Budget Mechanisms and Public Expenditure Tracking in Kenya

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KIPPRA Discussion Paper No. 37
June 2004

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Published 2004

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ISBN 9966 949 61 5

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KIPPRA acknowledges generous support from the European Union (EU), the African Capacity Building Foundation (ACBF), the United States Agency for International Development (USAID), the Department for International Development of the United Kingdom (DfID) and the Government of Kenya (GoK).

Abstract

Public expenditures are faced with numerous problems of wastage and leakages of resources mainly due to weak procurement procedures, corruption and weak monitoring systems. Nevertheless, in most developing countries, central government budget allocations are used as indicators of supply of public services. Public expenditure tracking surveys assess the leakage of public funds or resources prior to reaching the intended beneficiary. The overall objective of this study was to provide information useful for improving the effectiveness of public expenditure and service delivery. The survey targeted three sectors: education, health and agriculture. The education sector looked at school bursaries, textbook allocations, enrolments, teachers and sources of school funds, while the health sector addressed issues such as cost-sharing, medical personnel, medical supplies and government allocations to health facilities. Extension services to farmers, agricultural personnel, public allocations to extension services were the key issues addressed in the agricultural sector.

The study identified constraints in service delivery and leakages of public resources at various levels. Poor record keeping was prominent in most of the institutions visited, especially at the district and facility levels. Most rural health facilities are understaffed. The study findings show that about 85 per cent of the health facilities have inadequate medical supplies. About 83 per cent of all the health facilities purchase their own drugs. During the 2001/2002 financial year, only 69.7 per cent of the drugs released by the districts reached the health facilities. Analysis of drug leakage across types of health facilities show that only 59.1 per cent and 88.0 per cent of the drug supplies reached dispensaries and health centres respectively. The survey shows that facilities with regular annual audit have a drug leakage of 25 per cent compared to 34.2 per cent for non-audited facilities. There was a leakage of 22.2 per cent of the user charges revenue generated by health facilities. Health facilities with regular annual audit have user-charge leakages of 19.7 compared with 28.5 per cent for non-audited health facilities.

The main finding from the schools is that there are almost zero chances of leakage of non-wage funds since school funds are either transferred directly to schools' bank accounts or payable to the schools by cheque or in-kind. However, we could not rule out the possibility of leakages at facility level especially when making purchases such as textbooks, when allocating bursaries and when distributing what was supplied in kind. It was also noted that there is very minimal management of schools by the school committees.

In agriculture, it was noted that very little funds are allocated to provision of extension service provision. About 68 per cent of farmers–in the focal areas–report that they receive extension services. However, the frequency of visits is irregular. Out of 68 per cent, 48 per cent of farmers get extension services when they call upon extension officers, 17.9 per cent seldom get extension services and only 4.7 per cent receive extension services on a more frequent basis. Farmers training institutions are also under-utilised; in some cases they remain completely idle.

This Discussion Paper is produced in collaboration with the German Technical Cooperation (GTZ), Ministry of Planning and National Development, Kenya, and the Kenya Intitute for Public Policy Research and Analysis (KIPPRA). The aim of the study is to generate information that can be used to improve the effectiveness of public expenditure and service delivery by making public expenditure management more transparent and accountable. The study is funded by the German Technical Cooperation (GTZ).

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List of Acronyms

AIA	-	Appropriation-in-Aid
AIE	-	Authority to Incur Expenditure
CCF	-	Christian Children's Fund
DALEO	-	District Agricultural and Livestock Extension Officer
DDC	-	District Development Centre
DEO	-	District Education Officer
DFID	-	Department for International Development
FTCs	-	Farmers Training Centres
GDP	-	gross domestic product
GER	-	gross enrolment rate
GoK	-	Government of Kenya
KePIM	-	Kenya Participatory Impact Monitoring
ICS	-	International Christian Services
MAP	-	Makueni Agricultural Project
MoEST	-	Ministry of Education, Science and Technology
MOH	-	Medical Officer of Health
MTEF	-	Medium Term Expenditure Framework
NGO	-	non-governmental organisation
PER	-	Public Expenditure Reviews
PETS	-	public expenditure tracking surveys
PMG	-	Paymaster General
PRSP	-	Poverty Reduction Strategy Paper
PTA	-	Parents Teachers Association
QSDS	-	quantitative service delivery surveys
SAPs	-	structural adjustment programmes
UNICEF	-	United Nations Children's Emergency Fund

1. Introduction

In most developing economies such as Kenya, public spending on social services has all along been rising without bearing much fruit on the quality and quantity of the expected outcomes. In Kenya for instance, public expenditure on health and education has had the highest budget allocation relative to other social services. Education budget alone as a percentage of GDP and total government expenditure averages 6 per cent and 20 per cent respectively (Kimalu *et al*, 2001). This, however, is not comparable to the gross enrolment rate (GER) attainment in Kenya as compared to that of other African countries. Nevertheless, results from Kenya Participatory Impact Monitoring (KePIM) 2002 indicate that despite increased spending in health and education, there was no significant improvement in the social indicators. The poor have become poorer.

Furthermore, studies in various parts of the world have shown that when increases in public spending fail to generate improvements in the delivery of basic services, it is possible that either there is ineffective transfer of funds among public sector agencies or that there is deficiency in the capacity of end-user to translate funds into valuable goods and services, along with wastages and corruption. The ineffective transfer of funds may be manifested in leakage of funds such that they do not reach the intended end-user or producer.

Despite the introduction of Public Expenditure Reviews (PER) that culminated in the adoption of the Medium Term Expenditure Framework (MTEF) in Kenya in 1999, numerous bottlenecks continue to impede effective implementation of the strategies and priorities in the Poverty Reduction Strategy Paper (PRSP). So far, there has been little or no attempt to scrutinise the process of movement of funds from the source through the intermediary institutions to the service providers. Moreover, it is believed that allocated funds do not reach the intended beneficiaries and

that there are lots of wastages and use of funds for unintended purposes. The current budgeting system lacks the element of tracking public expenditure, which is a very important tool in terms of accountability and making budgets responsive to the needs of the poor.

This study has attempted to fill this gap. The results of this study should therefore be used by stakeholders to design and implement, in a broad sense, a participatory public expenditure tracking system that will enable the poor to participate in the budget process through expenditure tracking and performance monitoring at local and national levels. The overall objective of this study is to provide information useful for improving the effectiveness of public expenditure and service delivery by making public expenditure management more transparent and accountable.

The specific objectives are to:

- Provide quantitative evidence on delays in the execution of state budget expenditures, focusing on the transfer of resources from the Treasury to district and facility level;
- Provide quantitative evidence on leakages of resources at ministry, district and facility level through in-depth analysis of the procurement process, the distribution of resources from district to facility level, and the management of resources at facility level;
- Provide baseline data and diagnostic information on important health, education and agriculture characteristics, including inputs and outputs;
- Assess quality and efficiency in service delivery at facility level;
- Assess the impact of delays and leakages on the resource adequacy at facility level, and on efficiency and quality of service delivery;

- Provide evidence on what explains differences in performance across facilities and therefore contribute to the definition of policies aimed at addressing diagnosed problems; and
- Suggest areas for further research.

The study is organised into eight sections. Whereas Section 1 comprises the introduction, Section 2 explains the need for public expenditure tracking survey. Section 3 highlights the budget process in Kenya while Section 4 gives an overview of the structure and organisation of the public sector in Kenya. Section 5 outlines the data requirements and methodology used. Results of the study are detailed in Section 6 while experiences and lessons learnt from public expenditure tracking surveys in other countries are given in Section 7. Section 8 gives conclusions of the study while Section 9 provides an overview of possible future direction for public expenditure tracking surveys.

2. Why carry out Public Expenditure Tracking Surveys (PETS)

The key issues of concern in public spending can be considered at two broad levels: the formulation and implementation levels. At the formulation stage the concerns relate to the methodology used in priority setting between competing needs. Indeed, it is not obvious whose priorities public spending represents. At the second level, key concerns relate to overall fiscal discipline, effectiveness and efficiency of public spending.

Fiscal discipline relates to adherence to set targets, while effectiveness relates to the achievement of desired outputs and outcomes. Efficiency is about the cost of achieving the desired targets–does a shilling of public investment translate into a shilling of public capital? These questions can only be answered in cases where end-user data on outputs and outcomes is available.

Most developing countries are faced with lack of reliable data on public expenditure at the district and facility levels. There is also evidence of limited data on the impact of public spending on growth and human development indicators. Above all, developing countries are facing increased demand for evidence on efficiency and quality in service delivery.

Conventionally, central government budget allocations are used as indicators of the supply of public services. It has become increasingly clear, however, that budget allocations can be poor predictors of the actual quantity and quality of public services especially in countries with poor governance and weak institutions. This conclusion is supported by the weak relationship between public spending and growth and social development indicators in cross country analysis. The ability to diagnose and measure problems of service delivery within the public and private delivery systems is a pre-requisite to designing policy reforms and institutions to improve service

delivery. Public expenditure tracking surveys assess the leakage of public funds or resources prior to reaching the intended beneficiary. On the other hand, quantitative service delivery surveys (QSDS) go beyond tracking funds to examine efficiency of spending, as well as incentives, oversight and the relationship between agents and principals.

Public expenditure tracking surveys (PETS) address supply-side constrains focusing on provider behaviour, incentives, oversight and accountability. A QSDS on the other hand addresses demand-side concerns and constraints. When PETS and QSDS are used together, they document the characteristics of service providers and identify problems along the chain of budgetary transfers and service delivery points (inputs, outputs and measures of quality). The two surveys try to answer questions such as:

(a) What are the factors that determine how effectively public funds flow through the administrative and budgetary system and ultimately reach teachers and schools?

(b) What determines how effectively those resources are combined with other inputs at the school level to generate education outcomes?

The surveys link facility "upstream" with political and administrative levels and try to find out what explains variation in performance across service delivery units within the same jurisdiction. Another question that these surveys answer is, how does variation in institutional arrangements correlate with variation in service delivery outcomes? Through the surveys, facility or school surveys "downstream" are linked with household surveys, therefore enabling analysis of the effect of school/facility characteristics on household behaviour and outcomes.

According to Reinikka (2002), the two key questions in public policy today are:

(a) Why does the level of public expenditure on average have such

a limited effect on human development outcomes?

(b) What can be done to improve performance?

Possible reasons for the above, may include:

(i) Governments may be spending on the wrong goods or the wrong people.

(ii) Sometimes when governments spend on the right goods or the right people, the funds fail to reach the frontline service provider.

(iii) Incentives to deliver a high quality product or service are often missing. Even when the money reaches the primary school or health clinics, the service providers may be poorly paid and ineffectively monitored. Clients have limited information to enable them to hold service providers accountable.

(iv) Even if the services are effectively provided, households may not take advantage of them. This "demand side" failure often interacts with the supply side failures to generate a low-level of public services outcomes among the poor.

In Kenya, an attempt has been made to address the priority setting concerns though grassroots consultations, and collating of the priorities in the Poverty Reduction Strategy Paper (PRSP). However, no mechanism has been put in place to address budget management and implementation concerns. Such concerns on public expenditure call for public expenditure tracking surveys (PETS) and quantitative service delivery surveys (QSDS).

3. The Budget Process in Kenya

The budget cycle passes through three major phases (i.e. stages):

(1) The first stage is budget planning and preparation, which is usually done by the Ministry of Planning and National Development alongside other players. After every five years, each district develops a District Development Plan outlining development priorities and aspirations at the district level. The plan is supposed to benefit from broad-based participation by the citizens. The districts' aspirations are collated into a National Development Plan, which, in addition, spells out macro policies and programmes to be implemented in a five-year period. The medium term expenditure framework (MTEF), the latest budgetary system in Kenya, links policy making with planning and implementation of budgeted projects in a three-year rolling framework.

The actual budget preparation begins with a Treasury circular which defines the broad parameters of the budget and sets expenditure ceilings to be adhered to. This, *inter alia*, spells out the budget finalisation calendar, which includes public hearings as one of the activities. At this stage, citizens have an opportunity to generate and contribute issues of interest in the budget.

The proposals from the districts are then consolidated with those of the line ministries and thereafter sector negotiations for allocation of resources commence. The sector hearings are presided over by Treasury to give guidance to the participants. These sector hearings lead to bidding for resources, which are then allocated according to expenditure items in the budget. Once the allocations are done, Treasury scrutinises each ministry's draft budget to ensure that they abide by both the guidelines and the ceilings. The scrutiny is also meant to ensure that the allocations are consistent with sector priorities.

Apart from public hearings, the Minister for Finance receives presentations from professional associations or groups. These presentations give both expenditure and tax proposals, some of which the Minister takes on board in drafting the Finance and Appropriations Bills.

(2) After the Budget proposals, the presentation to Parliament and approval stage follows. The Minister for Finance presents the Budget Speech to Parliament, usually accompanied by the Appropriations Bill, the Finance Bill, the Fiscal Strategy Paper, the Statistical Annex to the budget, and the Financial Statement. The Statistical Annex indicates, among other things, the government's indebtedness to various lending institutions, both domestic and external, while the Financial Statement gives a summary of proposed revenue and expenditure measures.

