The analysis of the Education Management Information System (EMIS) and its suitability for managing educational quality in Kenyan schools

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- Loughborough University, Department of Education.

- A Master’s Thesis. Submitted in partial fulfilment of the requirements for the award of Master of Philosophy at Loughborough University.

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RESEARCH TITLE

The analysis of the Education Management Information System (EMIS) and its suitability for managing educational quality in Kenyan schools.

By Maurice Frederick Otunga

Submitted in fulfillment of the requirements for the award of the degree of Master of Philosophy (M Phil.) in the Department of Education, Loughborough University of Technology.
Written Examination

In accordance with the provision of the University Regulations the external examiners submitted a series of questions to the candidate to be answered in writing in lieu of a viva voce examination.

Those questions and the candidate's written answers are included in this thesis as:

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Appendix 11: Candidate's answers to the written questions supplied by the External Examiners in lieu of a viva voce examination.
SIGNATORY DECLARATION

This thesis is my original work and has not been presented for a degree in any other University. No part of this thesis may be produced in part without my prior permission or the authority of the University of Loughborough.

NAME: Maurice F. Otunga  DATE: 11/12/1994

DECLARATION BY THE SUPERVISORS

This thesis has been submitted for examination with our approval. University supervisors:

RESEARCH DIRECTOR ------------ DATE ------------/12/1994

RESEARCH SUPERVISOR ------------

PROFESSOR JAMES RICHARD HOUGH  DATE ------------/12/1994

UNIVERSITY OF

LOUGHBOROUGH

DEPARTMENT OF EDUCATION
**ABSTRACT**

The purpose of the study was to present ideas to improve capacities in data processing, collection, storage, analysis and supply. As a result educational planners, managers and partners can be availed with reliable and timely data and information, promote the use of relevant information, and eliminate duplications.

It was found out that the EMIS in Kenya had a number of problems in data recording, collection, processing, presentation and user needs analysis. Some factors affecting the quality of data were: limited financial resources and training opportunities for information users and producers; untimely demands for information and inappropriate policies.

The organizational structure of the Ministry was itself a problem as little information flowed between and among departments. Tight job definitions caused the proliferation of inaccurate educational information by denying responsible officers, who had first hand information, authority to use it for making decisions on behalf of the system. By itself this removed users from producers.

Most inspectors failed to reach schools and provide qualitative information because of cooperation from the DEOs who, despite being less professionally experienced than most inspectors, supervised them. A committee had reviewed the questionnaires used by departments and helped to design one covering information needs for all departments, but no
corresponding committee had been established to explore the needs of other important users who continued to provide most finance for educational developments in Kenya.

Consequently, it was proposed that a Central Data Coordinating Committee (CDCC) should be established whose terms would include: recruiting, deploying and training all educational information officers; determining relevant data using its sub-committees of producers and users.

To enhance educational processes, it was recommended that sources of qualitative information such as educational review commissions be modelled on the contemporary information requirements for the various users. Teachers and Inspectors should be made principal users and producers. The EMIS and educational decision making should be decentralized to encourage accuracy and target users. The DEOs should be appointed after serving as Inspectors.
ACKNOWLEDGEMENT

This study could not have come to such a successful conclusion without the unwearied efforts of my Research Supervisor. Professor J.R. Hough whose wise guidance has helped me to organize this study and to visualize the research problem more clearly and concisely. Indeed his effort, phenomenal as it was, gave the soul to this research. I am, therefore, very obliged to him. Professor Hough worked in consultation with the Research Director and other colleagues, to whom I wish to extend my warm and heartfelt appreciation.

My interest in this study is related to my course at IIEP on which I have drawn heavily for ideas in educational research and EMIS. The extensive discussions that I had with my lecturers: Ta Ngoc Chau, Vesa Puuronen, Lars O. Mahlick, Bikas Sanyal, Gabriel Carron, Sheldon Sheaffer and Professor Postlethwaite (IIEP consultant) were an invaluable addition to this research.

In the same breath I wish to acknowledge some IIEP colleagues: Augustine Nsabiyumva (Burundi); Momar Sow (Senegal); Daniel Zogblah, Juliana Osei (Ghana); Peseta Isara Sinave (West Samoa); Khalijah Mohamed (Malaysia); Manasseh Nkamba (Zambia); Nadia Belouchrani (Algeria); Didace Rubayisa (Ruanda) and many others who, in their own rights, fired the first shots during the IIEP lectures and whose sound-reports jolted me into this work.

I thank colleagues in the Ministry of education (Kenya) who gave excellent cooperation for this study. In particular I thank: Mr. Francis Kyalo of the Exams Council (Research section), Mrs. Pamela Kioko of the TSC (Computer Section). Mrs. Juliana Nzomo (Planning Unit), Mr. Tobias Konyango (Statistics Unit) and Mrs. Rita Mwera (Inspectorate).
I also thank the DEOs and those officers in the field who made my effort less painful, the Kenya National Commission for UNESCO for its rich library facilities and for giving me endless opportunities to meet top Kenyan educationists in various educational workshops organized by the Commission. Not only did these open my eyes beyond my educational horizon but also fanned in me a fierce thirst for reading deeper into the wee nooks of educational corridors - a thirst that now knows no requital.

Finally but far from least, this effort is by and large an exercise in give and take within the family. Take as I did, now I give. Indeed this is the most fitting moment for me to return my fervent appreciation to my family for being a singular inspiration to me, and for their endurance and indulgence while I was engrossed in this study.
CHAPTER 1

Educational development, Background, Objectives and Scope of study

1.1 Overview of educational policies and development in Kenya

Introduction

The education sector in Kenya has had rapid growth since independence and today, about 6 million Kenyans are enrolled in various educational institutions. At the primary level alone, enrolment has risen from about a million at independence to more than 5.5 million in 1992 (Table 1.a). Enrolment in Secondary Schools has also increased rapidly (Table 1.b) with the introduction of the *Harrambee secondary schools* where communities mobilize resources and start a secondary school whenever they needed one. Needless to say the stretch on the necessary state resources for such community needs has always been enormous and often resulted in a low educational standard in *Harrambee Schools*.

Pre-Independence Educational Policies and Development in Kenya

Education management in Kenya has passed through a number of evolutionary stages, including the establishment of a separate Ministry of Technical Training and Applied Technology in 1988/89. The Ministry of Education is a complex institution with responsibility for primary and secondary education, teacher training and universities, curriculum development, examinations, materials production and project preparation, implementation, monitoring and evaluation. Unfortunately the management system and the planning capacity have generally not kept pace with growth.
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Source: Ministry of Education, Planning and Statistics Unit.
Educational Policy frame work

The first policy on education in British Colonial Africa was issued in 1925 and it stated that:

"Education should render the individual more efficient and promote advancement of the community as a whole through the advancement of agriculture, the development of native industries, the improvement of health, the training of people in the management of their own affairs, and the circulation of true ideals of citizenship and service".

