understood, it would be difficult for policy makers, planners and stake-holders to know and focus on critical elements which could boost effectiveness.

As debates on constituents of efficiency in education continues, our knowledge about this concept has to go beyond examination results and include rates of repetition, drop-out and completion. Though the debates take many forms, for the sake of clarity we have put the debates into three categories:

i. The International Level, comprising views of international scholars and the position of donors and the World Bank;

ii. The Local Level, comprising the position of the Ministry of Education in Kenya and the perception of practising teachers; and

iii. The Ideal View, comprising our own perception on what efficiency in education should entail.

2.1.1 The International Level: Scholars' Views and Donors' Position

Internationally, there is a considerable body of literature on the usage and meaning of the terms, quality, efficiency, and effectiveness of education (Adams, 1993; Fuller, 1987; Lockheed & Hanushek, 1988; Makau, 1986; Motala, 1993; World Bank, 1988). These terms have become increasingly popular in discourse about developing education in less industrialised countries. What is clear is that, the terms "quality of education," "school quality," "school efficiency" and "school effectiveness" are often used interchangeably and associated with students' levels of academic (cognitive) performance in examinations. If achievement by students is low—as manifested in a school's low test score in national examinations, for example—the school is purported to be of low quality and, therefore, inefficient. Such a school would also be considered as not increasing students' ability to contribute to the overall development of their society, and hence not effective. As Beeby (1966) in the pioneer work "The Quality of Education in Developing Countries" confesses, "I make no pretence that the [terms] will always be used in exactly the same sense" (Beeby, 1966:14).

The donor community also tends to equate quality with efficiency. In this regard, World Bank-based studies usually focus on pupils' academic or cognitive achievement (Heyneman & Loxley, 1983; Fuller, 1985; Psacharopoulos, 1985; Simmons & Alexander, 1980). The studies have identified the factors which do and which do not raise pupils' achievement. Although little information is available on how these inputs promote efficiency and ultimately raise pupils' achievement, World Bank review document (1996) raises two important issues relative to debates on efficiency in education and mis-allocation of resources:

(i) despite indications that the rates of return from basic education are generally higher than from higher education, most African countries still invest more resources in the latter; and

(ii) an inefficient mix of inputs, such as instructional material and staff.

In Kenya, like most African countries, while over 90% of recurrent expenditure goes to teachers' salaries, resources spent in instructional materials, such as textbooks, are minimal. Besides, pupil-teacher ratios show great inefficiency because low pupil-teacher ratios imply that more teachers are used to service relatively few pupils. Studies have shown that low income countries could save resources and improve learning by increasing pupil-teacher ratios. They would thereby use fewer teachers and employ the saved resources to buy inputs, such as text-books, that improve achievement (Wolff, 1984). However, the number of teachers in most African countries have increased by 24% between 1985 and 1990, while the enrolment ratio declined by 3% (Donors to African Education, 1994).

2.1.2 The Local Level: Teachers' conceptualisation of School Efficiency

We have shown that school efficiency is a controversial subject. In this study, we set to document and add teachers' views to the debate on what constitute efficiency in education. Our survey indicates that the primary school heads and teachers have a clear perception of an "efficient school system". In our examination-oriented education system, the public in general and teachers in particular have little difficulty in their conceptualisation and implications of an efficient education system: in an "efficient school" pupils get good points in the national examination the Kenya Certificate of Primary Education (KCPE). This means that a school's mean score in this examination is the clear measure of efficiency in our education system. In this respect, faced with the question about efficiency in their schools, teachers' perceptions are summarised by the following answers given:

- We aim for excellence. In the last three years our mean score has not gone below 450 in the KCPE. Almost all our graduates join good secondary schools in the country. You can see how efficient we are. (A teacher in a private school, 1997).

- I have no doubt in my mind that the Ministry of Education, the parents, and pupils make sure that many pupils themselves expect us to do a good job and pass the KCPE with good grades which would allow them to join national or provincial schools. The only measure of a good school here is how well children perform academically. (A school head in an urban primary school, 1997)

- Whatever you do in your school, even if the discipline is very high, the school compound clean and well fenced and your school leads in sports, nobody will say that you are an efficient or a good school. Teachers get a lot of praise if the children perform well in the KCPE and have a good position in the district or nationally. (A teacher in a rural public school, 1997).

The teachers' emphasis on examination results, as an index of school efficiency, is an indication of the existing policy and philosophy gap in education. The emphasis reflects the reality of a situation, in which parents are indifferent to curriculum, but are concerned with the steps schools and teachers take to improve children's good performance in the KCPE. Similarly, the Ministry of Education and the politicians send direct or indirect signals to schools that children must pass this examination as a sign of a school's efficiency or quality. This message in implicitly amplified by the mass media when they publish KCPE and highlight the schools which have performed well. That the number of secondary schools is limited and that admission to them is based on the KCPE results, exert pressure on schools' management committees, children and parents to ensure that schools excel in the national examinations. In a nutshell, unlike the curriculum centred professional educators who are likely to perceive the curriculum as an instrument in which a given social reality is constructed, teachers and parents are impressed by how their children perform in national examinations.