The budget is presented as a motion to Parliament, debated and approved, sometimes with amendments. Upon approval and the passing of the Finance and Appropriations Bills, the government is effectively authorised to raise revenue through taxes and to spend them in accordance with the approved estimates.

(3) The final stage, budget execution, which involves implementation, supervision and audit, follows parliamentary approval. This entails the final disbursement of funds to various implementing departments and ministries. Budgetary resources are disbursed to line ministries and departments through exchequer issues. The Permanent Secretaries are then allowed to grant Authority to Incur Expenditure (AIE) to various district departmental heads to implement the government programmes at the district level.

At the execution stage, the process should allow for effective commitment control and accountability. There should be active and effective internal audit (supplemented by expenditure tracking

surveys). However, budget execution based on a series of steps at the Treasury, ministry and district level falls short as a diagnostic and monitoring tool to help understand inherent problems such as leakage and shortfalls, delays and predictability, and discretion in allocation of resources, among others. At the moment, some monitoring takes place at the macro level essentially to determine revenue collection and expenditure levels on a monthly basis. However, only broad expenditure items are monitored and this does not reveal effectiveness in utilisation of funds at district and facility level. This problem can be identified clearly in the structure and organisation of the public sector in Kenya.

4. An Overview of the Structure and Organisation of the Public Sector in Kenya

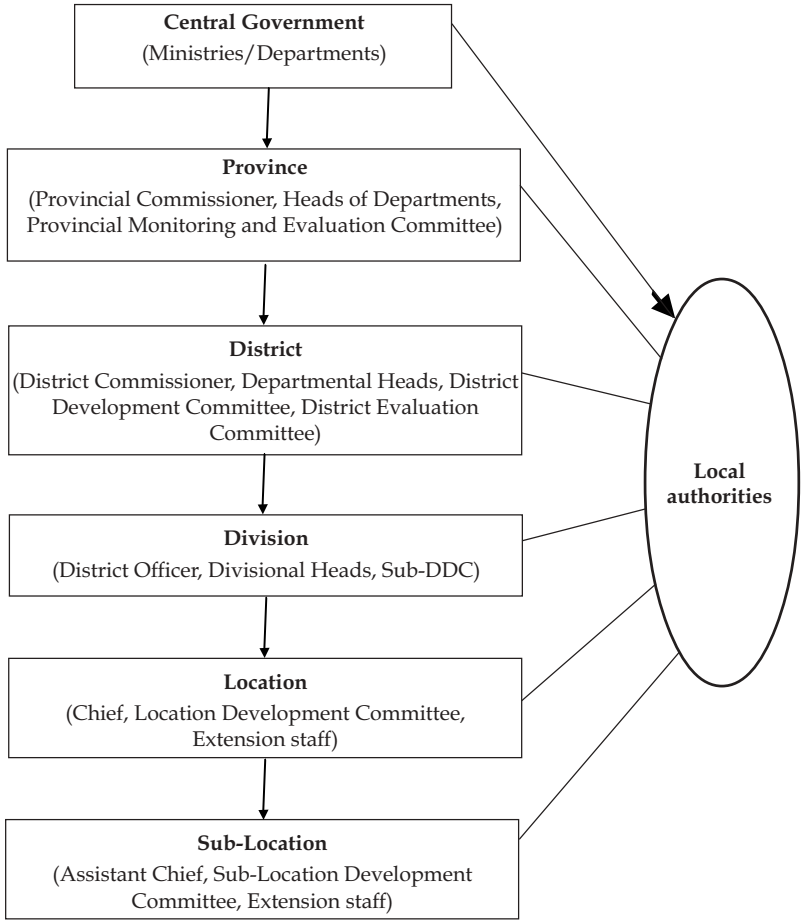
According to Dehn *et al* (2002), most public sectors have multiple tier structures with different tasks. In most cases, tasks and interests at each tier of organisational structure of public sector may conflict with each other from the viewpoint of limited resources and finite time, and various stakeholders may also have conflicting interests. At the same time, the outputs of public service agencies are often difficult to measure and systematic information is rarely available about specific inputs and outputs of service delivery, particularly in developing countries.

In Kenya, the public sector consists of the central government, local authorities, state-owned enterprises and extra-budgetary institutions. The government structure can be split into two namely, administrative and economic structures. The administrative structure is exemplified by the provincial administration. Here, the government links to the grassroots or village level through Provincial Commissioners, District Commissioners and District Officers. The District Officers complete the chain through their link to Chiefs and Assistant Chiefs (Figure 1).

The economic structure on the other hand is more complex than the administrative one. This comprises ministry headquarters at the top with provincial departmental heads and district departmental heads at the province and district levels, respectively. These link to the lowest levels through field officers like extension workers, hospital workers and teachers. The provincial departmental heads mainly provide an operational link to the districts. Not many projects and programmes are implemented at the provincial level. Implementation mainly takes place at the district level.

The ministry headquarters have a second line of service provision to the people through state-owned enterprises (parastatals). Funds for service provision and budget implementation can therefore be channelled to

Figure 1: The structure of government in Kenya



the targeted areas through the ministry headquarters, through the district offices, or through parastatals as grants. The process through which funds flow from Treasury to the facilities where service provision takes place is illustrated below.

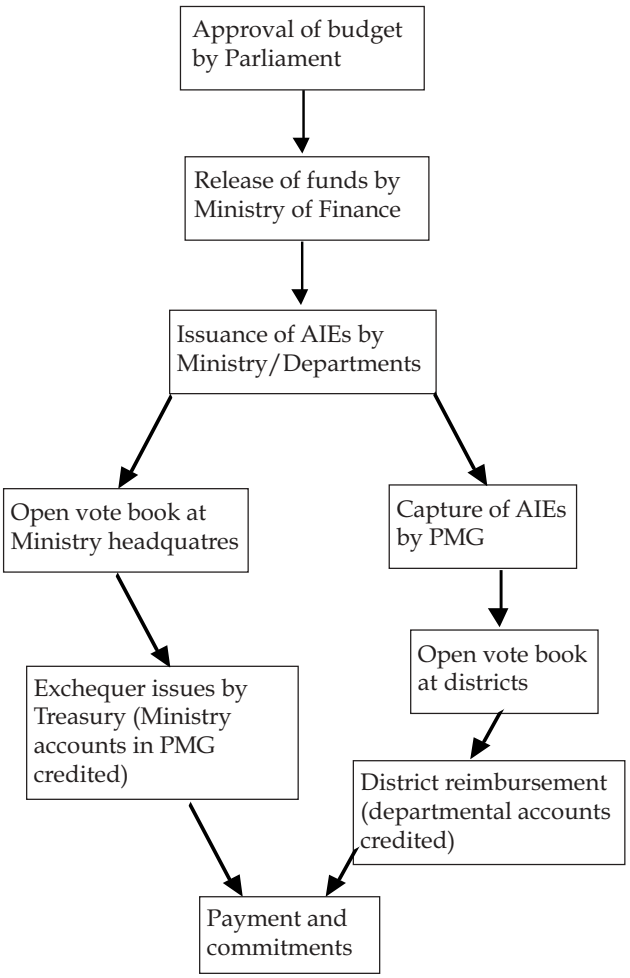
4.1 Flow of funds

The Government of Kenya operates a dual budget system that consists of a recurrent budget and a development or capital budget. Almost all

ministries and departments are required to prepare the two budget documents every year.

The recurrent budget consists of payments such as wages and salaries, operations and maintenance, general grants to state corporations and purchase of equipment and vehicles. On the other hand, development budget consists of construction of buildings and financial transfers. However, all donor funds, whether they fund recurrent or capital expenditures, are reflected in the development budget whereas in the recurrent budget, all the finances are obtained from the government.

Figure 2: Flow of funds for net expenditures both recurrent and development



There is need to note the difference between net allocations and allocations including Appropriations in Aid (AIA). The budget allocations are made either on net or at gross basis. On net basis, it means all the funds go through the exchequer and are reflected in the budget estimates as revenues. If they do not go through the exchequer system they are referred to as Appropriations in Aid. However, Appropriations in Aid in recurrent expenditure mean the revenues were raised through sale of goods and services and the proceeds were then used to fund recurrent expenditures whereas in development Appropriations in Aid means that the payments would not go through the exchequer and would therefore be received in kind (e.g. computers, vehicles, etc).

Figure 3: Flow of funds for Appropriations in-Aid collected locally

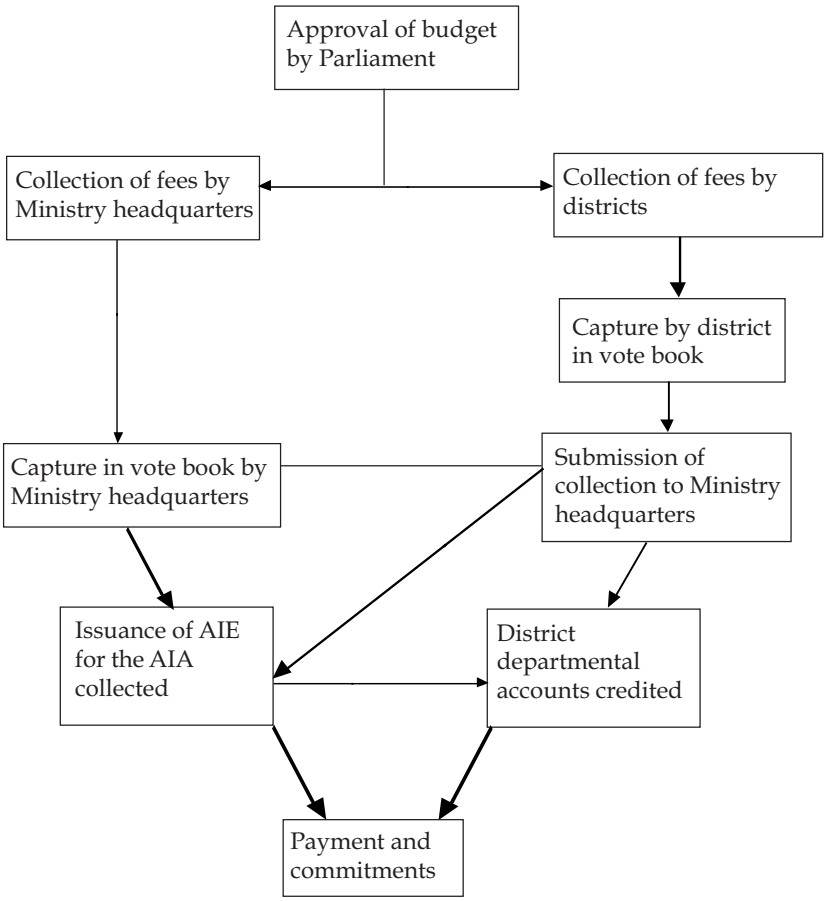


Figure 2 describes the flow of funds that go through the Exchequer, in which the first step is the issuance of AIEs by the ministry. The AIEs for district projects or activities have to be sent to the Paymaster General (PMG) at Treasury for capture on a weekly basis, as does district reimbursements. Once AIEs are issued, a vote book is opened and the ministry account at Central Bank is activated. Once the AIEs are received at Treasury they are entered in the computer and passed on to the district. At the district level, vote books for different departments are opened and their bank accounts at the district are activated. Thereafter, commitments are entered in the vote books and payments made.

The flow chart for appropriations-in-aid is slightly different and is provided in Figure 3.

5. Methodology

In this section, the data used and the techniques used in the analysis are described starting with the data collection process followed by the analytical techniques.

5.1 Data collection

Sample design

The nature of this study required that information from ministry headquarters to the districts, divisions and then the facilities or farmers be traced. Only public facilities (schools, health centres and dispensaries) were covered in the survey. Therefore, a multi-stage sampling procedure was used in selecting the facilities and farmers to be interviewed. Purposeful sampling was also used for North Eastern Province based on accessibility since the survey was carried during the rainy season. At the district level, information was obtained from the Medical Officer of Health (MOH) in the case of health sector, District Education Officer in the case of the education sector and the District Agriculture and Livestock Extension Officer (DALEO) in the case of the agricultural sector.

Table 1 shows districts selected in each province. As shown in the table, only one district is covered for North Eastern Province. This was due to the fact that the second district selected in the sample (i.e. Wajir) was inaccessible following heavy rains and floods at the time of the field survey.

In each district, the sample for health facilities, schools and farmers was randomly selected from several divisions. A list of schools (primary and secondary) and health facilities (dispensaries and health centres) in each division in the district was obtained from Ministries of Education and Health, respectively. In each district a total of about 20 schools (16 primary and 4 secondary) and about five health facilities were selected for interview. By selecting the facilities using random sample technique,

the survey was able to capture some facilities that were close to the roads and some deep inside the remote parts of the districts. For agriculture, information was sought from farmers and Farmers Training Centres (FTCs) in each district. Nevertheless, some of the districts covered, like Vihiga did not have an FTC. FTCs were targeted for information because the government finances most of their training programmes.