In 1911 the Department of Education had been established by the British colonial government to offer general curriculum and training in practical skills and to produce clerks, administrative assistants and artisans. Despite this policy, Africans still wanted education parallel to the one for other races in the country. This led to the independent schools movement (ISM) in 1930s and 1940s. In 1949 the colonial Government issued a "Ten year development plan for the Development of African Education" and set up a commission to study policies and their implications (Beecher Report, 1949). The report recommended terminal stages without a deliberate preparation of the pupils for the next stage.

In 1952, another report (Binnus, 1952) on education policy and practice in British Tropical Africa was prepared. In both reports emphasis was put on practical skills in curriculum. In the same year, 1952 educational matters in Kenya were then relegated, the colonial government having declared a state of emergency.

Sadly, the kind of educational information available has not been reliable and discrepancy exists between policies and their implementation.
Post-independent educational policies

The Ominde Commission (1964) was the first national report on Education. The commission was mainly concerned with the needs of a country emerging from independence. At that time, some of the needs were national unity and the removal of segregation in education. Following the recommendations of this commission: the Government assumed greater responsibility in providing for educational programmes; Teacher's Service Commission was established for all types of teachers in schools and teachers' colleges, except universities. More boarding schools were opened and more bursaries were made available for needy learners. A common language of instruction was adopted from standard 4 and Kiswahili, which had been adopted as a national language, was made compulsory. For the first 10 years of independence, admission in forms 5 and 6 was tuition free and denominational teachers' colleges were abolished.

The National Development Plan (1964-1970) states:

"we must provide education and training to prepare Africans to take advantage of new opportunities . . . our plan places particular emphasis on the expansion of secondary education . . . developing fully every citizen's abilities so that he may contribute most effectively to social and economic development . . ." (p.102).

This policy theme was maintained in the second Development Plan (1970-1974). The policy was to produce sufficient numbers of people with skills, knowledge and expertise to support the economy, " . . . the inculcation of those cultural values essential for maintaining a cohesive and productive society" (p.450). The third National Development Plan (1974-1978) noted that the education system had become the most accessible route to individual social and economic advancement . . . The system had become highly selective ...for placement in the
modem formal sector of the economy.

By the fourth Development Plan (1979-1983) the mismatch between education and employment had become obvious (p.3). Consequently, the government appointed the Wanjigi Committee to develop strategies for stemming the problem of unemployment and recommend measures for improving educational relevance and training. "The expansion of basic education must not only be judged by the size of enrolment; it must also be seen in the increase in the relevance and quality of education, noted the Plan" (p.7). The idea of educational relevance is re-visited severally in the plan (p. 103, 152). The Development Plan (1984-1988) severally refers to modifications in the focus of the education. Notes the Plan, "a community must and will shape its education to suit its needs".

This continuous shift in the national policy was paralleled by corresponding qualitative changes in education resulting from the education reviews which were appointed in the contemporary periods as explained below, but the foresaid discrepancy between policies and their implementation continued to stalk the entire education system, defying any lofty intentions. In 1976 the education system was found still wanting in a number of respects. It was not responsive enough to the diverse needs of Kenya. Consequently, another education commission the Gachathii commission was appointed to review the educational objectives and policies. Specifically it was to:

"evaluate the system, define a new set of educational goals and formulate a specific programme of action for achieving those goals"

The report of the review commission noted:

"... Major areas of national development . . . were seriously hampered by lack of people with the most appropriate attitudes, knowledge and skills to carry out the
required tasks . . more could have been done to facilitate . . the creation of the most appropriate labour intensive technology to facilitate rural development (p. xvii).

The commission recommended several amendments and innovations among which were:

i) Extending standard seven to junior secondary with form 1 and 2 at primary level. This change was intended to be fully operational by the year 1984.

ii) A Progressive Examination to serve as a basis for guiding and counselling children before entering educational training.

The commission expressed concern for the declining quality of teaching and supervision and recommended an establishment of terms of service and definition of appropriate career patterns for all grades of educational personnel.

In 1981 the Presidential education review committee, chaired by Professor C.B. Makay, was appointed to review the education system and make recommendations on how the Government should establish the second University. The recommendations caused profound changes in the education system, abandoning the 7:4:2:3 system for the 8:4:4 system. This refers to the duration of Primary, Secondary and University education respectively.

In view of the global changes inherent in the report’s recommendations in terms of emerging structures and relationships another Education Review Commission the Presidential Working Party on Manpower Training for the next Decade and Beyond was established in 1985.

Among its terms of reference it was to recommend:

(i) Ways and means of improving quality in all public, harambee and private institutions including strategies for more efficient use of existing human, physical and fiscal resources.
(ii) The distribution and production of the basic learning and teaching resources and proper administration, management and supervision in all educational and training institutions.

In all the aforesaid various attempts to change policies for better quality in education, no major effort was made to address the information system, which perhaps explains the frequent reversals in the policies.

The aims of education

Kenya's educational aims are that:

(i) education should serve the needs of national development through the production of skilled manpower, dissemination of knowledge and inculcation of the right attitudes.

(ii) education should enable a country to function as an active member of the international community (Ministry of Education).

Kenya aims to attain universal access to Basic Education for at least 80% of all 14-year-olds by the year 2000. It has been a long standing aim for Kenyan authorities to end current gender, regional and group disparities (Education review commission, 1976 and 1985; Kenya country paper, 1989: p.18).

The development of Primary and Secondary education

The main objectives of primary education are the expansion of the aforesaid aims for pre-primary education. However, further to that, certain needs are expressed as desirable. These are the need for the enjoyment of educational experiences leading to continued learning, the
acquisition of a suitable foundation for the world of work, desirable social standards and attitudes based on moral and religious values, appreciating other people's cultures and making good use of leisure time.

The current 8:4:4 education system has introduced practical oriented subjects as Agriculture, Home science, Business education, Art and Craft (in Std. 6-8) with a practical bias aimed at preparing the pupils for the world of work. The curriculum has also been enriched with subjects for basic literacy and numeracy skills for further education and training. However, the purpose of primary education in Kenya is both to meet the needs of the learner who will still advance in the system and to provide terminal pupils with basic knowledge, skills, and exposure to post-school vocational training for self-employment. It is not therefore designed to produce a fully trained individual for trades and profession.

At independence the manifesto for the then ruling party (KANU) committed the government to eventual provision of universal education. The Sessional paper no.10 of 1965 on African socialism echoed this commitment, stressing the role of education in producing skilled manpower and removing economic disparities. In Kenya primary education is regarded as the minimum level of education for participating meaningfully in National development.

The importance which the government attaches to this level of education can be authenticated by a number of measures which it had taken to increase enrolment. It had bursary scheme for bright children who were poor, but later in 1971 a presidential decree abolished tuition fees first for children in hardship areas and then for the entire primary cycle in the whole republic by 1979. Thus in keeping with the objectives of Addis-Ababa conference of 1961,
the government has ensured universal and free primary education.

On the whole, a Kenyan parent regards primary education as a gateway to the much coveted secondary education which may account for the steady demand for primary education although the high population rate may also be a factor. This belies an increasing number of parents who are discouraged either by the escalating cost of education or the inherent opportunity costs of taking their children to school with increasingly diminishing benefits. Developments in secondary education through Harambee contributions have enabled the country to have a tremendous expansion of secondary schools and hence enrolment.