2.1.3 The Ideal View

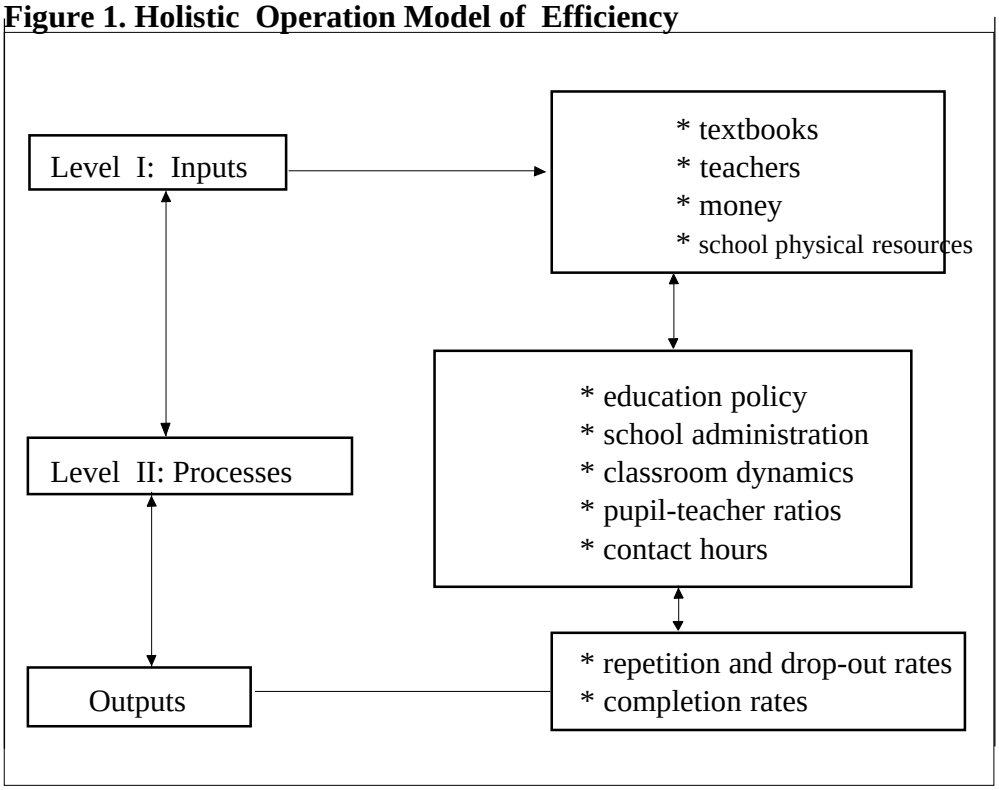
A cross-analysis studies on efficiency in education indicate that emphasis has been on the manipulation and the operations of inputs and outputs whose prices are easy to determine. The structural processes—learning time management, school management practices, classroom management, and teacher-pupil relationships—, for which prices are difficult to determine, have not been given much attention. Thus, existing surveys have been unable to capture and map out learning time lapse and classroom management, and how they affect learning. There is no doubt that the use of time in school, classroom management and school heads' managerial behaviour have a direct impact on school efficiency because they affect how pupils learn and perform in examinations. There is need therefore to integrate the conventional efficiency analysis with the examination of time use and classroom management. We have tried to focus on this in our project.

In Kenya, the perception of efficiency in education through an examination index has had structural and financial impacts on schools, teachers, pupils and parents (for further discussion see, for example, Abagi, 1997a; Sifuna, 1997). As a result, school management committees have to devise ways of making sure that the right candidates are registered for the KCPE. This has led to the introduction of extra tuition ("coaching")for which further fees are charged. Pupils have been forced to repeat classes or leave a particular school they think that is not good enough. At the same time, pupils are generally overworked academically, and have little time left for play. Parents are forced to bear heavy burdens—paying for coaching, buying books, and meeting costs of transport. The most elusive

issue has been the justification for this burden. To this end, several policy-loaded questions have been raised: Is it worth incurring more costs in education? Is the recommended school time (8 a.m. to 4 p.m.) utilised efficiently? Are teachers utilising their teaching time efficiently? Is it necessary to organise for extra tuition? What additional academic value do primary school-children, and the schools in general, derive from this coaching? This paper provides some answers to these questions.

Our thesis is that the conceptualisation of the term school or education efficiency in a developing country like Kenya should take a process perspective as opposed to an outcome perspective. Thus, there is need to go beyond the issue of "at what cost" does a school meet its objectives—such as its mean score in a national examination. As opposed to efficiency in a factory manufacturing commodities, school efficiency has to be pegged on how education as a system operates to meet its objectives; this is what we call a 'holistic operation' (Figure 1). From a process perspective, some pertinent questions arise: What educational policies are in existence? How are they implemented? How are schools operating to meet their objectives? How many learners are catered for? What are the costs of learning and how are they met? How are learners coping with the system—who repeats classes, who drops out of the system and who completes school? Are there constraints which affect learners active participation? What are the pupil-teacher ratios?. Do teachers' work-load correspond to their qualifications, and do teachers cope with their work? How are pupils performing in school? Answers to these questions are critical as they would indicate levels of efficiency in the education system. The more favourable to stake-holders the answers are, the more efficient a system of education is likely to be.

Figure 1. Holistic Operation Model of Efficiency



In this paper, the efficiency of Kenya's education system is analysed from a process perspective. This analysis is not restricted to examining pupils performance in national examinations, which is only an index for efficiency and effectiveness. Instead, we believe that indicators of efficiency should include:

- resource allocation to both various levels of education and different inputs such as textbooks and fees;
- pupil-teacher ratios and teachers' inputs in schools;
- classroom management and teaching-learning contact hours;
- utilisation of school physical facilities, such as textbooks, classrooms, and desks;
- transparency and accountability on school management and resource utilisation; and
- performance in national examinations, such as the KCPE.

3. THE FOCUS: EFFICIENCY OF PRIMARY SCHOOL OPERATIONS

Having set the context of our analysis based on secondary information and survey of teachers' perceptions of efficiency, we now focus on the efficiency of primary schools operations, as they relate to completion rates, pupil-teacher ratios and teaching-learning time. Rather than concentrate on using conventional statistical models (such as the Production Function Model—Inputs Vs Outputs) to measure efficiency levels, guided by the process perspective, we analyse basic school processes—classroom management, learning time management, and pupil:teacher ratios—which have not been focused on in many studies on efficiency in education.

3.1 Internal Efficiency

Education economists define internal efficiency as comprising "the amount of learning achieved during school age attendance, compared to the resources provided,... the percentage of entering students who complete the course is often used as (its) measure" (Wolff, 1984). This is the measure that we have used in this study. In this connection, although some data on rates of completion, drop-out, and repetition are available at the national level, it is difficult to get such rates at the individual school levels. This is because the Ministry of Education does not officially support repetition. We, therefore, used secondary data from the ministry and the Central Bureau of Statistics to analyse the children's participation in primary schools in Kenya.

Internal efficiency of an education system is revealed by the promotion, repetition and drop-out rates. The 1996 data indicate that national gross enrolment in primary education has gone down to 77.7% from 95% in 1989. Regional disparities are glaring. Primary school participation rates are very low in the arid and semi-arid (ASAL) regions. In North Eastern Province for example primary school gross enrolment rate is 19.7% (12.7% girls and 25.9% boys).

But a close analysis of the data reveals that primary education has had internal efficiency problems, such as the high wastage because of low completion and high repetition rates. In this connection, drop-out and repetition rates are higher in upper classes, Standards 5 to 8. Every year, about 10% of pupils from each class fail to move on to the next, resulting in the high cumulative loss experienced by Standard 8. In 1993, for example, the boys and girls enrolled in Standard 1 were 472.5 and 384.2 thousand respectively. However, four years later, only 372.9 and 364.2 thousand boys and girls were enrolled in Standard 4, which is a drop-out rate of about 21% and 5% for boys and girls, respectively (Table 1).