Table 1: Provinces and districts covered in the survey

Provinces	**Districts**
Nairobi	Nairobi
Coast	Mombasa, Kwale
Rift Valley	Nakuru, Uasin Gishu
Western	Vihiga, Busia
Nyanza	Kisumu, Siaya
Eastern	Makueni, Machakos
Central	Nyeri, Murang'a
North Eastern	Garissa

Based on the above criteria, about 199 farmers were interviewed. Information from 7 FTCs, 279 schools (primary and secondary) and 54 health facilities was also obtained. Table 2 shows the number of facilities covered by sector and district. Of the 279 schools, 57 were secondary schools and 222 were primary schools.

Table 3 further disaggregates the health facilities by type and across the 8 provinces. As shown in the table, of the total health facilities, 20 were dispensaries, 28 health centres and 4 sub-district hospitals. The analysis in this study excludes the sub-district, district and national hospitals.

The various instruments used in the collection of the dataset were designed to collect information that was useful in analysing aspects of public expenditure tracking (data collected at different levels of administration and at the facility level) and aspects of quantitative service delivery (data collected at facility level). Data was collected on among

Table 2: Distribution of facilities and farmers interviewed by sector and province

Province	Health facilities	Schools		Farmers	FTC
	All	Primary	Secondary	All	All
Nairobi	5	29	8	0	1
Central	9	32	7	26	0
Coast	9	33	6	38	1
Eastern	8	31	9	33	1
North Eastern	3	22	3	9	1
Rifty Valley	10	25	10	26	0
Nyanza	4	14	6	33	2
Western	6	36	8	34	1
Total	**54**	**222**	**57**	**199**	**7**

Table 3: Distribution of health facilities visited by province

Province	Dispensaries	Health centres	Sub-district hospital	District hospital	National hospital	Total
Nairobi	0	3	0	1	1	5
Coast	5	4	0	0	0	9
Eastern	4	4	0	0	0	8
North Eastern	1	1	1	0	0	3
Central	6	2	1	0	0	9
Rift Valley	1	8	1	0	0	10
Nyanza	3	1	0	0	0	4
Western	0	5	1	0	0	6
Total	**20**	**28**	**4**	**1**	**1**	**54**

other things: inputs, outputs, quality and quantity of service, financing and institutional mechanisms and accountability systems employed. The data was collected for the period 1997-2002.

The specific information collected was as follows:

- Facility – years of operation, the size, ownership, hours of operation, catchment's population, competition from other service providers, access to infrastructure, utilities and other services, and income level of population living near the facility.
- Inputs – textbooks, teacher's salaries, capital investments, labour costs, and drugs among others.
- Outputs – enrolment rates, in-patients and out-patients treated, school drop-out rates. It should be noted that unlike inputs, outputs are rarely converted into monetary values and therefore hybrid input-output measures like cost per patient, cost per pupil/student were used.
- Qualities – observed behaviour, staff composition and availability of quality inputs.
- Finance – source of finance, frequency of audits, amount and type of financing.
- Farmers - availability of extension and other agricultural support services.

Field experience and problems

During data collection, a few of the researchers had a number of experiences and findings, which are summarised as follows:

- Records of payments made for deliveries and copies of stock cards were not readily available.
- Poor record keeping in most of the institutions. Data was missing particularly for the period before 1997. Therefore, it was not possible to analyse data for a 10-year period as had been planned.
- Lack of information on prices, particularly on the items supplied

by the Ministry of Health.

- Remittance of money directly to schools' bank accounts and use of cheques rather than cash transfers seemed to be more effective as it eliminated the possibility of delays and leakage of funds at the district level. However, schools did not provide records of how allocations, for instance of funds for bursaries to students were done (criteria).
- Farmers Training Centres are either highly under-utilised or remain completely idle. Most farmers reported that they have FTCs in their locality but they never visit them for training.
- Most small-scale farmers have neither attended any farmers training nor do they know the significance of farmers training centres.
- Most rural health facilities are understaffed.
- The management of schools is almost entirely left to the head teachers with minor participation of school committees.
- High cost of inputs and marketing constraints are of major concern to farmers.
- The school-feeding programme has contributed significantly to increased enrolment in arid and semi arid areas.
- Marketing constraints including mismanagement of cooperatives have led to change in types of farming or change in type of crops grown. For example, change from dairy farming to tea or coffee and change from coffee farming to maize, bananas or potatoes.
- Most farmers appreciate the kind of services provided by extension officers. However, the officers are not enough to attend to all farmers within the locality. In some cases they have to wait for several days to receive the services, which come too late at times.

- Farmers located in the remote areas have to pay for transportation of extension workers to their farms.

5.2 Analytical techniques

The analysis in this study is based mainly on descriptive statistics. The manner in which some of the estimates are arrived at in the study is described below.

Delays and shortfalls in budget execution

Expenditure tracking relies on an explicit allocation rule that establishes the intended financial flow a priori. In most cases, budget systems do not map resources explicitly onto individual facilities. This is a limitation and, therefore, some selected budget resources along parts of the chain from allocation to service delivery were used.

Expenditure tracking involved looking at:

(a) the payment of an initial advance to a facility; and

(b) the process of rendering accounts and replenishment.

Budget execution is based on a series of steps at the Treasury, ministry, and district level and therefore data collection sought to ascertain the source of delay by looking at each level. The key aggregates for monitoring budget execution are revenue out-turns, actual overall deficit, and execution of planned expenditure estimates. Similarly, data on resource shortfalls in specific periods, and over the entire fiscal year, was used in the expenditure tracking.

Resource leakage at district and facility level

The study tried to quantify the extent of leakage at various points in the process from the arrival of funds at district level to the actual consumption of the resources at facility level. Drugs leakages were

computed by comparing what was released to a health facility by the district with what was actually received by a health facility. Data on budgetary allocations and payments was collected for a selected number of years on the basis of book entries and patient registers, among others. The study:

(i) Compares records of payments made for deliveries of goods at the district level with the records of entries of those same goods in the stock cards in the district stores;

(ii) Examines the quantity of goods received for a given budget allocation with a view to determining the prices paid for the goods;

(iii) Compares the quantities of goods sent to facilities using actual requisitions data with withdrawals from district stores to determine if goods were removed while in storage;

(iv) Compares quantities of goods taken out of stores using district stock card withdrawal data with quantities received at facilities to determine leakage of goods during transportation between district and facilities; and

(v) Determines the extent of leakage of goods at facility level.

Efficiency and quality in service delivery

Facility performance is related to the functioning of the budget execution upstream. The survey assessed the extent to which problems associated with delays and shortfalls in financial transfers from districts to the facility and leakages at ministry, district and facility level adversely affect facility performance. Detailed data on structural dimensions of quality was collected and some analysis of efficiency was undertaken.

6. Results

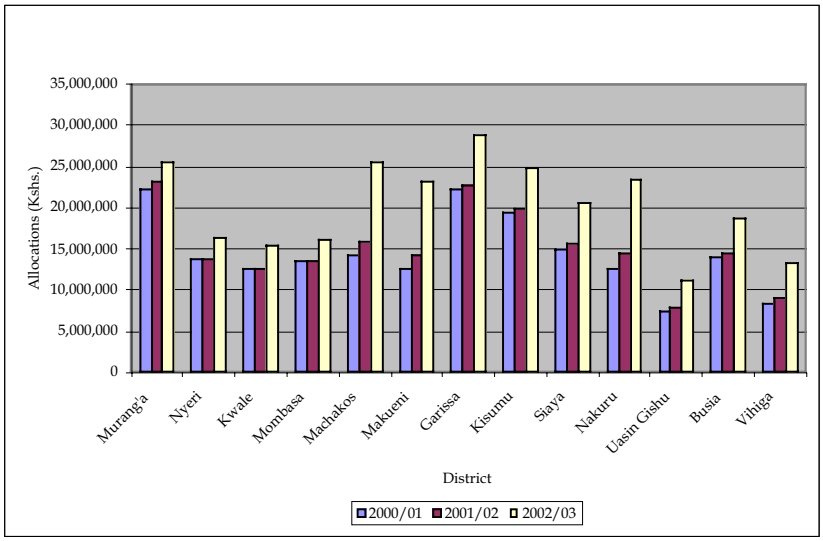
6.1 Health sector

Human health has a major role to play in economic development and the achievement of good health is critical in enhancing human development. A sound healthcare delivery system, good nutritional status, food security and the absence of epidemic diseases are some of the conditions that produce healthy people capable of participating in a country's economic, social and political development. Provision of good health satisfies one of the basic human needs and contributes significantly towards maintaining and enhancing the productive potential of the people. Improving health reduces production losses caused by worker illness, permits the use of national resources that had been totally or nearly inaccessible because of disease, increases the enrolment of children in school and increases learning ability. In Kenya, the central government, local authorities, church missions, industrial health units and private institutions and individuals are the main providers of health services.

Health services in Kenya are financed from three main sources: the government through the exchequer; both directly to the Ministry of Health and indirectly to other sectors with health-related functions, donors who fund Ministry of Health programmes; the private sector and NGOs. Government financing of health services remains the main component of the total health financing. Allocations to the rural health centres and dispensaries for rural health services have been increasing. Figure 6.1 shows the trends in rural health services budget allocation for the districts sampled in the survey for the period 2000/01 to 2002/03. All the districts show increasing trends in budget allocations for the period under review.

In 1987, the World Bank recommended that the principle of cost recovery be incorporated into an agenda for financing publicly

Figure 4: Rural health services allocations (health centres and dispensaries)



provided health services in developing countries. As a result, the number of African countries implementing some form of user fee system has grown considerably. Governments have come to see user fees as an important alternative to tax-based financing for government health services in Africa. Kenya introduced a policy of user charges for the first time in December 1989. Less than a year later, in August 1990, the system of cost-sharing was suspended on grounds that it was denying the poor access to basic healthcare. A new system of cost sharing was introduced in April 1992. The main objective of the policy was to encourage increased cost recovery from users of public health facilities as one of the ways of mobilising additional resources. The policy was also expected to generate additional revenue to augment the financing of the under-funded non-wage recurrent expenditure items, reduce excessive use of services, improve the functioning of the referral system, and improve access by the poor to health services by charging those who make most use of the curative care and those who are most able to pay and channelling the subsidies to those least able to pay (Owino, 1997).

The survey covered 54 health facilities in 14 districts spread across the eight provinces. 37 per cent of the surveyed facilities were dispensaries, 52 per cent health centres, and 7 per cent sub-district hospitals, whereas hospitals constituted less that 2 per cent of the total. Results from the survey shows that 62 per cent of the health facilities have undergone renovation since they were established. Most of the renovations recorded were minor repairs undertaken by the health facilities themselves, the government and the donors. The financing of renovation has been mainly from the revenue generated by the health facilities (38%) followed by the government and NGOs. Local authorities financed renovation of less than 3 per cent of health facilities.

Administration of health facilities

Most of the health facilities have an established health management committee (85%), which meets at least five (5) times in a year. Issues discussed by the committees include drug supplies, staff, physical facilities and user charges, among others. Most of the committee members are locally elected and with representations from district health officials, local leaders, community representatives, religious leaders and government representatives.

Some health facilities operate outside the usual operating hours with an average of 9 (nine) times in a month. However, only 25 per cent of the health facilities compensate their staff working outside the operating hours.

The main services provided through outreach services by various health facilities include outpatient care, preventive care, health education, immunisation, antenatal care and family planning. About 55 per cent of the health facilities participate in outreach health services; about 57 per cent of the dispensaries have outreach health services compared to 50 per cent of health centres (Table 4).

Table 4: Health facilities offering outreach services (percentage)

Type of health facility	Offer outreach services (%)	No outreach services (%)
Dispensaries	57	43
Health centres	50	50
All health facilities	55	45

Most of the health facilities are understaffed in respect of medical personnel. Table 5 shows personnel availability by category.

Table 5: Personnel availability by category (percentage)

Category of staff	Dispensaries (%)	Health centres (%)	All health facilities (%)
Medical officer	0.0	14.3	8.3
Clinical officer	5.0	89.3	54.2
Enrolled community nurse	30.0	35.7	33.3
Registered midwife	5.0	17.9	12.5
Enrolled nurse	80.0	67.9	72.9
Registered nurse	0.0	53.6	31.3
Nursing aide	10.0	10.7	10.4
Health assistant	20.0	14.3	16.7
Dental assistant	0.0	7.1	4.2
Laboratory assistant	15.0	53.6	37.5
Public health technician	25.0	35.7	31.3
Clerical officer	25.0	14.3	18.8
Subordinate staff	40.0	28.6	33.3
Casuals	0.0	10.7	6.3

About 5 per cent of the dispensaries have clinical officers compared to 89.3 per cent in health centres. About 30 per cent of the dispensaries have enrolled community nurses, 80 and 10 per cent have enrolled nurses and nursing aides, respectively.

About 36 per cent of health centres had enrolled community nurses while 67.9 per cent of these facilities were staffed with enrolled nurses. Over 73 per cent of the health institutions have had their staff trained during the 2001/2002 financial year; they had attended training on medicine, nursing, family planning, management and clerical issues.