Organization and Structure

The Ministry of Education has various management committees which give general policy direction in the administration of education. The two main ones being: the Ministerial consultative committee, chaired by the minister for education and the Ministerial management committee.

The Minister carries ultimate responsibility for all political and policy matters whereas the Permanent Secretary is the head of administration.
Fig. 1 above shows the administrative structure of the Ministry of Education. The professional wing of the ministry is headed by the Director of Education and it consists of six divisions which are concerned with: Administration, Supervision, the Provision of Physical facilities and materials, Evaluation and School Feeding Programmes and Project Implementation.
The district focus and education management

Within the frame-work of the District Focus for Rural Development Strategy, the District Education Officers (DEOs) consult with District Development Committees (DDCs) through District Education Boards (DEBs) in identifying and developing educational programmes. The strategy requires that communities at grass-root level participate in the planning and the development of schools through School Committees, Boards of Governors and Parents Teachers Associations. Through it education officials can give administrative and professional services to various School Committees and Boards. This management set-up gives the DEO great responsibilities which in turn demands an efficient Education Management Information System (EMIS) down to the district and lower levels.

Supervision/Inspection

The Ministry has an elaborate structure of education officers and primary/secondary schools' Inspectors to administer and supervise education at the district, divisional and zonal levels. At primary level a zone should have one Inspector and a Teacher Advisory Centre (TAC) Tutor. Zones cover about 30 primary schools.

The Inspectorate deals with the maintenance and improvement of standards of education in the Kenyan Schools and Colleges. It decides what is to be taught in educational institutions and how it should be taught. It is in touch with every educational aspect; for this reason, it may be seen as the nerve centre of the Kenyan Education System hence the EMIS.
Local Authorities

Local authorities, within their jurisdictions and through their Education Committees and School Committees, manage schools and can close or open them. They collect school funds, prepare and submit plans to the Minister. Each Municipal Council has an Education Committee for partaking of the deliberations of the D.E.B.

The Planning Unit

The functions of the Planning and Development (P/D) Unit involve: formulating educational objectives and policies; making projections and fixing targets; preparing programs and projects; sector evaluation; preparing the education sector budget; project design and implementation through the Project Implementation Unit (PIU). Besides these there are existing programmes which are an ongoing concern for the Planning Unit. Among the programmes that exist are: curriculum development, teacher education, Management etc.
1.2 Background to the research the problem

The Ministry of education is charged with several functions (Presidential circular No.2/86 of 16th December, 1982) which are regularly varied by the President, sometimes being scattered in several Ministries. For example, at one time Technical Education and Training, Research and Adult Education belonged to three different Ministries, while Pre-primary Education was run by the Ministry of Local Government and NGOs. This has raised the problem of co-ordinating educational information and ill-feeling among departments if a department felt relegated.

Pre-primary education and the primary levels of education have almost been run exclusive of each other. Resources from the primary level have not been used fully to benefit the pre-primary level which also suffers from low internal efficiency and motivation among teaching staff, lack of standards and over-reliance on Non-Governmental Organizations (NGOs) for funding. Even worse is that remedies are hard to achieve because the co-ordination necessary is bogged down by information gaps. Although pre-primary and primary education are now in the Ministry of Education, there is still limited planning for the pre-primary level. Inevitably, there is redundancy, duplication and omission of pre-primary education services in certain parts of the country.

The rapid expansion of education at all levels in Kenya has resulted in acute shortage of trained personnel and facilities. Services like school supervision have been impossible to carry out satisfactorily, yet supervision reports could have been instrumental in the contemplation of solutions to management problems.
Some parts of the country have had substantial school under-enrolment, poor attendance, high drop-out rates and repetition (Ngau, M, 1991; Shiundu and Mwaura, 1992; Gichia, 1992; Nkinyangi, 1980; Ngau, 1991; Obura, 1992). Reasons for this are varied especially if they emanate from home and spill into the school (Eshiwani, 1984(a), (b); Eshiwani, 1988; Obura, 1985; Achola, 1992, CBS, 1975). Probably schools are propagating unacceptable culture (Bourdieu, et al., 1977; Mahalan, T., 1977; Ponsi, 1988; UNICEF/Government of Kenya, 1992). They may have failed to deliver immediate benefits (Achola, P., et. al., 1989), educationally marginalizing some communities who detest what they perceive as imposed and useless programmes.


1.3 Statement of the problem

Systematic educational planning and management provides the framework for setting priorities and goals, guiding the development of educational activities amid constant economic, social, cultural and technological changes, and ensuring the optimal use of the limited resources. Educational planners are required to provide evidence to decision-makers so that scarce resources may be deployed in cost-effective ways that are likely to improve the quality of education for all students.
Unfortunately in Kenya, educational planning and management efforts still fall short of their expected impact, by failing to effectively guide in achieving their goals, and are operating at much less than the anticipated full capacity. One of the crucial factors causing these inadequacies and inefficiencies is linked to deficiencies in the supply and use of relevant information for decision-making. In Kenya it is common for different departments of a Ministry to have their own independent information systems; obviously this could deny the departments the benefits of a synergy effect from combined information services.

The education sector in Kenya is a fairly massive organization with many levels of decision-making, mostly concentrated at the centre and with multiple centres of activity dispersed all over the country. Bottle necks, clogs and distortions in information flow have often resulted in wrong decision-making on the one hand and insufficient acceptance and implementation at lower levels on the other. For example, in some studies (P.P. Achola, et al. Nov, 1989,) participation in educational programmes has remained static or even waned in some areas of the country, especially in the arid and semi-arid lands.

Generally educational quality has been derided and questioned in public, sometimes with asperity. This is because of the incompetence of the graduates of the education system. The rate of graduate unemployment has continued to grow exponentially and in relation to escalating educational cost. While this bespeaks of the poor educational quality, it is a graphic illustration of policies that have been a total fiasco and points to problems in the information available. The information system seems devoid of adequate efficiency to illuminate and eliminate the rampant mismatch between policies and practice. Misreporting, non-response to information demand and late returns are often reported. This has resulted in
mistrust of the information by bona-fide users. Besides this, the type of information collected appears to relegate genuine educational concerns as evidenced by the relatively little information on educational processes compared to information on in-puts. Thus formal quality has been given prominence while the real quality remains down-graded and elusive or illusive (T. Chau, G. Carron, 1987).

In retrospect, the fore-said raise a number of questions that can be asked reflectively, namely:

Do decision makers take advantage of the evidence offered by the education information system? Is there under-use or misuse of educational information from field offices and other sources like research? Is the statistics unit of the Ministry of Education a major producer of educational information in Kenya or is it neglected and if so why? Does the information system in the ministry have incompetent officers? Is there any supervisory structure for facilitating information functions in the system? Are information officers demoralized and lacking commitment? Are vested interests affecting the quality and the use of information? Is the information system only concerned with quantitative needs of administration and not the global needs of quality? Is there redundancy and repeated information production? Are certain policies adverse?