According to data from a sample of about 8,000 schools which participated in a survey carried out by the Ministry of Education, drop-out rates in primary schools by provinces were estimated. North-Eastern Province had the highest drop-out rate of 9.4% followed by Western Province 8.0%, Nyanza 6.5%, Rift Valley 5.8% Eastern 5.6% and Central Province 2.2% the national average drop-out rate is given as 5.4% (5.5% for boys and 5.3% for girls).

Repetition rates at district levels are also worrying. In some schools, pupils are forced to repeat upper classes several times or sit for the KCPE as many as two or three times, in order to obtain higher scores which would enable them to secure admission in secondary schools. Such scores would also boost the image of a school, especially if it is privately run. Based on a sample of 8,000 primary schools, drop-out rates vary from region to region and by gender, as the following five districts illustrate: Wajir (14% for girls, 14.6% for boys), Mandera (14.2% for girls and 8.4% for boys), Migori (11.7% for girls and 11.7% for boys), Turkana (13.7% for girls and 9.9% for boys) and Kitui (7.4% for girls and 7.6 for boys). (MoE, 1996).

Table 1: Primary School Enrolment by Class, 1993 - 1996

'000

	1993		1994		1995		1996*	
Class	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Standard 1	472.5	446.1	491.0	463.4	492.1	459.9	494.2	463.9
Standard 2	409.9	384.2	424.5	399.8	426.8	405.8	437.4	414.9
Standard 3	387.4	369.0	387.7	378.7	392.3	373.3	397.0	374.7
Standard 4	369.6	364.1	379.3	374.9	368.1	366.2	372.9	364.2
Standard 5	324.4	326.5	330.0	337.0	329.2	334.0	330.9	330.8
Standard 6	288.8	292.5	294.3	296.7	292.0	300.4	297.5	307.0
Standard 7	298.1	299.8	295.5	301.2	290.2	300.5	296.2	299.8
Standard 8	210.4	185.3	212.5	190.3	211.6	194.0	217.3	199.0
TOTAL ..	2,761.1	2,667.5	2,814.8	2,742.0	2,802.3	2,734.1	2,843.4	2,754.3
GRAND TOTAL	5,428.6		5,556.8		5,536.4		5,597.7	