In general, most of the health facilities are under-staffed, as Table 5 above shows. The few medical personnel available have to provide health services to over 21,000 patients in a given facility in one year together with offering outreach services in the neighbourhoods. For quality health delivery, there is need to address this under-staffing problem.

Medical supplies

Almost all the health institutions receive medical supplies from the government. These medical supplies include drugs, vaccines, contraceptives and supplementary medical consumables such as cotton wool, bandages, syringes and gloves.

Table 6: Medical supplies and supplementary medical consumables received by health facilities (annual average)

Essential drugs	Dispensaries	Health centres	All
Drugs kits	4.7	7.8	6.3
BCG vaccines vials	1448.8	741.6	991.1
Polio vaccines vials	114.8	238.3	174.9
Measles vaccines vials	84.6	197.1	153.8
Tetanus Toxoid vaccine vials	69.0	354.8	228.8
DPT vaccine Vials	242.6	1041.5	750.2
Bandages in boxes	3.5	5.3	4.6
Cotton wool in boxes	37.0	32.0	34.5
Syringes in boxes	67.6	571.9	749.9
Contraceptives in boxes	272.6	371.9	311.8

However, the medical supplies from the government are not adequate. About 85 per cent of the health facilities have a shortage of medical supplies with 97.8 and 75.0 per cent of dispensaries and health centres, respectively, experiencing inadequate medical supplies. About 83 per cent of all the health facilities buy their own drugs, as supplies from the government are not adequate. In dispensaries, 89.5 per cent buy their own drugs while in health centres, 73.9 per cent buy their own drugs. Without adequate medical supplies, provision of quality healthcare is not guaranteed. As most of the health facilities do not receive funds from the government, they use the available cost-sharing resources to purchase medical supplies. Table 7 shows that a large proportion of cost-sharing revenue is used for purchase of drugs, therefore leaving little resources for other essential non-wage expenditures.

Table 7: Medical supplies availability 2001/2002 (percentage)

Availability	Dispensaries	Health centres	All
If medical facility ever run out of free medical supplies	97.8	75.0	85.7
Buying own drugs	89.5	73.9	83.3

Drugs supplies last for at least 5 weeks before any stock is exhausted. However, in dispensaries, drug stocks lasts for about 7 weeks compared to 5 weeks for health centres. When stocks of drugs are exhausted, both dispensaries and health centres have to wait for at least 6 weeks before being replenished.

Vaccines and contraceptives supplies are more regular than drugs and supplementary medical supplies. Vaccines stock out duration is about 1.08 weeks compared to 6.29 and 6.38 weeks for supplementary medical supplies and drugs, respectively. Delays in delivery of medical supplies may be partly explained by top-down approach in supplies acquisition. From the field survey, medical personnel in the dispensaries and health centres do not actually participate in medical supplies acquisition; the

supplies requirements are planned at another level. Non-involvement of the ground personnel in medical supplies sometimes leads to the supply of poor quality drugs and also over-supply of drugs for diseases that are of low prevalence.

Table 8: Delays in medical supplies by health facility, 2001/2002(in weeks)

Delay	Dispensaries	Health centres	All
Typical time until stock out – drugs	6.8	5.2	5.6
Typical period of stock out duration – drugs	6.2	6.7	6.4
Typical time until stock out -vaccines	3.6	12.3	8.1
Typical period of stock out duration – vaccines	0.9	1.4	1.1
Typical time until stock out – supplementary medical supplies	7.8	5.1	5.6
Typical period of stock out duration – supplementary medical supplies	11.8	3.3	6.3
Typical time until stock out – contraceptives	7.1	13.8	9.2
Typical period of stock out duration - contraceptives	2.4	5.8	3.5

Due to inadequate medical supplies, dispensaries on average spent Kshs 86,259 during the 2001/2002 financial year to purchase drugs whereas health centres used Kshs 184,181 on the same, which is more than double. On average, health institutions used Kshs 150,249 on drugs purchases. There were no contraceptives purchased by any health institutions during the same year.

Table 9: Health institutions own yearly expenditure on medical supplies (Kshs)

Medical supplies	Dispensaries	Health centres	All
Drugs	86,259	184,181	150,249
Supplementary medical supplies	34,747	54,871	51,951

The inadequacy of medical supplies in health facilities may partly be explained by supplies' leakages between districts and health facilities. Drugs leakages were estimated at 30.3 per cent in 2001/2002 in all health facilities, meaning that only 69.7 per cent of the drugs released from the district headquarters reach a health facility. Drugs leakage are worse in dispensaries where only 59.1 per cent of drugs supplies are received compared to 88 per cent in health centres.

Health facilities with regular annual revenues and expenditures audit have less drugs leakage compared to facilities with irregular audit or no audit at all. The survey shows that facilities with regular annual audit have a drug leakage of 25 per cent compared to 34.2 per cent for non-audited facilities.

Table 10: Drugs leakages by health facility 2001/2002 (percentage)

Drugs leakages	Dispensaries	Health centres	All
Percentage leakage	40.9	12.0	30.3
Leakage – audited facilities			25.0
Leakage – non-audited facilities			34.2

Non- medical supplies

Non-medical supplies include fuel/transport, kerosene, electricity, water, uniforms and detergents, among others. On average, 31 per cent of all health institutions receive free non-medical supplies from the government; 35 and 32 per cent of the dispensaries and health centres reported receiving free supplies, respectively. However, the free non-medical supplies are not adequate and 58 per cent of the health institutions experience stock out problem. Seventy five (75) per cent of all health institutions purchase non-medical supplies; this comprises 81 and 64 per cent of health centres and dispensaries, respectively.

Most of the health institutions visited refer patients to other institutions, which include district or provincial hospitals and mission and private

hospitals. In general, over 300 patients per year in a health institution are referred to other institutions. Dispensaries on average refer 94 patients in a year whereas health centres refer 531 patients.

Table 11: Non-medical supplies 2001/2002 (percentage)

Non-medical supplies	Dispensaries	Health centres	All
Non-medical supplies from the government	35	32	31
Non-medical supplies stock out	33	80	58
Purchase of non-medical supplies	64	81	75

Major diseases

The most common reported cases of diseases are malaria followed by respiratory tract diseases then upper respiratory tract infection (URTI). Malaria cases per health institution increased from 4,030 in 1997/98 to 4,464 in 2000/01 and then declined to 3,298 cases in 2001/02.

The year 2000/01 appears to have a declining trend for most of the diseases. Although there was inadequate HIV/AIDS data in the survey, sexually transmitted diseases (STDs) and tuberculosis (TB) cases had an upward trend between 1997 and 2002. STD cases increased from 532 per health institution in 1997/98 to 1,325 cases in 2001/02. The inadequacy of HIV/AIDS data may partly be explained by lack of HIV/AIDS testing equipment in the sampled health facilities.

Outpatients were more than inpatients in all the health facilities as most of the dispensaries and health centres have no beds and cottages for inpatients. On average, outpatients per health facility increased from 9,605 in 1997/98 to over 11,790 in 2000/01, an increase of 23 per cent whereas inpatients increased from 101 to 665 over the same period.

Table 12: Cases of major diseases

Disease	Disease cases				
	1997/98	1998/99	1999/00	2000/01	2001/02
Malaria	4,030	4,658	4,669	4,464	3,298
URTI	2,428	2,975	3,055	3,130	2,773
Accidents	671	562	597	755	487
Skin diseases	963	1,090	1,006	1,021	752
Diarrhoea	945	585	911	1,046	904
UTI	18	293	241	302	694
Respiratory Tract Infection	3,857	3,024	3,210	3,521	2,546
Worms	260	431	591	706	520
Intestinal worms	425	662	2121	1,053	717
Eye infection	327	237	415	292	300
STD/STI	532	729	877	1,945	1,325
TB	235	494	299	443	1,096

Table 13: Patients attendance by type (average)

Type of patients	Number of patients				
	1997/98	1998/99	1999/00	2000/01	2001/02
Outpatients	9,605	10,258	9,753	15,684	11,790
Inpatients	101	274	480	764	665
Total	9,706	10,532	10,233	16,448	12,455

Health financing

Results from the survey show that dispensaries and health centres have few other sources of funds apart from user charges revenue. Less than 10 per cent of the health facilities received funds from NGOs during the 2001/2002 financial year. About 80 per cent of the health institutions entirely rely on user charges as the only source of funds. This shows under-funding given the low levels of revenue generation through cost sharing. However, over 97 per cent of the health facilities charge user

fee. On average, 77.7 per cent of the revenue generated through user charges is retained at the health facilities. Dispensaries retain a higher proportion of the revenue of 80 per cent compared to 74 per cent retained by health centres.

Table 14: Average annual cost sharing revenue by type of facility (Kshs)

Type of health facility	1997/98	1998/99	1999/00	2000/01	2001/02
Dispensaries	0	0	231,875	215,299	203,064
Health centres	213,972	269,261	233,447	491,259	523,585
All	213,972	345,116	232,818	353,279	349,969

Dispensaries generate on average Kshs 16, 871 per month compared to Kshs 37,033 for health centres. Overall, health facilities generate about Kshs 27, 727 per month from the cost sharing programme.

Table 15: Cost sharing expenditure by item, 2001/2002 (percentage)

Expenditure item	Proportion of the total
Allowances	19.9
Wages	17.1
Drugs and other medical expenses	38.4
Fuel	5.0
Transport	11.3

A large proportion of user charges revenue is used to purchase drugs and other medical supplies. On average, 38.4 per cent of the user fee collected in 2001/2002 was used to purchase drugs and other medical supplies whereas only 11.3 per cent was used for transport. On exemptions, only 17.8 per cent of the patients are exempted from paying user charges. Those exempted are the elderly, patients with chronic diseases, the very poor and the under-five years old children.

Although the cost-sharing programme has played a big role in supplementing health financing from the central government, the survey has shown that there are leakages in the cost sharing resources at the

facility level. On average, there is a 22.2 per cent leakage of the user charges revenue generated by health facilities. In health centres the leakage is estimated at 21.0 per cent while in dispensaries it is 22.5 per cent. Health facilities with regular annual audit have user-charge leakages of 19.7 per cent compared with 28.5 per cent for non-audited health facilities.

Table 16: User charge leakages, 2001/2002 (percentage)

User charge leakages	Dispensaries	Health centres	All
Leakage of user fee	22.54	21.00	22.23
Leakage – audited facilities			19.68
Leakage – non-audited facilities			28.52

Table 17: Health facility expenditure by type (percentage)

All facilities	1997/98			1998/99			1999/00			2000/01		
	Dis	HC	All	Dis	HC	All	Dis	HC	All	Dis	HC	All
Construction	0.0	0.00	0.0	9.5	0.0	6.3	8.2	0.0	4.9	7.7	0.0	3.9
Allowances	8.9	13.84	9.0	9.2	6.0	6.5	18.0	5.7	10.4	6.9	1.0	3.1
Wages for staff recruited locally	14.2	35.12	19.6	16.3	27.1	23.5	10.6	28.7	24.5	10.5	22.3	21.2
Drugs & other medical expenses	46.4	51.04	42.3	34.3	41.2	29.7	37.5	30.7	25.8	24.5	53.0	39.3
Fuel & non-medical expenses	6.2	0.00	3.3	6.8	0.0	2.2	6.8	5.4	4.8	3.0	14.0	13.5
Transport	13.1	0.00	13.9	16.2	8.4	9.7	16.2	9.4	9.2	7.1	6.0	6.1
Others	11.2	0.00	11.9	7.6	17.3	22.0	2.7	20.0	20.5	40.3	3.7	13.1

Table 17 above shows that expenditure on drugs and other medical supplies and wages for locally recruited staff took the biggest share during the period 1997/98 to 2000/01.

Funds leakage within health facilities has declined from 40.8 per cent in 2000/01 financial year to 29.2 per cent in 2001/02. Funds leakage is more pronounced in dispensaries than in health centres. During the 2000/2001 financial year, only 51.3 per cent of the total funds received by dispensaries were utilised for the intended health activities and this increased to 69.1 per cent during the 2001/02 financial year. Health centres had a funds leakage of 34.5 per cent in 2000/2001 financial year, which declined to 27.0 per cent in 2001/2002.

Table 18: Total funds leakage (percentage)

Total funds leakage	Dispensaries	Health centres	All
2000/2001	48.7	34.5	40.8
2001/2002	30.9	27.0	29.2

Constraints to health service delivery

Health facilities are faced with numerous problems, which are hindering effective and efficient service delivery. These problems range from medical personnel shortages, irregular drugs supplies, lack of transport, inadequate medical equipment to water shortages.

Support supervision

Health facilities receive support supervision from the district and provincial health offices. However, facilities supervision is not adequate as the visits are irregular especially from the district headquarters. Inadequate supervision may contribute to resource leakages as shown in the study. The study also shows that 64 per cent of the health facilities have their staff performance formally assessed with 54 per cent of the staff being assessed annually.

Only 32.6 per cent of the health facilities present their problems to the districts and other levels of reporting. Other facilities report quarterly, annually or when need arises. Worse still, only 40.4 per cent of the

facilities have regular annual audit while 34.0 per cent of the facilities have no audit at all. All these problems of inadequate supervision, assessment and audit may be linked to resource leakages especially in drugs and cost sharing revenue.