If there are policies which discourage reporting on some forms of wastage then the EMIS could be lacking information in some critical areas, especially on educational processes and hence educational quality.
1.4 *Purpose of the study*

This study is a step in the complicated iterative process of making the EMIS more responsive to educational needs of a country. The purpose of this study is to present findings that will help to: improve capacities in data processing, storage, analysis and supply in order that educational planners, administrators and managers can be availed with reliable and timely data and information to respond effectively to constantly changing information needs; strengthen the capability to manage, plan and control the flow of information among related agencies and various sectors; facilitate and promote the use of relevant information by various agencies and individuals at all levels; reduce and eliminate duplications.

1.5 *Hypotheses*

To investigate some questions raised above, describe some root causes of the problems in educational information and provide a direction to the methodology, the researcher used the following hypotheses:

1. **The Planning Unit was not the main producer of educational information in the Ministry because its data collection instruments were not exhaustive.**

2. **The EMIS had not matched information production and use because it lacked the necessary organisational structure.**

3. **Lack of educational information on processes was because field education offices had not effectively contributed to EMIS.**

The problems cited above made the researcher believe that the above stated hypotheses were unique to this research and whatever the results of testing, the results would still be valuable.
The researcher intended the hypotheses to be sufficiently focused for the respective objectives to be also focused, which in turn could focus the entire research work. The researcher's genuine conviction that the hypotheses were right did not, however, come to bear on the outcome of the tests. Indeed stringent effort was made (Medawar, P.B. 1979) to falsify the hypotheses by testing alternatives using several research instruments and respondents.

1.6 Objectives of the study

The objectives of this study were to:-

- identify the main users and producers of educational information;
- examine the quality and the content of the data collection instruments;
- assess the relevance of educational data to the needs of educational management;
- assess the contribution of field education officers (Inspectors, DSEOs, DEOs) towards EMIS;
- propose a suitable organisation structure for the EMIS.

These objectives helped to define the limits of the proposed study. Each objective on its own was meant to accomplish something of value to the study. The objectives did not, however, restrict the researcher to finding only the kind of results that supported the hypotheses (M.Stock, 1985, p.56) but they were used as a means for controlling, evaluating and reviewing the research progress and as the researcher's criteria for performance and accomplishment, which is an integral part of a research process.
1.7 Justification

At the outset, it is advisable that initial efforts to redress or enhance a dysfunctioning in an education system or structure must be directed towards the information system, since the success of a system is largely predicated on the information available. This presupposes that tenacity of support and fidelity by the authorities is accorded to the evidence provided by the educational data, the information extracted from the data and knowledge thereof of the information. The EMIS can provide decision makers with data, information, and analyses required by them to dispense their duties effectively.

Investing in an efficient management information is intrinsically an austerity measure capable of offsetting fiscal, human and other resources for better re-investment. As management is central to an educational enterprise, the issues raised through enhanced information will help in shaping various educational management orientations adopted at various levels to meet requisites for development.

The problem of information management and use can be compounded by the volume of information, if it is collected indiscriminately or presented in a manner that can not be readily used, or the same information is collected repetitively by several departments of a Ministry. Yet information that is properly processed, controlled and utilized is an invaluable resource (ED-79/WS/118.UNESCO).

In Kenya, educational activities of both the formal and non-formal types are operated by a host of governmental and non-governmental agencies in parallel to the Ministry of Education. Duplicate and conflicting information is inevitable, due to the inter-sectoral nature of the
educational administration and the multiplicity of agencies involved in the collection,
processing and dissemination of related information. For efficient allocation of scarce
resources, there is need to co-ordinate all educational activities and optimize their synergy
for maximum resource impact.

This requires increasing attention to the integration of all management information sources
and resources, in order that through the provision of comprehensive information, sound
decision and planning could be taken and monitoring, evaluation and control can be
accomplished.

Suitable solutions in management can be arrived at, not through speculative or ad-hoc
measures but, through rational and critical ones. Yet, rational solutions are predisposed of
informative practices that set great store by the data evidence available and the advantage
taken of the evidence. Only then can the mooted solutions have a critical role in re-
organizing and ensuring sustained refinement in the management.

Kenya’s education sector has expanded tremendously and the existing economic crisis
requires the government to implement brutal policies which include major cuts in public
expenditures. One of these policies is the Education Sector Adjustment Programme, whose
aim is to assist the Government in the implementation of Sessional Paper No.6 of 1988,
which seeks, among others, to reduce the rate of growth of the educational recurrent budget
to a sustainable level, enhance and improve the quality and relevance of education and
strengthen sector management, planning.
Since educational developments in Kenya have been predicated on government partnership with communities through the rallying calls of Harambee and Nyayo, the hope for enhanced educational quality demands better information about the motivating forces among the communities. For the study, it can be argued that if suitable policies have to be mooted from time to time to meet the exigencies of a given point in time then information source will come in handy in enhancing or up-dating policies.

1.8 Scope of the study

This research, being descriptive, was concerned with describing variations in the practice of the Education Management Information System for the researcher to generalize. It was necessary to first review the educational policies in Kenya vis a vis educational quality, list the educational functions and those of the EMIS for the researcher to judge the relevance of the EMIS and the requirements of an information system for enhancing quality in the context of the national development strategies. Neither a study of the quality of education in Kenya nor the fore-said development strategies was carried out.

However, it was necessary to find out whether the concept of educational quality and the needs of increasing effectiveness in management were inherent in the information gathering practices of the Ministry. The study examined the activities, responsibilities, opportunities, and the organisation of departments of the Ministry of education that were the main information producers and users. It focused on the content, coverage, quality and relevance of educational information in Kenya. This involved an examination of record keeping, data collection procedures, data processing, presentation and data instrument distribution.
1.9 Population of the study

(i) District Statistics Officers (ESOs),
(ii) District Education Officers (DEOs),
(iii) District Primary Schools' Inspectors (DPSIs) and Assistant Primary Schools' Inspectors (APSIs)
(iv) Ministry's Statistical Unit, Field services, Primary section.
(v) National Examination Council
(vi) Teachers' Service Commission (TSC)
(vii) Inspectorate

1.10 Definition of terms

**EMIS (Education Management Information System):**

It is a mechanism used to re-orient the information structure in a way that will avoid the expansion of irrelevance within the education system and the consequent waste of resources and human potential (*T. Welsh, 1993*).

**Message:**

Are characters stored, processed and transmitted into the information system of an organization (*Aktas, 1980*). If meaning is attached to them then they may be data, information or knowledge. The amount of information in a message depends on its (*Shannon and Weaver, 1949*) and on the knowledge state of the recipient. Prior knowledge by the recipient reduces information load in the message but generates more information to the recipient.
Data:

It is a group of symbols (alphabetic, numeric), characters, sounds, pictures which represent entities persons, abstract concepts and events (*Davis, G.B.*, 1985). They are facts, obtained by observations, counting, measuring, weighing etc (*Lucey, T.*, 1991). They are groups of characters having the lowest level of meaning (*Aktas*, 1980).