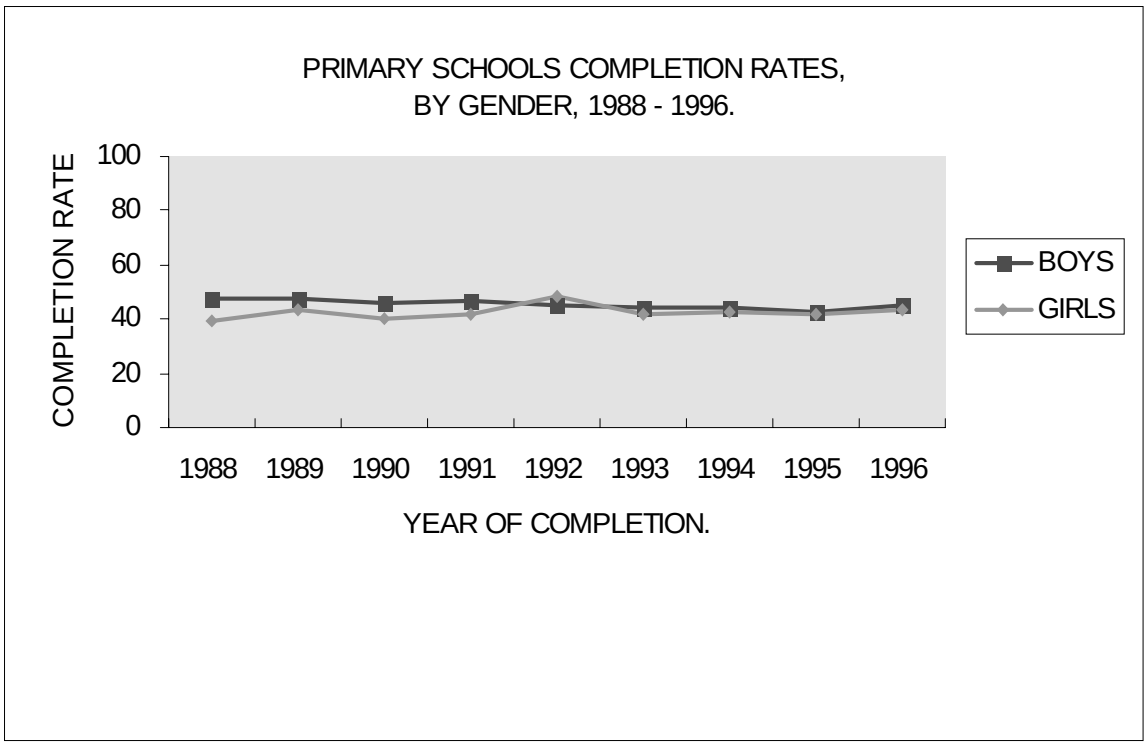
*** Provisional.**

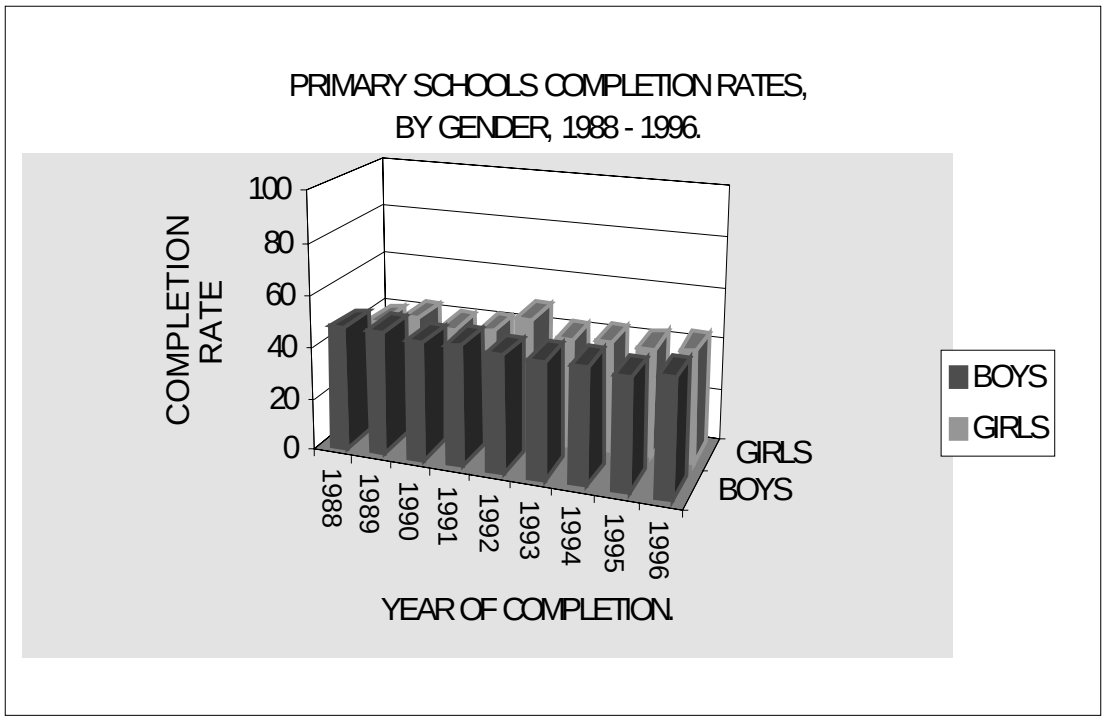
Source: Economic Survey, 1997

Data collected from 10,500 schools which participated in the 1993 Central Bureau Statistics survey, give the extent to which repetition is a problem at this level of education. At the national level, the sample data give an average repetition rate of 15.4 per cent, with a rate of 15.25% for girls and 15.6% for boys. There are

district and gender wide variations, however. Districts in the arid and semi-arid regions are again the worst hit by the low completion rates. Table 5 indicates that the number of pupils, by gender, who reach Standard 8 and sit for the KCPE has been less than 50% since 1988. For those pupils who entered Standard 1 in 1988, only 42.6% (42.1% girls and 43.0% boys) completed Standard 8. Those who were enrolled in Standard 1 in 1989, only 44.3% (43.3 % girls and 45.1% boys) completed in 1996. This indicates is that large numbers of primary school pupils are lost to the system before completing the final year of primary education.

The national completion rate has been in the decline in the last decade for both girls and boys. The persistent drop-out rates create excess capacity in the system in terms of teachers. If the situation is not checked immediately, the drop-out rate is expected to increase to 65% by 2,000. This means that in three year's time, only about 35% of pupils who start primary schooling will be completing the primary education cycle.

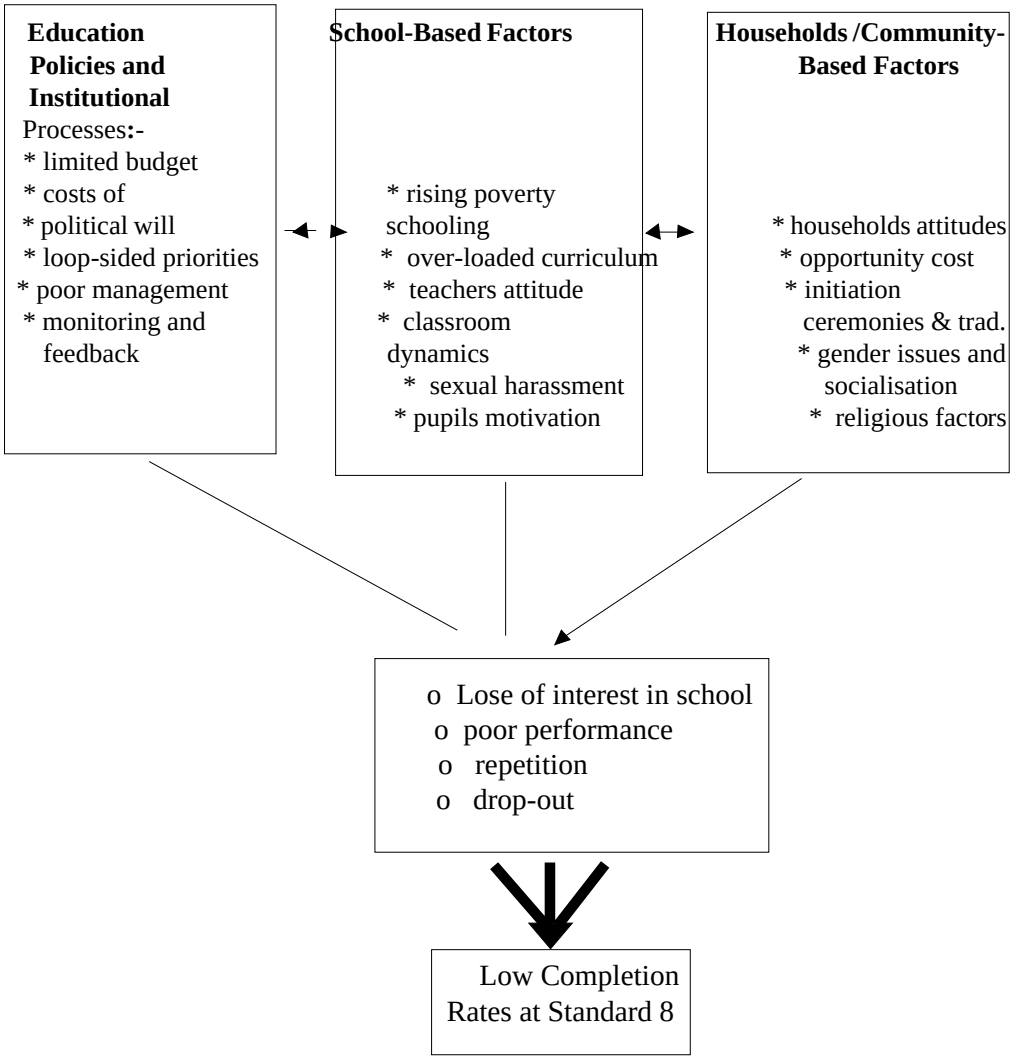




3.2 Factors Behind Low Internal Efficiency

We have indicated that many children who enter the school system at the primary level, do not complete the cycle. Pupils drop out at various stages of the education system, especially in Standards 6, 7 and 8. The situation is grave and worsening, a trend which contradicts the national goal of promoting literacy and fighting against ignorance. In this section, therefore, we highlight some of the major factors which are behind the low completion rates at primary school level. As shown in Diagram 1, the factors are divided into three categories: education policies and institutional processes; school-based factors; and household- and community-based factors.