6.2 Education sector

The management and responsibility of education provision in Kenya is shared between the government and other development partners including parents, the community, religious organisations, non-governmental organisations (NGOs) and private donors (Njeru and Orodho, 2003).

This survey covered selected public schools in Kenya; a total of 279 schools were covered countrywide. Of this, 222 were primary schools and 57 were secondary schools. On average, each district in the sample had 15 primary schools and 4 secondary schools covered. The number of secondary schools was smaller because the focus was mainly on primary schools. It was also realised that the government disburses bursaries to secondary schools and therefore information on the same could compliment that for primary schools.

The key variables from the survey include: school drop-out rates; the pupil-teacher ratio; bursary per pupil; teachers' movements in terms of dismissals, transfers and resignations; delays in staff salaries; and the types of utilities available in schools. The survey also looked at the funds received by schools and the sources of such funds. In addition, the survey investigated the type of activities carried out in schools and the financiers of such activities (i.e. whether government, parents or other sponsors).

Educational efficiency

Various indicators such as repetition rates, completion rates and drop-out rates are used to measure efficiency in education provision.

One of the most important indicators observed in the study is the school drop-out rate. It is a measure of internal efficiency of the education system. High drop-out rates may well be as a result of the interaction of many variables: some depend on students themselves, some relate to factors in their home and community environment and others are school based (e.g. inappropriate teaching methods, inadequate resources or poor curriculum).

Drop-out rate in respect of this study is calculated as total number of drop-outs as reported by the schools divided by the total number of students/pupil enrolled in that particular year multiplied by 100. Results from the survey reveal that the school drop-out rates have been declining marginally for both primary and secondary schools (Table 19 & 20). In the year 2002, primary schools recorded a slightly significant reduction of 0.18 percentage points as compared to the previous years. Conversely,

Table 19: Primary school drop-out rates by district, 1999-2002 (percentage)

District	1999	2000	2001	2002
Kwale	1.5	0.4	1.1	1.7
Makueni	0.2	0.1	0.4	0.6
Nairobi	1.7	2.4	3.1	2.2
Nyeri	1.4	1.7	2.0	2.1
Uasin Gishu	0.5	0.4	1.1	0.9
Murang'a	2.6	4.8	7.6	2.2
Machakos	0.4	0.4	0.1	0.6
Mombasa	0.9	1.5	1.2	1.4
Siaya	1.2	1.4	1.0	1.1
Busia	4.2	3.7	4.0	3.1
Kisumu	1.2	1.2	0.9	1.2
Vihiga	1.5	1.8	1.8	3.3
Nakuru	0.0	0.3	0.3	0.3
Garissa	4.4	5.3	3.5	4.6
All	**1.83**	**1.75**	**1.73**	**1.55**

secondary schools reported an increase in drop-out rate of 1.7 percentage points during the same year. Among all the districts in the sample, Busia, Murang'a and Garissa had the highest drop-out rates in the case of primary schools and Murang'a, Busia, Vihiga, Siaya and Nakuru reported the highest drop-out rates in the case of secondary schools. Lower drop-out rates were recorded in all the other districts. The lowest drop-out rates were recorded in primary schools in Nakuru District. In secondary schools, low drop-out rates were recorded in Uasin Gishu, Kwale, Kisumu and Garissa districts. This could be attributed to the school feeding programme in the district.

Table 20: Secondary school drop-out rates by district, 1999-2002 (percentage)

District	1999	2000	2001	2002
Kwale	0.0	0.0	0.0	0.8
Makueni	0.1	2.2	1.5	1.3
Nairobi	0.0	0.2	0.1	0.2
Nyeri	0.8	1.8	1.1	0.3
Uasin Gishu	0.0	0.0	0.0	0.0
Murang'a	5.7	3.7	2.6	2.2
Machakos	0.8	0.9	0.9	6.5
Mombasa	0.4	1.4	3.4	2.8
Siaya	4.0	3.0	1.7	7.7
Busia	13.3	9.7	8.4	15.4
Kisumu	1.2	0.8	0.9	0.9
Vihiga	5.9	8.8	6.7	10.7
Nakuru	6.6	3.9	0.5	1.9
Garissa	1.0	0.7	0.6	0.9
All	**2.8**	**2.6**	**2.0**	**3.7**

The low drop-out rate in Makueni District could also be attributed to the fairly high amounts of funds received by schools per pupil and lower pupil-teacher ratio in primary schools (Table 21). This ratio is a measure

of quality of learning and may give a pupil a better chance of contact with the teacher, therefore better learning process that is conducive to the pupil.

Table 21: Pupil and student-teacher ratio by district

District	Pupil-teacher ratio (primary)	Student-teacher ratio (secondary)
Kwale	35	17
Makueni	26	14
Nairobi	27	18
Nyeri	20	13
Uasin Gishu	32	8
Murang'a	23	14
Machakos	33	18
Mombasa	41	14
Siaya	45	15
Busia	37	13
Kisumu	33	8
Vihiga	34	14
Nakuru	26	18
Garissa	25	51

According to the survey results, most of the districts are far much below the recommended pupil-teacher ratio of 40 in the case of primary schools, and student-teacher ratio of 30 for secondary schools. Secondary schools are worst hit as a result of inability to pay fees by a majority of students, therefore low transition rates from primary to secondary (Kimalu *et al*, 2001) coupled with drop-outs in the system. When pupil-teacher ratios become very low, they tend to increase the unit cost of education, since teachers' salaries constitute a large proportion of the total cost of schooling (Deolalikar, 1999). These have cost implications to the government and it signifies wastage.

Teachers' movements and salary delays in 2001/2002

The movement of teachers has an impact on the degree of efficiency in service delivery in schools. According to data from the survey, the average number of new teachers recruited, dismissed, who quit on their own, and those transferred per school per year were quite low in both primary and secondary schools (Tables 22 & 23). However, dismissal and quitting of teachers is quite negligible in both primary and secondary schools. Of all these indicators, the average number of staff transferred per school was highest in both primary and secondary schools. An average of two teachers were transferred in each district and about one teacher was recruited. Also, on average three teachers were transferred and about two recruited at the district level in both primary and secondary schools respectively, within a year. Apparently, this particular issue does not feature in the list of major problems facing the schools, an indication that the movement could be normal school transfers.

The low levels of recruitment are attributed to the government policy (effected in 1997) that put a halt on recruitment of teachers. However, the government has since then recruited a few science teachers, as well as some non-science teachers to replace those leaving the profession by natural attrition.

As regards salary payments to teachers, an average delay of one week and two weeks after the end of the month was observed in primary and secondary schools, respectively. The survey indicates that on average, teachers received their salaries one week after the end of the month. The districts farthest from Nairobi are most affected; the delay amounts to two weeks on average. These districts include Siaya, Busia, Garissa and Vihiga.

Table 24 shows an analysis of teachers employed as reported by the schools and as indicated in the records of the Ministry of Education. The

Table 22: Teacher movement and delays in salaries of teachers in primary schools, 2001/2002

District	Number of teachers recruited	Number of teachers dismissed	Number of teachers that quit	Number of teachers transferred	Delays in staff salaries paid by TSC (in weeks)
Kwale	1	0	0	2	1
Makueni	1	0	0	0	1
Nairobi	0	0	1	3	1
Nyeri	2	0	1	2	1
Uasin Gishu	1	0	1	2	1
Murang'a	1	0	0	1	1
Machakos	1	0	0	2	1
Mombasa	1	0	0	1	2
Siaya	1	1	0	1	2
Busia	1	0	0	2	1
Kisumu	1	0	0	2	1
Vihiga	1	0	0	2	1
Nakuru	2	0	1	2	1
Garissa	1	0	0	3	2
All	**1**	**0**	**0**	**2**	**1**

Table 23: Teacher movement and delays in salaries of teachers in secondary schools, 2001/2002

District	Number of teachers recruited	Number of teachers dismissed	Number of teachers that quit	Number of teachers transferred	Delays in staff salaries paid by TSC (in weeks)
Kwale	1	0	0	1	1
Makueni	1	0	0	2	1
Nairobi	4	0	1	4	1
Nyeri	0	0	1	2	1
Uasin Gishu	3	0	0	1	1
Murang'a	1	1	1	1	1
Machakos	1	0	0	2	1
Mombasa	9	0	2	14	1
Siaya	1	0	0	2	1
Busia	0	0	0	4	2
Kisumu	5	0	0	2	1
Vihiga	2	0	1	4	2
Nakuru	4	0	1	2	2
Garissa	3	0	0	4	2
All	**2**	**0**	**1**	**3**	**1**

analysis is limited to P1 and P2 for which data was available from the Ministry. The results indicate levels of discrepancies on the number of P1 and P2 teachers that exist in some of the schools visited. The worst hit districts were Siaya, Mombasa, Machakos, Nyeri and Nairobi. This is an estimate of amount of leakage of public funds in terms of salaries paid out. For instance, out of the total ghost workers found, 20 per cent are from Siaya District followed by Mombasa (18%), Nyeri (14%) and Nairobi (12%), with the remaining districts accounting for between 5 per cent and 1 per cent. Makueni District has the least amount of leakage of public funds through salaries paid out.

Table 24: Analysis of ghost workers in category of P1 and P2 teachers by district, 2001/2002

District	Numbers	Percentage
Kwale	4	3
Makueni	1	1
Nairobi	14	12
Nyeri	17	14
Uasin Gishu	4	3
Murang'a	4	3
Machakos	13	11
Mombasa	22	18
Busia	3	3
Siaya	24	20
Kisumu	6	5
Vihiga	5	4
Garissa	3	3
Total	**120**	**100**

Financing of schools

The survey identified various sources of finance for schools. The results show that parents, either directly or through Parents Teachers Associations, have borne the greatest burden in providing education in both primary and secondary schools. The survey evaluated financiers

of bursary, new school buildings, renovations in schools, and other school activities. The survey also looked at the financiers/suppliers of textbooks and other teaching materials. In all these cases, except for the bursary scheme, the survey reveals that the parents bear more than 60 per cent of the burden of financing in both primary and secondary schools. Generally, the Government bears less than 10 per cent of the burden. It is important to note, however, that this situation may have changed in primary schools from the year 2003 when the Government introduced free primary education. Otherwise the *status quo* remains in secondary schools.

Bursary scheme in secondary schools

The Ministry of Education, Science and Technology operates a bursary scheme for secondary schools as part of, and within, the auspices of the Social Dimension of Development Programme targeting the poor and vulnerable students. The main objective of the scheme is to enhance access to, and ensure high quality, secondary education for all Kenyans, particularly the poor and vulnerable groups as well as the girl child. The idea behind the scheme was to overcome the various barriers that prevent many qualified students from benefitting from secondary school education. While opportunities may exist, not all can take advantage of them equally. Poor families may require their children to either help at home or work outside the home in order to bring in needed income.

Bursary allocation

The government channels bursaries to schools through the Ministry; the schools are expected to allocate funds to needy and bright students. All the 18 national secondary schools receive 5 per cent of the total bursary funds in any given financial year (Njeru and Orodho, 2003). The remaining schools get their share of bursary funds based on factors such as student enrolment, and regardless of the boarding status and type of school (i.e. whether boys, girls or mixed schools).

Having received their finances from the Treasury, the Ministry headquarters dispatches bursary funds to schools' bank accounts. A single cheque is paid to all schools within the district, holding their accounts in one bank. The details of the school's bank accounts, name of school and the amounts allocated are usually indicated in a cover letter written to the respective bank managers and copied to the DEOs. On receipt of the letter of notification from the headquarters, the DEOs write circulars informing head teachers about the funds. Thereafter each school is expected to file the returns of allocations with the DEO. The returns include the letters of application from the students and the number of beneficiaries in each batch of allocation. However, the survey revealed that very few schools file their returns with the DEO and that there is no enforcement to ensure compliance. This creates room for misallocation of funds.

The survey results reveal that all secondary schools, except those based in Garissa, reported that they had received bursaries from the government for a considerable number of years. In 2002, average bursary per student in the districts ranged between Kshs 274 and Kshs 1,031. These figures (see Table 25) were calculated using the amount of bursary received and the number of students enrolled as reported in the survey. Information on the actual number of beneficiaries in each school and the amount allocated to each student was not readily available in most of the schools. According to the table below, Nyeri District had the lowest bursary per student, while Busia District had the highest during the year 2001/2002.

The Ministry of Education, Science and Technology disburses the bursary in two instalments. Although the money is meant for the needy and bright children, the verdict remains with the school heads/committees/boards; only a few students, who may not be needy in most cases, end up benefitting. (The schools are left to determine whom to award the bursary). Therefore, the questions that remain are: Is the bursary given to the deserving students? Are the criteria used in allocating bursary, both at the Ministry and at the school levels, efficient and equitable?