Information:

Information can be defined in various senses and from different theories: Mathematically, Semantically, and even in a Technical engineering sense. The Mathematical theory of communication (*Shannon, C.; Weaver, W.*, 1949) measures information in bits as being equal to the probability of the ratio (or the Log. of the ratio) of the message. In some other theory (*Fairthone, R.A.*, 1967) information is regarded as a fluid flowing in and supposed to be squeezed out of a system.

Thus information signifies many concepts and to formulate precise definitions may involve philosophical and abstract research (*Rowley, J.E.; Turner, M.M.D.*, 1978). From a non-mathematical sense of an information scientist it may be regarded as data interpreted and understood by the recipient. It is the user not the sender who turns data into information. Different data can deliver different information to different users (*Lucey, T.*, 1991). Information reduces uncertainty, adds to a representation, corrects or confirms previous information and has a surprise value because it tells something which the receiver did not know or could not predict.
Information has value in decision making in as far as it reduces uncertainty changes the probabilities of expected outcome in a decision situation (Davis, G. B., 1985; Lucey, T., 1991) and it is what the decision maker expects from the system (Rowley, J. E.; Turner, M. M. D., 1978).

Information is data of value (Ibid.) and it has more meaning than data because it is useful in the present decision situation (Taggart, 1980) he further states that information should be: understood by recipient in proper frame; relevant in a current decision making; what is not known but instead have a surprise value; lead the user to make a decision including no action. Information can be quantified in terms of its effect on the state of the decision maker at a point in time. It can be negative if, as a result of greater awareness, more options are available and uncertainty is increased (Rowley, J. E.; Turner, M. M. D., 1978)

Knowledge:

Messages can have three levels of meaning: data, information and knowledge respectively. The highest being knowledge and the lowest data (Aktas, 1980). It is possible for certain data to be information and knowledge to the same user at different times (Taggart, 1980).

Communication:

Can be perceived in three senses and levels (Whitemore, B. C.; Yovits, M. C., 1969), namely:

Level 1: The technical sense whose concern is how accurately the symbols of communication can be transmitted.

Level 2: The semantic sense whose concern is how accurately the transmitted symbols convey the desired meaning.
Level 3: The behavioral sense whose concern is how effectively the received meaning affects conduct in the desired manner, which sense is of interest to this study.

**Need:**

What an individual ought to have. Specifying involves a value judgement and is subjective, depending on an individual.

**Want:**

What an individual would like to have. It may or may not be demanded. One may want what one does not need or vice versa as is common in decision making when information is rejected.

**Demand:**

What one asks for. Sometimes people demand a useless thing or demand what they do not need or want. Demand may be conditioned by expectation or experience but it is an indicator of likely use or uses of demands. Intrinsically, it may neither facilitate, introduce nor satisfy use.

**Use:**

Use is what an individual applies from either satisfied demand, service or additional information. Information can satisfy a need or want despite the need or want never having been articulated in a demand. Uses are dependent on the availability of information and they reflect a kind of need.

**Requirement:**

It is a term used to imply that which is needed, wanted, demanded.
Value of information:

If there were no choice of decisions to be made, information would be unnecessary.
Information has value only as far as it affects actions or decisions to be taken (Davis, G. B., 1985). It has specified attributes: it is intangible, can be made available in any media; it is not consumed by use and can be given away without diminution of its content (ENISIST).

Data recording and processing incurs costs but when it is used to improve decisions its value may rise (Lucey, T., 1991)
Amount/Quality of Information

Fig. 2

Source: (i) T. Lucey. 1991, Management Information Systems (EL/BS)

Data base

A data-base is a collection of structured data whose structure is independent of any particular application (British Computer Society GMA; Lucey, T., 1991). Access to a data base is controlled so that all applications using a particular data item access it only in one place. A single updating of a data item updates all data related to it (Davis, G. B, 1985).

Important features of a database are that the use of data is independent of programmes which access to the data in a variety of ways and the same set of data is available for different
applications (Aktas, 1980). When updating is needed for each data, all programmes which access to the data are automatically updated (Davis, G. B., 1985). It introduces data integrity and data correctness (Lucey, T., 1991; Aktas, 1980). It minimizes redundancy and hence improves the value of data (Aktas, 1980). In general, the management needs of information which requires flexibility and a variety of information cutting across many functions makes a database a powerful management tool (Lucey, T., 1991).

**System:**

A system can be abstract or physical. If abstract, it is an orderly arrangement of interdependent ideas or constructs. If physical, it is a set of elements operating together to accomplish an objective (Davis, G. B. 1985; Lucey, T., 1991). A collection of people, machines, procedures, documents, data, etc., all interacting with each other and the environment to reach a pre-defined goal form a system (Aktas, 1980). A system has inputs, process and outputs.

**System's environment:**

A system's environment is a set of those elements which are not in the system and whose changes in attitudes, behaviour or properties affects the system.

**Equifinality**

A situation where more than one system can achieve the same result is called equifinality (Davis, G. B., 1985; Lucey, T., 1991). Organizations have this property.
CHAPTER 2

Part (1)

LITERATURE REVIEW

(Related research studies)

Study reports and country experiences on the use of educational information for decision making

The objectives of this study were to:

- identify the main users and producers of educational information;
- examine the quality and the content of the data collection instruments;
- assess the relevance of data to the needs of educational management;
- assess the contribution of field education officers (Inspectors, DSEOs, DEOs) towards EMIS;
- propose a suitable organisation structure for the EMIS.

This is a review of study reports presented from Europe, Asia, Africa and Kenya respectively. Studies on the nature of communication in a Community are also presented. Due to the District Focus Strategy for Rural Development (DFSRD), studies on District Information Centres for rural development have also been reviewed, so that something relevant to Kenya’s EMIS and (DFSRD) is realized in designing the EMIS. These are relevant to a country which relies heavily on community funding or where lack of resources means that communication infrastructures need to be developed intelligently. Programmes can receive mute resistance unless communities are properly informed.
For some studies which are cited below, some changes must have occurred in the respective countries since publication. This is to be expected particularly in the area of information technology which continues to experience very rapid changes. However, the experiences mentioned are by all means noteworthy for the study.

2.1 Europe Region

In Netherlands, Limburg, L. Van 1977, reported on the importance of educational information after World War II. Earlier, educational planning had been either ad hoc or lacked consistent data. There had been strict division of responsibility in the Ministry of Education and each department nursed its concerns in an organizational box mutually exclusive of other departments.

Later it was decided that educational policy be focused on qualitative and quantitative matters and that Educational Planning be an integral part of the country’s social and economic development ensuring adequate and continuous compilation of data. The need to pool resources enabled the hitherto independent departments to find common ground.

The Central Bureau of Statistics (CBS) analysed and gave out data but little was done in the way of forecasts, trends and quantification. The Association for Research gave information on what changes were possible and their consequences and the National Institute for the Development of Achievement tests evaluated the fulfillment of objectives in the knowledge and skills acquired by the pupils.
In Norway, **Eide, K., 1977.** reported a case of genuine participatory planning where information from the central authority was no longer prescriptive but informative to foster effective grass-root decision making. Vital sources of information for decision making included: teachers' attitudes, communities, students, media, etc. all of whom represented interest groups with a particular stake in education.