Figure 2: Framework of Factors Affecting Completion Rates in Education



The three categories of factors have caused inefficiency in primary education, though their impact varies from region to region. The inefficiency caused by low completion rates is a serious waste which must be arrested immediately. The government and its partners in education must come up with viable policy initiatives, including affirmative action in an endeavour to save the education system from inefficiency.

3.2.1 Education Policies and Institutional Processes

Although official expenditure on education has been decreasing in the last five years, public recurrent expenditure per primary school-child has been rising in recent fiscal years: Kshs. 1,486 in 1992/93, Kshs. 2,430 in 1994/95, and Kshs. 2,772 in 1995/96. But the cost-sharing policy, which the Ministry of Education introduced in 1988, has shifted the burden of financing education to parents. This move has made it difficult for parents and communities to support education adequately; consequently, education is now beyond the reach of many households (Abagi, 1997b, World Bank / MoE Studies, 1995). This is mainly due to poverty levels which have been rising in the country. The increased level of poverty makes parents unable to feed their children properly and provide adequate health services. In these circumstances, children whose parents cannot afford costs of instructional materials, school uniforms, tuition fees, and activity fees tend to go to school irregularly and, in the long run, drop out of school. Faced with limited resources, and reduced returns from education, parents are not only unable but also unmotivated to educate their children. In the end, these factors have negative effects on children's school participation.

According to the cost-sharing policy, the burden of paying teachers lies with the government, while erecting physical structures and purchasing instructional related materials are the responsibility of communities and parents. Most parents are not in a position to meet these costs. It is estimated that about 4.2 million primary school-children are in need of textbooks, whose cost would be Kshs. 3,960.6 million. However, only 3% of this amount is provided. As a result, lack of textbooks hinders many children from attending school regularly; in the end ,these children give up education. Yet, despite the recognition of the acute need of textbooks by the Ministry of Education, over 90% of the government's recurrent expenditure pays teachers' salaries, while only 1% and 1.5% are allocated textbooks and the school feeding and milk programme, respectively (Abagi, 1997b); this appears to be an inefficient allocation of resources.

But if parents cannot provide adequate instructional materials as required by the cost-sharing policy, the pertinent issue is whether the policy is still relevant.

Therefore, there is need to evaluate the policy in an attempt to ensure that there is a balance between teachers' salaries and instructional materials.

3.2.2 School-Based Factors

Several school-based factors have been cited as being responsible for high drop-outs, and hence low completion rates among primary school pupils in most African countries. The cost of school-based instruction itself is a major factor. Schools require pupils to have uniforms, textbooks, and stationery, and pay tuition and activity fees. Since the cost of these items is high, children, whose parents cannot afford to provide all or most of these requirements, are always under pressure from the schools' administrators. The frustrations these pupils go through affect their academic performance: they lose interest in education and, eventually, drop out of school.

The overloaded 8-4-4 curriculum is one of the factors which affect pupils' participation in school negatively (Brock and Commish, 1991; Kinyanjui, 1987; World Bank, 1992). The pressure under which pupils in primary schools work is a lot. They are taught 13 subjects, nine of which are examined at the end of Standard 8, stay in school from 7 a.m. to 5 or 6 p.m., and have short holidays. These burdens have reduced children's playing time, and affected their motivation for learning (Abagi, 1997; Sifuna, 1997). The consequences are that their performance deteriorates. In the process, some children give up on education and, in the long run, drop out of school. This kind of curriculum also has a bearing on the costs borne by parents, such as the purchase of textbooks and payment for extra tuition.

Teachers' attitudes towards their work and pupils, their classroom management and their interaction with pupils have a great impacts on the academic achievement and the retention in school of their pupils, particularly girls,. Few classroom observations in Kenya indicate that there are cases where teachers' negative attitudes "push" pupils, especially girls, out of school. These pupils are sometimes neglected, abused, mis-handled, and sent out of class during teaching-learning periods. This atmosphere is not conducive to learning and makes some children hate school. An obvious result of all this are absenteeism, poor performance, and non-completion of the education cycle. Studies on sexual harassment of and pregnancies among school girls in Kenya are limited. However, available surveys and case studies show that sexual harassment and pregnancies are posing a great threat to girls participation and retention in education (Njau & Wamahiu, 1996; Wamahiu et al, 1997). Men teachers and some women teachers have been identified as the main culprits in perpetrating sexual harassment. There

are cases where girls pupils are forced or induced into engaging in sex. Reports by the Forum for African Women Educationalist (FAWE) indicate that more than 12,000 girls drop out of Kenya's schools yearly due to pregnancy. Such a hostile environment has two negative effects: (i) it discourages parents from sending their daughters to or pulling them out of school and (ii) pupils lose interest in education and, if pregnant, are kicked out of the school system altogether.

3.2.3 Household- and Community-Based Factors

The rise in the level of poverty in Kenya (the 1997 Economic Survey indicates that 46.8% of Kenyans live below the poverty line) is one of the major factors which discourage parents from investing in their children's education. Parents, and by extension, many communities, are not in a position to meet the ever-increasing cost of schooling adequately. Further, as a result of the introduction of the cost-sharing policy in 1988, parents are expected to meet 95% of recurrent costs of their children's education. Since the level of poverty has also gone up in the country and the costs of education and training at all levels have continued to rise, many Kenyans are unable to meet the cost of education and can no longer have access to education (Abagi, 1997a; MoE, 1996).

As the level of poverty rises, child labour has become crucial for family survival. Child labour is increasingly employed in domestic activities, agriculture, and petty trade rural and urban Kenya. Poor households, and in some cases children themselves, have to carefully analyse the opportunity costs of education. As a result, parents have continued to send their children, particularly daughters, into the labour market—mainly as domestic workers in urban centres. Meanwhile, boys from the coastal region and in rich agricultural areas abandon school in order to earn money as beach-boys and tea or coffee pickers, respectively. In a situation where parents and children have negative attitudes towards education or do not see its immediate benefits, the consequence is a high drop-out rate.

Social-cultural and religious factors, such as initiation ceremonies and gender socialisation, are additional factors responsible for pupils' failure to complete primary education. In areas where traditional circumcision is still practised, some pupils are pulled out of school to participate in initiation ceremonies. Once initiated, some pupils develop negative attitudes towards teachers and school. In this connection, some circumcised boys are not ready to be taught by women—whom they now consider inferior. Similarly, some initiated feel that they are now grown-up women who should get married. This is because, in some communities, girls or boys expected to get married immediately after they have been initiated. Pressure is therefore put on them to leave school and meet traditional expectations.