Table 25: Bursary per student by district, 2001/2002

District	Bursary per student (Kshs)
Kwale	668
Makueni	867
Nairobi	385
Nyeri	274
Uasin Gishu	409
Murang'a	439
Machakos	568
Siaya	844
Busia	1031
Kisumu	574
Vihiga	821
Nakuru	336

Source: Own computation, using data from the field

Other sources of funding

As Table 26 shows, other sources of funding for school activities include fund raising from the public, Parents Teachers Associations, donors and non-governmental organisations (NGOs). It is clear from the survey that fund raising is mainly used for physical infrastructure (development and rehabilitation). In primary schools, 18 per cent of funding for construction of new buildings and 13 per cent of funding for renovation of the existing facilities is obtained through fund raising.

Other activities financed by the government comprise supply of textbooks, teachers' salaries, salaries for some support staff, and School Feeding Programme. For most of these activities the Ministry of Education, Science and Technology transfers funds directly to school bank accounts and therefore there may be no leakage in the process. In a few cases, the government finances in kind, for instance, the School Feeding Programme. Here, the possibilities of leakage cannot be ruled out, especially once the school has received the items. According to the

survey, 51 per cent of funds are transferred to schools directly through bank transfers, 36 per cent is given in form of cheques payable to schools, while the rest of the funding, about 12.6 per cent, is given in kind. However, it is possible that the leakage could be at the point of allocation.

Parents, on the other hand, finance activities such as sports, operations and maintenance, salaries for support staff, purchase of textbooks, payment for utilities, laboratory facilities, renovation of existing buildings and construction of new buildings. About 30 per cent of parents' contributions go to sports activities, 34 per cent goes to operations and maintenance, and more than 31 per cent is used in purchase of textbooks.

The study analysed the financial contributions to/collections by schools. These show that there has been an increasing trend in the funds received per student between 1997/98 and 2001/02. This analysis excludes government contribution to primary education through teachers' wages, which constitute the largest proportion of the total primary education expenditure. In 1997/98 financial year, the average collection per student was Kshs 1,179[1] and this increased consistently to Kshs 3,501 in 2001/02.

The average funds collected per pupil in primary schools are much lower than the overall average. For instance, in 2001/02 the average collection per pupil in primary schools was Kshs 1,285 compared to Kshs 3,501 for both primary and secondary schools. In that year, the average collection per student for secondary schools was Kshs 15,043. The lowest collection for primary schools was recorded in Machakos District followed by Garissa District. A surprising result was from Makueni District, which recorded fairly high amounts of funds received by schools in 2001/02. This may be as a result of many donor funded education programmes in the District.

1. The average collection in 1997/98 may be slightly lower than the actual amount since a few schools included in the sample did not provide the amount of fees and donations collected.

Table 26: Sources of funding for school activities (percentage)

Primary schools					
Source of Finance	**New building**	**Renovations materials**	**Textbooks**	**Teaching**	**Other activities**
Parents	62.7	77.1	59.9	73.4	69.6
Government	3.5	2.2	24.8	7.2	1.3
Part govt. and part parents	0.0	0.0	0.0	0.0	19.6
Fund raising	17.9	13.4	3.8	0.0	0.0
PTA	0.0	0.0	6.0	13.8	0.0
NGOs	9.0	5.0	0.6	0.8	2.5
Donors	2.0	0.0	3.1	0.0	6.2
School projects	4.0	1.7	0.0	3.0	0.0
Others	1.0	0.6	1.8	1.8	0.8

Secondary schools					
Source of Finance	**New building**	**Renovations materials**	**Textbooks**	**Teaching**	**Other activities**
Parents	69.8	85.1	77.8	71.9	70.5
Government	3.2	0.0	9.7	0.0	1.6
Part govt. and part parents	0.0	0.0	0.0	0.0	19.7
Fund raising	19.0	2.1	0.0	0.0	0.0
PTA	0.0	0.0	8.3	7.8	0.0
NGOs	3.2	2.1	1.4	3.1	1.6
Donors	1.6	0.0	0.0	0.0	4.9
School projects	1.6	8.5	0.0	17.2	0.0
Others	1.6	2.2	2.8	0.0	1.7

The survey identified the main organisations and institutions that provide financial support to schools in Kenya as the Parents Teachers Associations, local authorities and District Education Boards. Other financiers include: Christian Children's Fund (CCF), UNICEF, Kenya Charity Sweepstake, DFID, The Aga Khan Foundation, Japanese Government and Feed the Children Fund, among others. The Parents Teachers Associations are identified as having provided more than 94 per cent of funding to schools (Appendix 11).

Main problems facing the schools

Majority of schools interviewed perceived inadequate buildings, shortage of stationery and furniture, shortage of boarding facilities, and inadequate teaching staff as some of the most pressing issues (Table 27). Other problems affecting the schools include lack of funds, lack of water and sanitation facilities, insecurity, lack of land for school expansion, negative attitude of students and parents, and inability of parents to pay fees.

Table 27: Problems facing schools

Nature of problem	Percentage
Inadequate buildings (classrooms & admin)	11.5
Inadequate water and sanitation facilities	7.7
Shortage of stationery & furniture	16.9
Inadequate teaching staff	14.8
Lack of funds	9.9
Inability of parents to pay school fees	3.8
Lack of enough land for school expansion	2.7
Negative attitude of students & parents	2.2
Insecurity	2.9
Uncooperative parents	1.9
Lack of physical facilities	7.0
Poverty/orphans problem	4.0
Others	14.7

6.1 Agriculture sector

Kenya relies heavily on agriculture for economic growth, export earnings and generation of employment. The agriculture sector employs 70 per cent of the Kenyan labour force, generates 60 per cent of the foreign exchange, provides 75 per cent of raw materials for industry, and provides about 45 per cent of total government revenue (Odhiambo and Nyangito, 2003).

Declining trend in the factors of production (labour and land) constitute a major challenge. There are several factors considered to be important

in determining agricultural productivity. These include technical change, relative factor product prices, input use, education, agricultural research and extension, market access and availability of credit. The survey coverd the following factors: types of crops grown and livestock reared; the forms of land ownership; availability of field extension services; availability and accessibility of other agricultural support services; farmers' perceptions; institutions and training programmes; and the constraints faced by farmers (including credit availability and market access).

Farm size

Farm size is one of the factors that have been hypothesised as a determinant of agricultural productivity. This survey covered both smallholder farms and large farms ranging from 0.7 acres to 60 acres (Table 28). On average, Vihiga and Murang'a Districts have the smallest farms followed by Siaya, Busia and Kisumu, while Garissa and Nyeri districts have larger farm sizes.

One of the problems affecting service delivery related to technology is the low adoption rate. Several studies have shown that in some cases, smallholder farms lag behind in adoption, but catch up later (Odhiambo and Nyangito, 2003). In this study, low adoption rate is listed as one of the problems facing farmers.

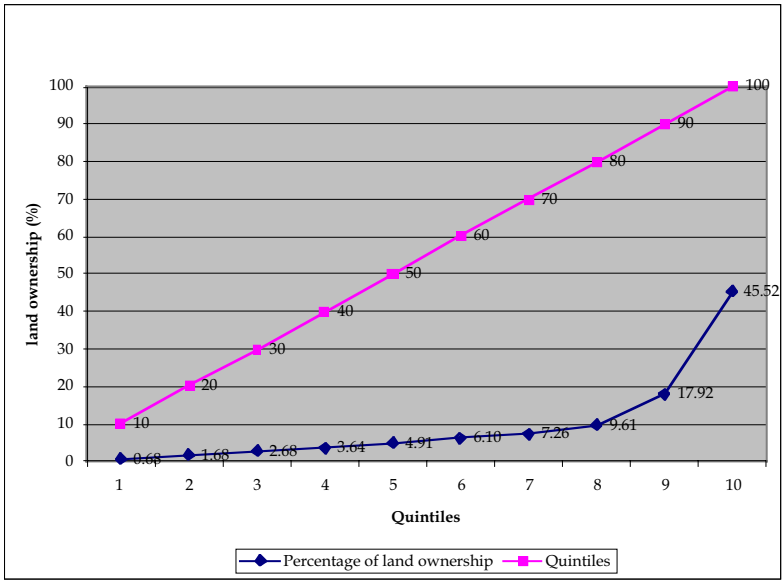
The farm sizes are also fairly small. On average a Kenyan farmer owns about 7.5 acres.[2] As indicated in chart 3, land distribution is heavily skewed with the highest quintile (top 10 % of farmers) owning 45.5 per cent of total land. Majority of farmers lie in the lower quintiles. The lowest quintile own only 0.7 per cent of the total farmlands, an indication that the majority of Kenyan farmers are small-scale. This result substantiates the result that 48 per cent of farmers are involved in purely subsistence agriculture.

2. This average is based on 95 per cent of the respondents.

Table 28: Mean farm size by district

District	Mean of farm size (acres)
Mombasa	8
Kwale	6
Makueni	11
Machakos	11
Uasin Gishu	12
Murang'a	2
Nyeri	14
Busia	4
Siaya	3
Kisumu	4
Vihiga	2
Nakuru	7
Garissa	56
All	**9**

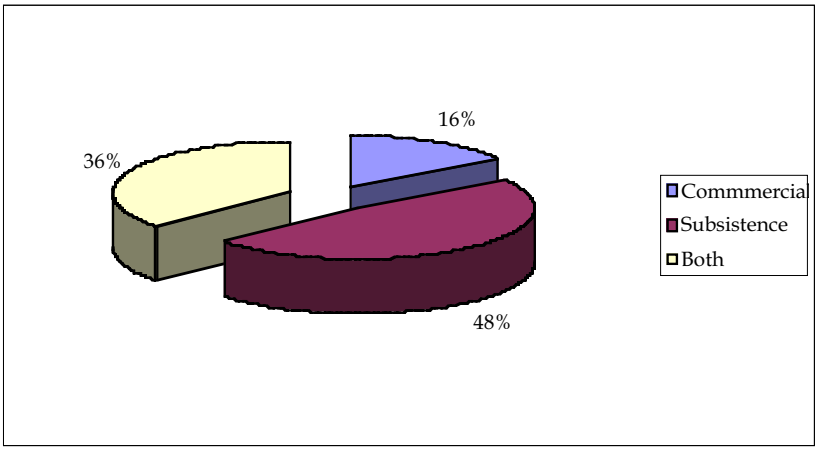
Figure 5: Land ownership by quintiles (percentage)



Farming systems

Figure 6 shows that 48 per cent of farmers practice pure subsistence farming while only 16 per cent are pure commercial farmers. The remaining 36 per cent practise a combination of both farming systems.

Figure 6: Farming systems



Forms of land ownership

There is widespread belief among development economists that tenure security has a bearing on agricultural productivity. Tenure security also reduces incidents of land disputes.

Table 29: Forms of land ownership

Form of ownership	Frequency	Percentage
Leased	20	10.2
Customary	124	63.3
Communal	21	10.7
Private land	16	8.2
Freehold	***14***	***7.1***
Crown land	1	0.5
Total	**196**	**100.0**

According to Table 29 above, about 63.3 per cent of land is held under customary form of ownership, the remaining 36.7 per cent is shared among other forms such as lease, communal, private land, freehold and crown land. This may be an indication that land adjudication has not covered fairly large parts of the country.

Agricultural extension services

Although the importance of extension services in enhancing agricultural productivity are widely acknowledged, the extension system in Kenya has virtually collapsed. The government adopted the Training and Visits (T&V) system of extension in 1982 as a supplement to the old system, which had been implemented before independence. A salient feature of this system was a regular pattern of visits to farmers by frontline extension workers. Transport and related expenses were therefore an important component of the total budget system. The T&V system absorbed most of the budget, leaving extension workers with poor remuneration and conditions of service. This was worsened by implementation of Structural Adjustment Programmers (SAPs) that saw the government reduce its role in agriculture and particularly extension.

Table 30: Agricultural extension services at farm level

Frequency of farm visits	Percentage of farmers receiving extension services	Percentage of farmers who belong to farmers groups and receive extension services
Weekly	6.6	5.5
Monthly	10.4	9.6
Yearly	8.5	9.6
When called upon	48.1	47.9
Rarely	17.9	17.8
Very frequently	4.7	4.8
Every quarter (every 4 months in a year)	3.8	4.8
Total	**100.0**	**100.0**

One method of assessing extension service delivery is to determine whether extension workers are able to visit all their areas of jurisdiction, and if so, whether they are doing so with sufficient frequency to provide meaningful service to farmers.

Information on farmers, farming practices and agricultural services indicate that 68 per cent of farmers receive extension services. However, the service varies widely in terms of frequency of visits (Table 30). For instance, 48.1 per cent of recipient farmers only receive extension services when they call upon the extension officers. 17.9 per cent seldom receive extension services, and only 4.7 per cent receive extension services on a more frequent basis. As much as farmers are able to receive extension services, extension workers sometimes fail to meet the farmers' urgent and timely demand for services. This is an indication that the services are not adequate. This problem is compounded by lack of transport for extension workers, inadequate funding, and very high staff: farmer ratio, among others.