Agglomerate opinion from central organizations was avoided because of the likely misrepresentation and paternalism to the central authority. Such organisations were wont to become abated representations of the lay members. Conglomerate opinion was thus sought from the grass-roots.

For some types of decisions the composition of committees involved were weighed in favour of certain practitioners but opinions from allied practitioners were appreciated. He noted that the practice of selecting information sources could be abused to forge group interests and professional monopoly which could then militate against decentralisation hence qualitative and participatory planning. **Eide** further noted that the stringency of quantitative presentation wrapped in professionalism relegated non-quantitative phenomena and that genuine participatory planning was not consultative but involves all parties with stake in decision-making.

The rationalization of public opinion from formal models restricts the use of internally generated information. It confers the responsibility of defining information needs to a few technocrats whose prescriptions antagonize genuine participatory planning by being focused on quantifiable performance measures only. Computers deny the decision-maker knowledge
of the assumptions, biases and technical limitations of his decisions, despite steadfast acceptance of computer information. Eide proposed a number of studies to improve participatory decision-making; these include:

(a) studies to determine shifts in the external and internal flows of information.
(b) studies to determine shifts in the use of policy instruments, e.g. the legal, financial or informative as the use of structured information.

2.2 Asia Region

In Japan, Aliomoto, A., 1977, was concerned with information flows for educational policies. The country involved many people, using various communication facilities. Bulletins were produced regularly to explain the public educational policies. Twice-weekly tabloids and monthlies were produced to explain various educational programmes, and either canvass for contributions on topical and vexed issues or convey new findings in education. The National Research Institute attached to the Ministry of Education helped in the formulation of educational policies. Its surveys were done in close consultation with the ministry’s officials, the main concern being the exchange of information.

Bin Haji Saleh, H., A., 1977, reported on Malaysia, describing methods of data collection. The Education Planning and Research Division (EPRD) in consultation with the relevant departments prepared proformas to be transmitted to institutions through state offices. The EPRD could then receive feedback after one and a half months. Except in special cases, data was collected annually. The EPRD received consolidated data from state officers. After analysis, further consolidation and marshalling, the information was transmitted to
departments. To avoid loss of vital detail due to data aggregation, EPRD had computerized enrollments and information on teachers. Prior to this it had been necessary to carry out pilot studies and to train state officers to understand the process and terminology.

The introduction of Educational Resource Centres introduced knowledge explosion and a means of gauging demand from grass-roots. Information on curricula and pedagogical matters was enhanced from the bottom up and vice-versa. The centres provided up-to-date information on educational innovations and development, through the publication of a monthly bulletin, and they were responsible for the generation of educational information and exchange among teachers and officials.

He recommended:

(a) continuous evaluation of the activities of the resource centres to guarantee a smooth flow of information between all levels of educational personnel.

(b) the informing officer should identify the questions the planner was trying to answer and tie his data to purpose.

In Thailand, Tunsiri, V., 1977, reported on the interaction between the information system and the decision-making process in the preparation of a development plan. Each department, including the State University Bureau and the local administration, made its plan. The plans were then submitted to the Education Planning Division. No single planning approach had been adopted; they all depended on the constraints identified such as the population growth, financial trends, manpower requirements, economic growth rates, educational expenditure relative to GDP, etc.
Prior to the formulation of the Development Plan many channels of communication had been created by the Ministry of Education involving: research, meetings, foreign information sources, pupils and teachers opinions. In this way qualitative aspects of the fourth development plan on education were proposed.

The result of this increase in communication was the discovery of several things, namely that: the curriculum was repetitive; there was wastage of up to 35% of the time for teaching; the six year cycle would be more cost-effective if the annual time allotted to teaching was increased from 180 to 200 hours, the proposed cycle would be in line with a child’s development; subject grouping was in-appropriate, teachers were not proficient in foreign languages, etc.

Among the information still lacking was: manpower projections; data on social demand; evaluation of projects; institutional unit assets; sources of finance; wastage and teachers’ field of specialization.

In Papua New Guinea, Hinchliffe, K., 1977, reported on educational problems and related information needs. Spatial inequality in primary schools was a great problem with widely varying enrollments in provinces (from 43 to 133). Besides this there was low women representation, untenable class sizes (too small in some cases), difficulties in teacher recruitment, highly aggregated and inconsistent statistical information from departments and lack of basic information on population distribution. Many provincial decision-makers were illiterate.
Community effort was not well coordinated, which by itself defied the rationale in forward planning as it stretched the teaching force, especially when communities opened schools haphazardly. Thanks to the provincial governments, the decision maker had been brought close to the public and the right solutions would be mooted at the grass-roots.

The devolution of power to the provinces was encumbered by inadequate data even on the location of existing resources. The central government lacked manpower to monitor activities; yet, employing shotgun therapies was not tenable for evaluating achievements in the provinces. Subsequently as a mitigation measure, provincial data systems were established. The report concluded by providing a taxonomy of educational problems around which information could be organized. These were problems whose remedy was in the generation of exact and specific information, experiences from other people and political powers that be.

2.3 Africa Region

Hammiche, B., 1977, studied the education system in Algeria, reporting on the structure, management and reforms. He described the type of data used for decision making and methods of collecting data. An educational reform had been started in 1969 with neither an idea about the size of the qualified manpower available nor where the forecasts would be put to determine long-term trends.

The surveys which were to be carried out as a remedy hit a snag because many employers refused to co-operate. Consequently, in the absence of reliable data, further educational
reforms were introduced to restructure the education system in which Basic Education was made to last for 9 or 10 years. It was thought that this would make it possible to trace the ages between 14 and 17 years.

A committee was established to co-ordinate statistical studies and to: popularize statistics among economic actors and administrators; make a periodical synthesis of surveys to determine the state of the country's development; unify and standardize survey instruments and economize resources for conducting statistical surveys. The latter was to prevent overlap, isolated initiatives and over-frequent surveys about the same phenomena.

However, these lofty ideas lacked proper logistics and must have proved too onerous a task to fulfil for soon after, the body was relegated to merely approving questionnaires for statistical surveys. Hammiche recommended comparative studies between various departments.

In Ghana, Ekuhan, E., E., 1977, reported on the identification and analysis of national patterns of information policy and planning and the impact of educational information to decision-making. According to his report, information at the national level on educational policy was elicited by setting up a committee from a cross-section of the population. The committee then solicited for information from other sources through a variety of ways of communication according to its terms of reference.

Ordinarily, the educational information would be obtained from the statistics unit in the
Ministry of Education. The Ministry's central administration passed down information on policy and objectives, norms and standards. The regional directors used data from their regions to plan for educational activities in the regions. However, regions lacked effective planning due to lack of horizontal and vertical communication. On the whole, the information system was haphazard, inaccurate, disorganized, over-lapping and repetitive. As a result, data were not relevant to decision-making. \textit{Ekuban, E., E.,} recommended that: regional data centres be established; diversification in curriculum should take into account local data; information communication be enhanced in speed and accuracy; the statistics unit be strengthened and personnel in the statistics unit be trained.