4. UTILISATION OF PRIMARY SCHOOL-TEACHING FORCE

4.1 Pupil-Teacher Ratio

Normally, both teachers and the public believe that a low pupil-teacher ratio and teachers' high qualifications result in better performance in school. However, studies from other regions, (see for example, Wad Haddad, 1978) have indicated that "on the basis of available data no optimum class size can be scientifically established as a function of educational benefits." In Haddad's (1978) review, it was concluded that how a teacher organises and motivates the class is more important than class size and that savings made from increased class size might be invested in teacher-training or educational materials, which have been shown to have stronger effects on learners achievement. Available studies suggest that high or very low pupil:teacher ratio is one of the main reasons for the poor quality and low efficiency which characterise primary education in Africa. Many policy-oriented interventions and research studies consider a 40:1 ratio reasonable in developing countries. World Bank-financed primary education projects are usually designed with an average pupil-teacher ratio of approximately (41:1).

In Kenya, the national pupil:teacher ratio in primary schools is about 30:1 (1995). The primary school teaching force is 181,975 and pupils enrolled in primary level of education are 5.5 million. While women teachers constitute about 40 % of the teaching force, trained teachers comprise 90.1% of it. Based on our survey data, the pupil: teacher ratios by category of schools are as indicated in Table 3.

Table 2: Average Pupil-Teacher Ratios by Primary School Category

School Category	Pupils:Teacher Ratios
Public Rural Schools	36:1
Public Urban Schools	34:1
Private Schools	25:1

Nationally the ratio is 30:1.

The eight districts surveyed had ratios below 40:1. The ratios, however, vary between rural public, urban public, and private primary schools., for they are 36:1, 34:1 and 25:1, respectively. Educators in and administrators of private schools believe that a low pupil:teacher ratio, which characterise their schools, boosts pupils' performance (Abagi, 1997c). A private school manager confirmed this perception by saying:

> We work for quality. That is why we insist to have very few students in each class. Teachers become more effective because they are able to pay individual attention to pupils. Teacher-pupil interaction is boosted, thus pupils learn better. In the final analysis, they perform better in the KCPE. (Private School Manager, 1997).

However, in most public schools, especially the ones in slum areas, management committees have limited control over pupil: teacher ratios. In one school we visited the ratios in lower primary classes (Standards 1 to 3) were 60:1 and in upper classes (Standards 4 to 8) were 50:1. When asked to comment on the high ratios, a school head in a slum public school had this to say:

> We are not ready to send parents away with their children. Since good schools are very limited in these areas and most parents are not motivated to take their children to school, the ones who are brought to us must be accommodated. It is hard to control 50 or 60 pupils in a class, but our teachers are committed and are doing their best. (Public School Head, 1997).

We can justifiably say that low or very high pupil:teacher ratios would lead to inefficiency. This is because low enrolment in a class would lead to under-utilisation of resources, the teacher included. Such a teacher could have served many more pupils but earning the same pay in a month. There is no dispute that at a certain point classroom management and effective teaching becomes difficult when a teacher has to handle a very large number of students. However, where resources are limited, like in Kenya, it make sense to have pupil:teacher ratios between 38:1 and 45:1. This would reduce primary school unit costs by considerable percentage, assuming that the 8-4-4 curriculum is reduced and teachers' morale is boosted. However, a more conclusive study is needed to map out what pupil:teacher ratios have positive impact in different districts in the country. Since the demand of primary education is on the increase and the cost of education is high, if the pupil:teacher ratios are increased, participation in education is likely to be boosted. This would be done without extra costs.

Another pertinent issue about the efficiency of teachers is their qualifications. Traditionally, education researchers and planners have believed that professionally trained teachers are more efficient and effective than untrained ones. That is why the government is spending 2.2 % of its 1996/97 financial year educational expenditure in teacher education. Since a lot of resources are invested in teacher training, teachers are expected to offer optimal service to the education sector. Table 4 shows teachers salaries by grade.

Table 3: Teachers' Salaries by Grade

Grade of Teacher	Per Day	Per Month	Per Term	Per Year
Diploma	359.8	7,196	21,588	86,352
S1	354.8	7,096	21,288	85,152
P1	307.6	6,152	18,456	73,824
P2	239.9	4,798	14,394	57,576
P3	209.9	4,198	12,594	50,376
UT	156.9	3,138	9,414	37,656

98.2% of recurrent expenditure in primary education goes to teachers' salaries. However, the average pupil:teacher ratio is 30:1. This ratio results in relatively high teacher costs, which have been cited as a factor hindering the expansion of primary education. The Ministry of Education is therefore faced with the dilemma between increasing teachers salaries and reducing resources used to maintain teachers in the education system. Teachers went on strike in the month of October 1997 and their salaries were increased by 150% to 200% staggered for a period of 5 years.

5. TEACHING-LEARNING CONTACT HOURS

Another major area of focus in this study was whether teaching-learning contact hours, that is, students' learning time, are fully utilised in both public and private primary schools. We sought answers to some questions in an attempt to analyse the utilisation of contact hours: Were classroom empty unnecessarily? Were teachers and pupils in the right place at the right time? Was pupils' learning time wasted in non-learning activities, such as school assemblies and work on schools' grounds?

The Ministry of Education stipulates that the implementation of the 8-4-4 primary school curriculum requires that the average teacher-pupil contacts hours per week be 28 hours (comprising 48 periods, each 35 minutes long) for Standards 4 to 8 and 20 hours (comprising 40 periods, each 35 minutes long) for Standards 1 to 3. The meeting of this requirement indicates how efficiently the curriculum is being implemented and implies how cost effective teachers' salaries are. But if pupils do not get the specified contact hours, the implication is that the system is inefficient. The consequences of this efficiency are likely to be that:

i. the syllabus may not be completed in time;

ii. extra time would have to be created to coaching pupils outside the normal classroom hours, for example, after school and during holidays; and

iii. teachers' services become more costly, both to parents and the government. This is because teachers would be paid for the work which is not fully done, and will be paid extra money for the extra time they put to complete the work which they could have done during normal learning time.

Our survey indicates that the stipulated teaching-learning time in schools is usually not utilised efficiently. This means that extra tuition has been organised and teachers get extra pay for the extra services they offer to pupils. The schools we visited wasted pupils' learning time in a number of ways every day: school assemblies (17 minutes), tea break (16 minutes), and lunch break (13.2 minutes) daily, respectively. Table 5 shows the time schools spend—over and above what the Ministry of Education stipulates—on out-of-classroom activities, which have little direct bearing on learning.