To be able to cope with some of the problems facing both farmers and extension workers, farmers are expected to come together and form farming groups. These groups are differentiated depending on what the farmer is growing or rearing on the farm. The extension workers would then address the farmers in their groups. One farm is selected on a rotational basis for demonstrations to the rest of the farmers. This method of providing extension services is only effective where the farmer's need for extension service is not very urgent. Majority of farmers who belong to farming groups reported to have received extension services at one point or another. Of the farmers who are not members of any group, only 11.0 per cent and 14.8 per cent receive extension services when they call upon the extension workers and on rare occasions, respectively; the remaining 74.1 per cent never receive extension services at all.

Farmers training

In most cases, farmers' training was reported to have taken place on the farms owned by the farmers themselves. The training was organised by bringing together a group of farmers. Some of the training received by farmers includes artificial insemination, crop protection, tick and tsetse fly control, veterinary services and soil conservation. However, training is unavailable to about 36.4 per cent of farmers interviewed. Of all the training offered, crop protection and soil conservation have received the highest attention.

Table 31: Frequency of training received by farmers

Type of training	No. of farmers trained	Percentage of responses
Artificial Insemination	25	7.6
Crop Protection	54	16.4
Tick Control	31	9.4
Veterinary Services	26	7.9
Tsetse fly Control	31	9.4
Soil and Water Conservation	43	13.0
None	120	36.4
Total responses	**330**	

Hindrances to service delivery

The main difficulties encountered by extension workers are inadequate funding/low budget allocation (30.4%) and inadequate facilities (transport, machinery), which accounted for 26.1 per cent (Box 3). Other constraints to improving agricultural services include: lack of credit to farmers (13%), very high farmer to extension staff ratio (8.7%), inadequate training and exposure of frontline staff (8.7%), poor remuneration (8.7%) , and poor strategy of delivering services to farmers (4.3%).

Extension workers also cited problems they encounter when visiting farmers (Box 2). Poverty among farmers and inadequate transport for staff were the major issues accounting for 13 per cent each. Inability to solve marketing problems, low adoption rate, high cost and poor quality inputs, and inadequate travelling allowances are other problems encountered by extension workers when visiting farmers.

Box 1: Role of District Agriculture and Livestock Extension Officers (DALEOs)

Category label	Per cent of responses
Organisation and execution of farmer's training	9.1
Coordination & provision of extension services	31.8
Land use and development	4.5
Farm mapping	4.5
Coordination of machinery hire services	4.5
Promotion of soil conservation	13.6
Farm management & supervision	4.5
Provision of agricultural credit	4.5
Setting demonstrations	4.5
Procurement of demonstration materials	4.5
Monitor & evaluate extension services	13.6

The District Agriculture and Livestock Extension Offices also identified the constraints they face in improving agricultural services. These include inadequate funding or low budget allocation to district offices, inadequate facilities including transport facilities, poor remuneration of staff and low staff numbers (Box 3).

As shown in Box 4, agricultural training institutions also face problems, key among them being poor or inadequate facilities, understaffing, and inadequate use of the facilities. As is reported in the responses, the researchers observed during the field visits that most of the farmers training centres are highly under-utilised as they remain idle most of the time.

Box 2: Main problems encountered when visiting farmers

Category label	Per cent of responses
Staff-farmers ratio very high	3.2
Low adoption rate	6.5
Lack of technical know-how	3.2
Lack of credit for farm improvement	6.5
High cost and poor quality inputs	6.5
Absence of farmers	9.7
Poverty/poor farmers	12.9
Inadequate transport for staff	12.9
Dependency attitude from farmers	6.5
Inadequate training & exposure of frontline staff	3.2
Land tenure system makes conservation difficult	3.2
Inability to solve marketing problems	9.7
Slow/inadequate funds for allowances	6.5
HIV/AIDS scourge has affected farmers	3.2
Capacity building has no impact on farmers	3.2
Most farmers are aged and illiterate	3.2

Box 3: Constraints to improving agricultural services

Category label	Per cent of responses
Inadequate funding/low budget allocation	30.4
Lack of credit to farmers	13.0
Farmer-staff ratio is very high	8.7
Inadequate facilities (transport, machinery)	26.1
Methodology of delivery	4.3
Inadequate staff capacity (lack of skills)	8.7
Poor remuneration of staff	8.7

Box 4: Problems facing agricultural training institutions

Category label	Per cent of responses
Lack of adequate facilities	26.7
Inconsistent/poor flow of facilities	26.7
Inadequate use of the institutions	6.7
Poor remuneration of staff	6.7
Understaffing	20.0
Low level of facilitation	6.7
Pending bills of the institutions	6.7

The study looked into the role of District Agriculture and Livestock Extension Officers (Box 1). Most of the DALEOs see their greatest role as that of coordination and provision of extension services. Other roles include promotion of soil conservation, monitoring and evaluation of extension services, farm mapping, and setting demonstrations.

7. Experiences and Lessons from Public Expenditure Tracking Surveys in other Countries

Public Expenditure Tracking Surveys (PETS) carried out in Uganda, Tanzania, Ghana and Honduras indicate that there are high levels of inefficiencies in the manner in which governments expend their funds. In Uganda, Ablo and Reinikka (1998), found that out of the per student non-wage funds distributed annually by the central government, only 13 per cent reached schools, the remaining 87 per cent disappeared for either private gain or was used by district officials for purposes unrelated to education. Most schools received very little or nothing.

The survey also confirmed that public primary education was mostly funded by parents who contributed up to 73 per cent of total school spending in 1991; furthermore, parental contributions continued to rise in real terms despite higher public spending.

In Tanzania, it was found that local councils diverted a large portion of funds disbursed by the central government for non-wage education and health expenditures–57 per cent in education and 41 per cent in healthcare– to other uses as well as private gain. Payrolls suffered from ghost workers.

Similarly, a survey in Ghana found that only about 20 per cent of non-wage public health expenditure and 50 per cent of non-wage education expenditure reached frontline facilities. In the case of Honduras, 2.4 per cent and 3 per cent of staff in the health and education sectors respectively, were found to be ghost workers. While only 5 per cent of primary school teachers were unknown in their place of work, multiple jobs were prevalent in the health sector.

Lessons from other country studies indicate that:

- A large proportion of the leakage seems to occur between line ministries and district offices during the process of translating public expenditures from funds into in-kind transfers.

- The possibilities for leakage are much greater when the value of materials distributed was unknown to their recipients.
- Inequities, inefficiencies and resource inadequacies observed at facility level are the product of not only low levels of financing, but also of the capacity constraints, incentives, and information asymmetries that characterise the system upstream from the facility.
- The tracking of funds alone is not sufficient to give an understanding of the ultimate impact of public spending; there is therefore need to understand determinants of facility performance. This includes issues of quality, efficiency and appropriateness of services. It is therefore necessary to collect more and better data at facility level.
- Delays in budget execution, as well as weak systems of control, with consequent scope of leakages and discretion in the allocation of resources may adversely affect quality and efficiency of service delivery.

8. Conclusions and Policy Recommendations

From the results of this study, a number of inferences, which lead to various recommendations, can be made.

- In the education sector, policies aimed at relieving the parents of the burden they have been facing should target the covering of the costs of operations and maintenance, activity fund or textbooks, as these are the areas where parents spend most of their income that goes to education.
- The study leads to the view that the school feeding programme needs to be maintained in arid and semi-arid areas as it seems to have produced positive results. Furthermore, improvement in education standards may require provision of physical facilities as the school head teachers view this as the main problem facing schools.
- Although school bursaries are targeted to bright students from poor and vulnerable families, it is not clear whether all the bright students from poor families are given an equal chance to apply for the bursaries and whether they are aware about the existence of the bursary scheme in their respective schools. There is need for the Ministry of Education, Science and Technology to publish the information in the media once the bursaries have been disbursed to schools and also to make it mandatory for schools to make public the list of beneficiaries. This study recommends formulation of disbursement and allocation criteria from the Ministry headquarters to the school level.
- The burden of financing secondary school education has been wholly on the parents, and this system has worked but to the disadvantage of the poor and vulnerable families. This study recommends that a review be carried out on the cost-sharing policy

at secondary school level, with a view to restructure current budgetary support for secondary school education, particularly with regard to development expenditure.

- Through the GoK/DFID programme, many schools benefitted from textbooks project for 2001/2002. The monies were transferred directly to the school bank accounts and the process was faster and more transparent. However, in most cases, this study gathered that the responsibility of textbook purchases was entirely left to the head teachers. The study recommends the involvement of school committees from the initial stages of procurement to purchasing. In addition, the purchasing process should be competitive.

  There was no criterion for deciding which books should be purchased. The total number of books purchased per school was minimal and applied for all the classes. Therefore, the study could not determine the pupil-textbook ratio, which is very important in assessing efficiency. This study recommends that the government increases the budget for textbooks and that the Ministry should come up with a criterion for purchasing the books to facilitate determination of efficiency levels.

- The study has also noted that there exists ghost workers in some of the surveyed schools. Using information from the Ministry of Education, Science and technology and that collected from the schools, it was found that there were discrepancies on the number of P1 and P2 teachers in some of the schools visited. The worst hit were Siaya, Mombasa, Machakos, Nyeri and Nairobi districts. This is an indication of leakage. This study recommends that the Ministry undertake frequent physical count of the number of teachers in each school.

- Based on what was observed in the use of farmers training facilities, the managers of farmers training institutions need to explore ways

of putting them into more use since they currently remain under-utilised. Increased farming demonstration activities and use of the facilities for non-traditional courses should be explored. For instance, the facilities could be equipped and used as training centres on information technology for all government departments operating at the district level.

- It was also clear from the study that extension workers are not enough to attend to all farmers' needs within their locality. The government should therefore strengthen extension services by either increasing the staff numbers or by providing the necessary facilities to make their mobility easier for effective service delivery.

- In the health sector, health facility management committees should play a more active role in the management of resources. This will prevent resource leakages at the facility level.

  Acquisition of drugs should be bottom-up. This will enable health facilities to specify the quantity and type of drugs and other medical supplies required. The bottom-up approach minimises under-supply of drugs and also supply of un-required drugs as witnessed in this study.

- In some districts, there are some public health facilities that are not registered by the Ministry of Health. These facilities are recognised by District Development Committees (DDCs). Due to non-registration, these facilities are not allocated medical supplies and only receive supplies through re-distribution of the limited supplies at the district level. This study recommends a shorter registration process where all public health facilities benefit from medical supplies.

- The survey found that only 40.4 per cent of health facilities have regular annual audit with 34.0 per cent of them having no audit at

all. Adequate staff supervision, assessment and regular audit are linked to efficient use of resources and quality service delivery. The study recommends a more regular staff assessment and financial audit.

- Understaffing of health facilities is a major constraint in the delivery of health services. All categories of health facilities are understaffed. For efficient health service delivery, these problems need to be addressed. The available members of staff in health facilities combine professional work with administrative and financial activities. For resources to be managed and utilised well, training of personnel, especially on financial management, book keeping and record keeping, among others, is necessary.
- In some cases, health personnel at health centres and dispensaries are not aware of the amount of funds allocated and disbursed to these facilities. This is the case as Authority to Incur Expenditures (AIEs) are sent to the District Medical Officer of Health (DMOH). Without such knowledge, it is hard for such officers to monitor the use of these resources. Therefore, the study recommends that copies of AIEs be sent to the facilities where funds are allocated.

9. Possible Future Direction for PETS

This is a pioneer study on expenditure tracking in Kenya that will provide benchmarks and insights for future work in this area. It provides useful information for designing policy and improving the institutional systems through which public resources flow to the intended beneficiaries. The study has quantified and highlighted leakages of resources in the health sector, especially drugs and ghost workers in the education sector. Poor record keeping and accountability, and inadequacies in deployment of resources in the sectors, both human and financial, are covered.

Despite these important achievements, there is scope of improvement in future work in terms of methodology and scope. Although the study has been able to track the flow of government resources (especially drugs in the Ministry of Health), in the other areas covered, it would be useful that budget resources are identified at, say the sub-vote or line-item level, and tracked through the government institutional strata and/or through the banking system, and establish how much of the original financial resources reaches the intended beneficiary. Apparently, this tracking was not effectively conducted in the agricultural sector and in the case of bursaries for education for the poor. Further, it would be useful to establish whether education bursaries are spent on the right people – the children of the poor.

Generally, the fact that resources reach the service provider does not guarantee quantity and quality of services especially if the incentive structure is poor. Therefore, there is need to go beyond tracking of funds and examine the efficiency and effectiveness of spending. Accordingly, it would be useful to combine a tracking survey and quantitative service delivery surveys (QSDS). This approach will make it possible to assess the link between inputs and outputs at the service provider level.

In order to enhance the impact of expenditure tracking exercises, future exercises need to be more collaborative, between the Government,

KIPPRA and other stakeholders. Such an approach would help build government ownership. Further, involvement of the Central Bureau of Statistics could help build capacity and provide opportunities for linking PETS with other surveys on development outcomes and therefore increase demand for policy research.