In Upper-Volta, \textit{Damiba, A.,} 1977, reported lack of detailed educational information until 1960. Prior to that devious reference would be made to scattered records in France, Senegal, Mali, Ivory Coast, Niger. The period 1963/64 saw the first compilation of school statistics. Before 1960 the education system experienced great wastage (Christol, Medard, 1957). The enrolment ratio was 6\% of whom 50\% reached standard 6 and less than 50\% passed the certificate of elementary primary education, of whom 15\% reached secondary.

Thus out of say, 4 million eligible for enrolment, 240,000 would be enrolled of whom only 120,000 would still be in the system 6 years later. Less than 1,000 would find a place in secondary education. Educational cost was equivalent to the annual family income; yet it had little perceived benefit. Proposals for mitigation resulted into the creation of rural schools (actually an appendage of the main-stream education). The proposals were from a committee of exogenous composition and largely based on the logic of techniques and figures. Yet, the scale of the intended programme stipulated that surveys and information campaigns be made;
and that effort he made to encourage participation from the intended beneficiaries.

Several years later the education programme was found to be ineffective because it had been received with mute resistance and active antagonism. To Africans, the concept of a rural school was a euphemism for the relegation of their children's education. This underscored the need for prior grass-root information.

Internal decision making was a la carte planning from a menu already given by the donor. Compiling quantitative data was for experts to draw up qualitative assessments from them to justify application for external aid. Planning was rubber stamping until UNESCO and French technical assistants set up training programmes, made several studies and mobilized the public.

Gokar, S., A., 1977 identified producers of educational information and problems. He listed media for the dissemination of educational information in Egypt. There were several educational policy and information agencies such as: the National Council for Education Scientific Research and Technology established for all groups of learned people; the Central Agency for Public Mobilization and Statistics (enforced by law to collect any information from individuals, groups and organizations); and the Education Committee of Peoples' Assemblies (which held public hearings, prepared legislation and carried out investigations). Each of them prepared periodic reports. The Ministry of Education was required by law to submit statistics to the Agency for Public Mobilization and Statistics and to present and defended its project proposals to the People's Assembly whose results of the discussion were then made public. The problems experienced were that:-
(i) information collected was still on traditional phenomena only.

(ii) university contribution was low, inconsistent and normally without users for their information.

(iii) the views of teachers and schools had no direct contribution to the information system.

(iv) some information useful to decision-makers was not classified.

(v) there was no immediate feedback to policy makers for them to evaluate policy achievements. Some information agencies were involved in competition and held up information. He recommended that these anomalies be removed.

In Somalia Chapman, David., Gaal, Ali Hassan, Birchfield, Shirley and Messec, J. L. (1989) carried out a study on "Education Data Flow in Somalia". The study involved an investigation of the patterns of data flow between the schools and the Central Ministry of Education (MOE) in Somalia, with the aim of helping to understand the problems of securing relevant, timely and accurate data for policy making in Somalia. Surveys, questionnaires were distributed, interviews were held and various government documents were examined.

The three major components of the study included:

(i) the study of national decision makers to determine the type of data they need for decision making and their satisfaction with the kind of data currently available to them;

(ii) content analysis of data available;

(iii) the study of Headmasters, District Education Officers (DEO), Regional Education Officers (REO) and the MOE officials' perception of the constraints and problems in
data flow between the schools and the MOE. The findings of the study were as follows:

(a) Data Needs of Decision Makers:
MOE officials attached considerable importance to data on school enrollments and teacher supply. Data on teachers' background and qualification was considered less important. Timeliness and accuracy of data were judged as problems by both MOE officials and the headmasters. Concerns about data interpretations were because users neither understood how data was analyzed nor knew the interpretation of data. MOE officials thought that the major problem of data quality was at school level where inaccuracy of data was not due to arithmetic errors at the MOE but at the school level from where the data originated.

(b) Data Available to the Decision Makers:
Published data tended to concentrate on aggregate student enrollment and only less than half of published documents reported enrollment separately by primary and secondary levels. Only 3 documents published during the past 22 years gave projections of teacher demand and cost data. There was considerable variation of the data at district level because District Education Officers neither made any decisions nor received any kind of statistical reports.

The REO hired teachers and made decisions on assignment and resource distribution. Although the REOs received data from the MOE they did not understand it and hence did not base their decisions on the data. At the National Level: the introduction of microcomputers had resulted in more rapid analysis and had improved availability of data about the system.
Study on the Head Teachers:

Only 75% schools received the survey questionnaires due to poor communication in Somalia. Head teachers usually confused the interpretation of various items because no uniform standards existed. Since the head teachers had no training in educational statistics, they did not see any benefit of completing the questionnaire and returning it.

They had a very little idea of who in the MOE used the data or what decisions were based on the data. The authors concluded that nearly all preconditions of good data in Somalia had been met. A coherent plan of action that linked data to decision making was needed. The primary use of education MIS in Somalia had been to secure funds from donor agencies for education.

Chapman, David and Boothroyd, Roger A., 1988, carried out another study on "Threats to Data Quality in Developing Country Settings". This was an empirical study on major threats in the quality of educational data in the developing countries and strategies to overcome these problems. The findings were as follows: Education Management Information System (EMIS) development in the developing countries followed mostly the context of policy issues. In the process little had been done to ensure the quality of data used for planning and policy purposes.

The three main reasons for this were: First, in EMIS implementation as the role of researchers and analysts become more specialized, the gap between them and those responsible for data collection, reporting and analysis become wider. Second, EMIS implementation is usually dominated by highly skilled technicians who have little knowledge of the local conditions. Third, as demand for data increased, attention was given to collect more data rather than what kind of data.
Major threats to quality of data were grouped into seven categories:

(i) Errors in data reporting which occurred when there was failure to report data. For instance, due to the school's failure to receive or understand the questionnaire. False data was reported intentionally or sometimes innocently. Inaccurate data was reported from those who did not maintain school data. They were confused on how to report data on repeaters and dropouts.

(ii) Errors in summarizing data: the process of data collection in Yemen followed a pattern of aggregation at various administrative levels. The staff responsible had neither relevant qualifications nor training. The quality of data generated at five different sources was up to 52% discrepancy at the Ministry of Education.

(iii) Errors due to treatment of missing data: Poor means of communications was a major obstacle to make up for missing data. Data requests did not reach schools. Also there was a greater need for analysts and policy makers to understand the implications and trade-offs among techniques.

(iv) Lack of consensus about Data definitions: Sometimes simple and straightforward requests for data were interpreted differently. Such differences could have political overtones.

(v) Inability to merge Data sets across departments or time: lack of common coding scheme for school identification made it impossible to link information about the same school which occurred in various data sets. Without a common coding system, it was difficult to verify teachers assignment by school using teacher payment records or estimating financial condition of a school.