Table 4: Daily Average Time Used in Schools by Activities and Categories of Schools*

Category of school	Assembly		Tea Break		Lunch Break		Total Wastage
	Sti. Time	Spent	Sti. Time	Spent	Sti. Time	Spent	Time
Rural - Public	15	25	25	35	69	78	29
Urban- Public	15	20	25	30	69	72	13
Private	15	17	25	26	69	70.2	4.2
Total Average Time Sti. & Spent	45	62	75	91	207	220.2	
Time Wasted		17		16		13.2	46.2

Source: Primary Survey, 1997.

* Time is given in minutes

Sti. Time stipulated by education authorities, MoE for each activity.

- Time wasted refers to time used over and above the stipulated time.
- These exclude 30 to 45 minutes spent daily on morning sweeping and cleaning .

Public primary rural and urban schools and private primary schools waste pupil learning time of 29, 13, 4.2 minutes, respectively every school day (2.4, 1.1, and .35 hours a week; 31.2, 14.3 and 4.6 hours a term). In terms of learning time, this wastage is significant. Several factors account for variation in teaching-learning time utilisation in these schools:

(i) Morning school cleaning exercise, this is prevalent in rural schools, where pupils have to spend an average of 45 to 60 minutes every day sweeping classrooms and paths, clearing grass, and cleaning toilets, among other chores.

i. Inefficient school management, which makes teachers lax.
ii. Verbosity, unnecessary long speeches during morning assemblies.
iii. Teachers' low morale, which leads teachers to develop a negative attitude towards their work.
iv. Lack of supervision and inspection from local education officers.

We established that most primary schools in rural areas, and some in urban slums, also lose teaching time during the first week of school opening. While in most private primary schools, the opening day is a normal, teaching day, in rural schools the first week is usually wasted on various activities, such as staff meetings

to discuss general administration and duty roster, developing the time-table; clearing and cleaning the compound by pupils; and absenteeism by teachers and pupils. In private schools, teachers usually remain behind or open one week earlier than the pupils to prepare for the new term. By the time schools open, all the necessary arrangements, including the time-table and the duty-roster, are in place, and teaching starts immediately.

Table 5: Time Wasted by Category of School

Type of School	Time Wasted Per week (Hrs.)	Time Wasted Per Term (Hrs.)	Time Wasted Per Year (Hrs.)
Rural public	2.4	33.6	100.8
Urban Public	1.1	15.4	46.2
Private	.35	4.9	14.7

Source: Primary Survey, 1997.

Since the time allocated is not utilised to the full, more time has to be created for teaching-learning instructions. Table 7 indicates the actual teaching-learning contact hours in surveyed schools. On average, students' learning time) in both public and private primary schools were 5.1, 5.3 and 5.5 hours a day (25.5 and 27.5 hours a week instead of 28 hours). We established that coaching took up 5 hours in public and private schools. Compared to urban primary schools, rural primary schools had few contact hours; there was no difference among private primary schools whether located in urban or rural schools, however.

Table 6: Average Actual Contact Hours per Day by Category of School*

	Actual (Observed) Normal Teaching Hours	Extra-tuition Hours Learning Hours	Total Time Utilised in Students'
Public Primary Schools	5.3	2.2	7.5
Private Primary Schools	5.5	3.0	8.5
Rural Public Schools	5.1	1.1	6.2
Recommended Time	5.6	00	5.6

* Source: Primary Survey, 1997.

The findings indicate that all categories of primary schools we have surveyed have introduced extra tuition for pupils in upper classes. However, the teachers do not utilise the official teaching-learning time in an attempt to implement the curriculum. Pupils in private primary schools seem to enjoy more learning time than those in public schools, especially the ones in rural settings. But it is also important to note that extra-tuition activities take more time in private school than in public schools. Private tuition is expensive, and raises the cost of education drastically—especially because many parents have been paying for private coaching, whose cost per pupil, per term, ranges from Kshs. 150 in rural schools to Kshs. 2, 500 in urban schools.

The justification for coaching pupils is based on the argument that the primary school curriculum cannot be implemented in full within the recommended time. The pertinent issue is that, if the official teaching-learning time is not utilised to the maximum, why are pupils subjected to teaching hours after official stipulated time? While coaching is certainly expensive, its effectiveness in promoting pupils' performance in national examinations is a subject of much debate (Abagi, 1997c). Our survey indicates that if the students' learning time is used optimally, there will be no need for coaching, and the private cost of education will be reduced drastically. At the same time, teachers—who receive about 96.2 % in salaries from the recurrent expenditure of the Ministry of Education—have to justify the salaries through a positive contribution to the development of education and the nation as a whole.

5.1 Counting the Costs of Inefficiency

As a result of low completion rates, low pupil-teacher ratios, and under-utilisation teaching and learning time, primary schools waste a lot of resources (we have tried to estimate such wastage). If saved, the resources could enhance efficiency and improve learning enhanced in primary schools.

5.1.1 Wastage from Low Completion Rates

It is clear now that there is a lot of wastage in primary education. More than 50% of enrolled pupils fail to complete the education cycle, yet education consumes about 55% of the government's recurrent expenditure. Wastage resulting from a failure to complete primary education cost the public and estimated Kshs. 5.2 million between 1992 and 1996 (Table 8).

Table 7: Estimated Wastage from Non-Completion of Std. 8

Year in Std. 1	Year in Std. 8	Enrolment Std. 1 ('000)	Percentage Completing Std. 8	Those not Not Completing Std. 8	Unit per Pupil, Kshs / year	Estimated Wastage (Kshs.) - '000
1985	1992	848.0	653.6	454.8	1,486	675,832.8
1986	1993	912.0	56.6	516.2	1,486	757,781.6
1987	1994	918.3	56.1	515.2	2,031	1,046,371.2
1988	1995	952.8	57.1	546.9	2,774	1,517,100.5
1989	1996	939.5	55.7	416.2	2,774	1,154,538.8
Total		4,571.2	55.9% Average	3,420.3		5,151,624.9

An efficient system of education would considerably reduce this wastage; the resources thereby saved could be used to provide instructional materials and thus relieve households of a heavy burden. While a 100% completion rate is virtually unattainable anywhere, completion rates in Kenya can be improved through appropriate policy measures and political will which would put education at the core of development.