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Appendix

Appendix 1: Mode of government financing in primary schools (percentage)

District	In-kind	Cheque	Direct bank transfer	Total
Kwale	8	46	46	100
Makueni	29	18	53	100
Nairobi	5	59	36	100
Nyeri	0	44	56	100
Uasin Gishu	6	56	38	100
Murang'a	0	100	0	100
Machakos	44	33	22	100
Mombasa	0	40	60	100
Siaya	33	67	0	100
Busia	8	54	38	100
Kisumu	0	38	63	100
Vihiga	0	29	71	100
Nakuru	0	83	17	100
Garissa	0	20	80	100

Appendix 2: Mode of government financing in secondary schools (percentage)

District	In-kind	Cheque	Direct bank transfer	Total
Kwale	25	25	50	100
Makueni	0	0	100	100
Nairobi	0	43	57	100
Nyeri	0	50	50	100
Uasin Gishu	0	75	25	100
Murang'a	0	20	80	100
Machakos	33	22	44	100
Mombasa	0	50	50	100
Siaya	0	33	67	100
Busia	0	33	67	100
Kisumu	0	67	33	100
Vihiga	0	75	25	100
Nakuru	25	0	75	100
Garissa	0	50	50	100

Appendix 3: Main source of water in secondary schools (percentage)

District	Piped water	Borehole	Protected spring	Unprotected spring	Harvested rainwater	Buy water	Dam	None	Total
Kwale	60	20	0	0	0	20	0	0	100
Makueni	20	20	0	0	20	0	20	20	100
Nairobi	88	13	0	0	0	0	0	0	100
Nyeri	50	0	0	0	50	0	0	0	100
Uasin Gishu	20	60	0	0	0	20	0	0	100
Murang'a	50	0	25	0	25	0	0	0	100
Machakos	50	50	0	0	0	0	0	0	100
Mombasa	33	33	0	0	33	0	0	0	100
Siaya	33	33	0	33	0	0	0	0	100
Busia	67	33	0	0	0	0	0	0	100
Kisumu	100	0	0	0	0	0	0	0	100
Vihiga	40	20	0	20	20	0	0	0	100
Nakuru	100	0	0	0	0	0	0	0	100
Garissa	100	0	0	0	0	0	0	0	100

Appendix 4: Main source of water in primary schools (percentage)

District	Piped water	Borehole	Protected spring	Unprotected spring	Harvested rainwater	Buy water	River	Wells	Other	Total
Kwale	27	27	0	13	13	13	0	0	7	100
Makueni	19	19	0	0	25	6	6	13	12	100
Nairobi	97	0	3	0	0	0	0	0	0	100
Nyeri	88	0	0	6	6	0	0	0	0	100
Uasin Gishu	47	26	0	5	0	0	11	5	5	100
Murang'a	47	27	0	7	13	0	7	0	0	100
Machakos	47	7	0	13	0	7	13	7	7	100
Mombasa	50	22	0	0	0	28	0	0	0	100
Siaya	50	50	0	0	0	0	0	0	0	100
Busia	39	44	11	0	6	0	0	0	0	100
Kisumu	22	33	0	11	22	11	0	0	0	100
Vihiga	12	6	0	29	18	0	29	6	0	100
Nakuru	86	0	0	0	0	0	0	0	14	100
Garissa	10	20	0	5	5	45	15	0	0	100

Appendix 5: Major activities financed by parents in primary schools (percentage)

	Activity fund	Textbooks	Operations and maintenance	Other	Total
Kwale	29	33	31	8	100
Makueni	18	35	38	10	100
Nairobi	30	30	37	3	100
Nyeri	33	33	33	0	100
Uasin Gishu	33	33	33	0	100
Murang'a	31	31	29	8	100
Machakos	28	28	28	15	100
Mombasa	27	29	29	15	100
Siaya	31	38	31	0	100
Busia	26	35	33	6	100
Kisumu	33	33	33	0	100
Vihiga	32	30	34	4	100
Nakuru	33	33	33	0	100
Garissa	12	8	80	0	100

Appendix 6: Major activities financed by parents in secondary schools (percentage)

	Activity fund	Textbooks	Operations and maintenance	Other	Total
Kwale	33	33	33	0	100
Makueni	33	33	33	0	100
Nairobi	33	33	33	0	100
Nyeri	33	33	33	0	100
Uasin Gishu	33	33	33	0	100
Murang'a	33	33	33	0	100
Machakos	24	33	33	10	100
Mombasa	33	33	33	0	100
Siaya	33	33	33	0	100
Busia	33	33	33	0	100
Kisumu	29	29	29	14	100
Vihiga	25	38	38	0	100
Nakuru	33	33	33	0	100
Garissa	0	0	100	0	100

Appendix 7: Non-wage government financed activities in secondary schools by district (percentage)

	Textbooks	Bursary	Grants to support staff	School feeding programme	Total
Kwale	0	75	25	0	100
Makueni	17	50	0	33	100
Nairobi	0	88	13	0	100
Nyeri	0	75	25	0	100
Uasin Gishu	0	100	0	0	100
Murang'a	0	100	0	0	100
Machakos	25	63	13	0	100
Mombasa	0	100	0	0	100
Siaya	25	75	0	0	100
Busia	0	100	0	0	100
Kisumu	33	67	0	0	100
Vihiga	0	100	0	0	100
Nakuru	20	60	0	20	100
Garissa	100	0	0	0	100

Appendix 8: Non-wage government financed activities in primary schools by district (percentage)

	Text-books	Bursary	Boarding costs	Grants to support staff	School feeding programme	Total
Kwale	100	0	0	0	0	100
Makueni	58	4	0	0	38	100
Nairobi	64	0	0	24	0	100
Nyeri	100	0	0	0	0	100
Uasin Gishu	90	10	0	0	0	100
Murang'a	67	11	11	11	0	100
Machakos	57	0	0	5	38	100
Mombasa	90	10	0	0	0	100
Siaya	100	0	0	0	0	100
Busia	86	14	0	0	0	100
Kisumu	100	0	0	0	0	100
Vihiga	92	0	0	8	0	100
Nakuru	100	0	0	0	0	100
Garissa	78	0	11	11	0	100

Appendix 9: Number of secondary school teachers by qualification and district

District	P1	P2	P3	S1	Graduate	ATS	UT
Kwale	0	0	0	11	71	9	1
Makueni	13	1	0	1	37	20	0
Nairobi	0	20	0	36	117	0	0
Nyeri	0	0	0	7	34	0	0
Uasin Gishu	1	0	0	5	29	6	0
Murang'a	0	0	0	17	60	10	0
Machakos	41	6	1	25	72	18	21
Mombasa	0	0	0	0	45	4	3
Siaya	0	0	0	10	34	0	0
Busia	0	0	0	12	49	0	0
Kisumu	10	0	0	23	118	6	1
Vihiga	0	0	0	15	46	0	0
Nakuru	0	0	0	0	115	15	0
Garissa	17	7	2	0	0	0	0
Total	**82**	**34**	**3**	**162**	**827**	**88**	**26**

Appendix 10: Number of primary school teachers by qualification and district

District	P1	P2	P3	S1	Graduate	ATS	UT	ATS
Kwale	137	33	5	8	0	5	1	2
Makueni	143	32	10	4	8	9	6	1
Nairobi	355	32	4	21	79	87	0	0
Nyeri	187	26	1	17	4	35	1	2
Uasin Gishu	191	39	3	11	38	21	2	0
Murang'a	204	17	2	20	1	17	4	0
Machakos	210	41	15	8	0	32	2	1
Mombasa	210	37	7	17	22	10	2	1
Siaya	63	1	0	2	1	1	0	0
Busia	215	37	11	7	4	21	0	0
Kisumu	87	14	7	5	0	13	0	0
Vihiga	137	21	2	7	4	28	2	0
Nakuru	137	13	4	1	2	16	0	0
Garissa	140	61	8	1	0	8	1	0
Total	**2,416**	**404**	**79**	**129**	**163**	**303**	**21**	**7**

Appendix 11: Financial contributions to schools

	Contribution (Kshs)					Contribution (percent of total)				
Contributor	**1997/98**	**1998/99**	**1999/00**	**2000/01**	**2001/02**	**1997/98**	**1998/99**	**1999/00**	**2000/01**	**2001/02**
Feed the Children Fund	479,800	334,001	300,960	110,320	150,480	0.5	0.2	0.1	0.0	0.1
ICS	0	0	0	0	150,480	0.0	0.0	0.0	0.0	0.1
Global Education Partnership	0	0	42,726	0	0	0.0	0.0	0.0	0.0	0.0
Japanese Govt	0	0	83,270	224,524	0	0.0	0.0	0.0	0.1	0.0
Danish Govt	0	0	100,000	0	0	0.0	0.0	0.0	0.0	0.0
World Vision	0	0	0	0	116,000	0.0	0.0	0.0	0.0	0.0
National Fund	0	70,000	0	0	0	0.0	0.0	0.0	0.0	0.0
CCF	8,000	0	0	0	0	0.0	0.0	0.0	0.0	0.0
UNICEF	0	0	0	0	100,000	0.0	0.0	0.0	0.0	0.0
Kenya Charity Sweepstake	0	0	170,000	0	0	0.0	0.0	0.1	0.0	0.0
British Govt/ DFID	0	0	0	294,086	2,972,370	0.0	0.0	0.0	0.1	1.0
District Education Board	396,231	396,231	402,620	418,422	549,334	0.4	0.2	0.2	0.2	0.2
PTA	98,076,521	156,244,950	207,164,452	240,786,730	268,905,931	98.6	93.8	95.1	95.2	94.5
Harambee	500,000	0	125,000	1,430,000	1,315,500	0.5	0.0	0.1	0.6	0.5
Local authority	0	9,499,500	9,534,900	9,560,670	10,405,154	0.0	5.7	4.4	3.8	3.7
Total*	**99,460,552**	**166,544,682**	**217,923,928**	**252,824,752**	**284,665,249**	**100**	**100**	**100**	**100**	**100**

* The total here refers to contribution to schools in the sample only.

Appendix 12: Funds received by schools

District	Funds received (Kshs '000)						Average receipts per pupil (Kshs)				
	1997/98	1998/99	1999/00	2000/01	2001/02	Student population	1997/98	1998/99	1999/00	2000/01	2001/02
Secondary schools											
Kwale	15,872	15,950	16,581	16,981	16,999	1,569	10,116	10,166	10,568	10,823	10,834
Machakos	12,232	12,617	40,189	45,164	55,415	3,935	3,109	3,206	10,213	11,478	14,083
Makueni	0	17,543	21,997	22,994	23,293	1,460	0	12,016	15,066	15,749	15,954
Mombasa	0	9,020	9,535	13,404	13,455	1120	0	8,053	8,513	11,968	12,013
Murang'a	19,565	13,953	28,265	32,868	42,188	1,919	10,195	7,271	14,729	17,127	21,984
Nakuru	8,520	39,337	35,343	37,804	41,973	2,659	3,204	14,794	13,292	14,217	15,785
Nyeri	5,879	7,262	8,884	10,584	9,884	789	7,451	9,204	11,260	13,415	12,528
Uasin Gishu	288	417	701	1,150	5,295	409	704	1,020	1,714	2,812	12,946
Total	*62,355*	*116,099*	*161,495*	*180,949*	*208,502*	*13,860*	*4,499*	*8,377*	*11,652*	*13,055*	*15,043*

Primary Schools											
Garissa	0	0	170	38	2,957	7,254	0	0	23	5	408
Kwale	247	649	1,253	3,173	7,037	7,629	32	85	164	416	922
Machakos	848	946	2,149	2,259	3,770	10,758	79	88	200	210	350
Makueni	22	2,327	3,520	6,223	8,623	3,346	7	695	1,052	1,860	2,577
Mombasa	0	2,319	1,943	2,978	7,388	7,394	0	314	263	403	999
Murang'a	4,786	6,998	6,826	7,893	9,532	7,948	602	881	859	993	1,199
Nairobi	3,796	4,558	3,654	3,378	3,049	4,995	760	913	731	676	610
Nakuru	533	564	3,671	4,090	4,619	4,952	108	114	741	826	933
Nyeri	18,662	21,398	21,486	22,966	21,142	8,139	2,293	2,629	2,640	2,822	2,598
Uasin Gishu	10,205	13,564	16,399	21,476	24,634	9,773	1,044	1,388	1,678	2,198	2,521
Total	39,098	53,324	61,071	74,476	92,751	72,188	542	739	846	1,032	1,285
Overall	**101,453**	**169,423**	**222,567**	**255,425**	**301,252**	**86,048**	**1,179**	**1,969**	**2,587**	**2,968**	**3,501**

Appendix 13: Farmers' attributes

Variable	N	Number of farmers	Percentage
Sole owner of the firm	196	134	68.4
Keep livestock on your farm	198	172	86.9
Fish farmer	181	6	3.3
Cultivate crops on your farm	195	189	96.9
Farmers group in this area	191	107	56.0
Belong to any of these farmers groups	167	74	44.3
Have Farmers training centres	200	128	64.0
Have Farmers training centres within the district	169	91	53.8
Ever participated in any training programmes offered by FTCs	155	68	43.9
FTCs offer relevant training	116	91	78.4
Know of other agricultural support services in the locality	178	83	46.6
Receive field extension services in your area	177	121	68.4

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