5.1.2 Wastage from Low Pupil:Teacher Ratios

Using 1996 figures, Table 9 indicates that the Ministry of Education would have saved an estimated Kshs. 3.5 million if the pupil:teacher ratio was raised to 40:1 from the current 30:1. This is because there were 5,597.7 million pupils and 181,975 teachers in the country's primary schools. The latter would be reduced by 23% to 139,943, and the salaries paid to the now 42,032 teachers, at an average Kshs. 82,363 per annum, would have saved the ministry 11% of its recurrent expenditure.

Table 8: Proposed Saving Based on Pupil Ratio of 40:1, 1996

Year / Activity	1996	Year / Activity	1981 - 1996
Pupils enrolment	5,597.7 (million)	Pupils Completing	3,420.3 (million)
Teacher Numbers	181,975	Teachers Numbers	181,975
Pupil:Teacher Ratio	30:1	Pupil:Teacher Ratio During Completion	18:1
Average Annual Teacher Salary (Kshs.)	82,363	Annual Salary	82,363
Teachers Numbers (Based on pupil : Teacher of 40:1	139,943	No. of Teachers Based on pupil: Teacher of 30:1	114,010
Excess Teachers	42,032	Excess Teachers	67,965
Savings from Excess Teachers	= Kshs. 3,462,458,157	Savings from Excess Teachers	Kshs. 5,597,801,295
Savings as a % of MOE Recurrent Expenditure	11%		18%

Since pupils' enrolment in and completion of school have been declining while the number of teachers has been rising at 5% per annum, the number of teachers needs to be reduced in order to enhance efficiency. The reduction should be coupled with an adoption of a pupil:teacher ratio of 40:1, a review of education policies and curriculum, and an overhaul of the entire education system.

5.1.3 Wastage from Under-Utilisation of Learning Contact Hours

Inefficient utilisation of teaching time is costly to the education system. Table 10 indicates estimates of average cost of wasted teachers' time.

Table 9: Estimated Cost of Inefficient Utilisation of Teachers' Time by grade

Teachers' Grade	Income Per Day (Ksh.)	Total Pupils' Hours Wasted Per Week	Time Used Inefficiently Measured in Kshs. per Week	Amount Wasted perTerm	Amount Wasted per Year
Graduate					
Diploma	359.8	2.4	863.2	12,084.8	36,254.4
IS	354.8	2.4	851.5	11,921.0	35,763.0
PI	307.6	2.4	738.2	10,334.8	31,004.4
P2	239.9	2.4	575.8	8,061.2	24,183.6
P3	209.9	2.4	503.8	7,053.2	21,159.6
Untrained	156.9	2.4	383.8	5,373.2	16,119.6

These estimates are based on public rural day primary schools. Wastage could be more in public boarding schools where teachers and children have more school-time to participate in various school-related activities. Generally, in boarding schools, the day for pupils starts at 6. a.m. and ends at 9.30 p.m. when night studies end.

As Table 10 indicates, the average wastage by a P1 teacher is Kshs 147.6 per day which translates into Kshs. 738.2 per week or Kshs. 10,334.8 per term or Kshs. 31,004.4 per year. Working on the assumption that each of the 16,000 primary schools has a P1 teacher on its staff, we calculate that the total wastage would be about Kshs. 0.5 billion per year.

Our estimates indicate that wastage in primary schools is about Kshs. 10 billion per year, arising from low completion rates, under-utilisation of learning time and low pupil-teacher ratios. This is a huge amount of money which could revamp this level of education. There is an urgent need, therefore, to make public education efficient, as the policy options in the last section of this paper suggest.

6. POLICY OPTIONS AND RECOMMENDATIONS

As a result of the cost-sharing policy, parents and communities have assumed large responsibilities for their children's education. However, the level of poverty in the country constrains parents and communities from effectively sharing costs of education. A review of budgetary constraints suggests possible cost-recovery measures, which would provide education to those who did not previously have access to it. Bearing in mind the policy and institutional problems facing primary education, we consider some cost-recovery policy options which would improve efficiency of primary education:

(i) A comprehensive review in a bid to transform education, weed out inefficiencies and stop wastage is necessary. The 8-4-4 curriculum, where pupils learn 13 subjects, should be reduced by half. Meanwhile, the nature and objectives of primary education should be clearly conceptualised. And in an effort to save the education from collapse, a comprehensive reform of education— ranging from policy formulation, curriculum, teachers' education and remuneration to the management of schools—should be undertaken.

(ii) A need to experiment with new forms of primary education. Although some African countries have been trying viable models, parallel or complementary, to increase access to and reduce internal inefficiency in primary education. Kenya has done little in this direction. In this connection, Uganda, apart from offering free schooling to four children per family in 1997, has implemented a complementary school programme. Its Complementary Opportunities for Primary Education (COPE) programme caters for children, aged between 9 and 13 years, who have been out of the primary school system. Similarly, innovative attempts are evident in Eritrea, Tanzania, Malawi, and Ethiopia. Meanwhile, relying on the costly and inappropriate traditional linear expansion, Kenya has been experiencing increased expenditure in education while rates of enrolment and completion have been declining.

(iii) Increment of pupil:teacher ratio to 40:1. In this way, more pupils, served by the current number of teachers, will have access to school. An improvement of teachers' terms and conditions of service should go hand in hand with this change.

(iv) Incorporation of shift double system into the revised the 8-4-4 system of education. In this respect, there could be two shifts for Standards 1 to 4: while the first shift reports at 8 a.m. and leaves at 12 p.m., the second shift reports at 2

p.m. and leaves at 5.30 p.m. This arrangement could create more learning opportunities for pupils and utilise teaching-learning time efficiently. Experiences from Zambia, Botswana, and Burundi should be studied in this connection.

(v) A need to reformulate and re-structure the Inspectorate in the Ministry of Education, redefining its role, focus, modalities, and staffing.

(vi) Reduction of government expenditure on teachers. While data on the most efficient and cost effective pupil-teacher ratio is unavailable, the current number and the level of inefficiency of teachers suggest that it makes economic sense to have fewer but more efficient teachers. This could be achieved through an increase of the average pupil:teacher ratio to 40:1 after an extensive survey of teachers' work-load.

In the end, considering that the high number of pupils who repeat classes or drop out of school and that the pupil-teacher ratio is low, the education system needs comprehensive transformation—not piece-meal reforms. The transformation should promote the efficiency, quality ,and effectiveness of the entire system of education and involve all the stake-holders in a bid to shape education for the benefit of the entire nation.

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