(vi) Low reliability or validity of data: The common reason for low reliability or validity of data was in poorly designed measures.
Those responsible for this task lacked necessary skills and knowledge. Also they did not have the means to compute the psychometric properties of items.

(vii) Errors introduced by failure of Information Analysts to understand the assumptions: computerization of EMIS had been biased toward the use of machine language programming. This made data difficult to utilize.

The following was recommended: data verification at various levels during collection; incentives for maintaining and reporting accurate data; adapting procedures for data cleaning and handling missing data; training personnel; a school identification system; and the development of computer packages for education progress tracking.

2.4 Studies on educational information in Kenya

A study made in Kenya by Kinyanjui, K., 1977, was on the relevance and use of research and information for decision-making in educational development. At that time the sources of educational research were: the Kenya Institute for Education (KIE); the Bureau of Education Research (BER) - Kenyatta University; the Institute of Development Studies (IDS) - Nairobi University; the Basic Education Resource Centre (BERC) - Kenyatta University; the Kenya National Examination Council (KNEC); Private organizations and individuals.

The Teachers' Service Commission, the inspectorate and institutions were important sources of educational information. These sources tended to be independent and not coordinated (Court, D., 1971) though they were sometimes unintentionally complementary. When the (1974-78) Development plan stipulated the enforcement of more responsibilities in educational research and information for KIE, it became a veritable repertory for educational
information for policy formulation in education.

This enabled KIE to assert its position as an important dissemination centre for Educational information since it was involved in the writing of the syllabuses, educational books, the organisation of seminars, work-shops, in-service courses for teachers etc. All of these involved educational personnel of several levels: namely, the ministry’s officials, tutors, lecturers and teachers.

The research development unit of the Examination Council (KNEC) was established for the purpose of evaluating examinations, selection procedures in primary schools, the improvement of content, delivery efficiency and equitability in primary schools. The IDS, a social science research faculty at the University of Nairobi was established in 1965. Initially it was a multi-purpose policy oriented research institute but it had increasingly gravitated towards educational research. The BERC and BER were research departments with their directors in the University of Kenyatta, which trained exclusively teacher graduates.

Staff from IDS and these departments of Kenyatta University were at times commissioned to carry out research studies. They had also served on Presidential Education review commissions including the commission of 1976 which was the National Committee on Educational objectives and policies (NCEOP). This was indicative of the Government’s concern about disseminating research findings to policy makers. The results of the tracer studies carried out on the form IV leavers of 1969 by IDS staff influenced educational planning policies. After the report of the studies careers’ booklets were printed to inform school leavers what careers and training opportunities were available to them.
Kinyanjui, 1977, points out that the impact of research on policy may be determined by the nature of its origin and purpose, which influences the manner of communication, its acceptability and use. Sometimes, as often the case for commissioned research or research carried out by Government departments, research may be limited to giving evidence. It may be subjected to restrictive terms of reference or requirements of confidentiality. In which case, its dissemination would be minimal. With such restrictions that type of research may be subjective and devoid of refinements that might have been derived from other researchers.

Other studies in Kenya on information were carried out by Somerset, H., C., A., 1974 who was interested in information flow to students and employers. He was also concerned with what information was required for effective selection and what information was available to employers and other selectors before they made their selection. Other studies on educational information had been carried out by (Rado, E., R., 1970, et al.) who had wanted to know what information was necessary and how selection should be made effective, efficient and equitable. Another study was carried out in Kenya by (Mambo, 1990) its purpose was to enable various departments of the Ministry of education: The Kenya National Examinations Council, The Teacher's Service Commission (TSC) The Project Implementation Unit (PIU) to computerize its data. The latest of these studies was carried out in 1992 by D. Streatfield, it was for purposes of enhancing data concerns of the project: Strengthening Primary Education (SPREID). Among the aims of the study were:-

- to assess the need for and make recommendations about a computerized database to be established in the Planning Unit of the MOE;
- to detail the hardware, software, training and management requirements of the system;
to review the IT requirements of the Bureau of Educational Research Staff (at Kenyatta University) and of the SPRED Project TCOs in relation to that project and to make appropriate recommendations.

Streatfield made recommendations on the existing ICL equipment, and simply observed that an important initiative was being taken to enhance the quality of information being collected in the Planning Unit, by introducing new questionnaires to replace a variety of annual returns. He also observed that the new school questionnaires to be introduced in 1993 could provide a solid basis for creating a computerized database within the Planning Unit and that although the returns from different districts could be variable in quality initially, the basic reporting mechanisms in most districts could be adequate to provide source data.

He further observed that the task of data entry would take about 360 person-days of data entry activity to capture basic information on all Kenyan primary and secondary schools, which was formidable. Consequently, a Database Design Consultant, the Project Coordinator (Kenya) and CBS statisticians on secondment to the MOE, had identified crucial information from the schools' questionnaires for entry on the computerized database. Thus tailoring information to the technology.

According to Streatfield, 1992, the basic minimum requirements to enable the MOE Planning Unit to handle data relating to schools and especially primary schools more efficiently were identified as: enough computer "memory" for basic data on all primary and secondary schools; enough processing power for basic data manipulation and report preparation
purposes; adequate software; enough keyboards for speedy data entry and database operation; a simple but robust system to minimize breakdowns; a flexible system to allow for expansion and development.

For the management of the system Streatfield envisaged some key roles. These were the System Manager, who would require basic understanding of the operation of the system, including knowledge of the operational and applications software in use, as well as familiarity with the operations and information requirements of the MOE and the ability to organize relevant support. The System Development Officer who would ensure that the system is developed to meet the priorities set by the System Manager and that staff have access to appropriate training. The post holder would need to understand the system and software in use and their potentially useful applications.

Regarding the dissemination of information he noted that the success of the SPRED project will be partly dependent on an effective flow of information amongst the project staff, BER researchers and MOE officials, but that there was likely to be conflict between the "academic" interest and MOE in the publication of information.

The Central Bureau of Statistics was basing its IT development on IBM-compatible equipment. Similarly, the CIDAb was contributing a network of IBM-compatible Compaq machines to MTTAT. These and similar developments would be borne in mind when considering any future IT applications so that the systems could become gradually better integrated, rather than existing as a series of one-off initiatives.
In conclusion, *Streatfield* noted:

'The MOE has already began to review its database requirements but may find it helpful to extend this review to cover all its principal information requirements. Such a review should take into account the paper-based systems as well as the information that exists primarily "in people's heads". What is important is how the MOE can develop people's information handling skills to ensure that future developments are by need and not just increasing technological capacity to process quantities of information.'

He was rightly raising the main question but evading offering even a solution of sorts.

### 2.5 Educational Information for Rural Development.

The contribution of education to rural development has had little documentation. Yet for an Agrarian and developing country Education can never be better justified that when it is considered in relation to its impact on rural development. What follows is a review of case studies which should be a backdrop for observing whether in its present state the EMIS in Kenya is intrinsically useful for planning effective educational activities for rural development.

Kenya and its *District Focus Strategy for Rural Development*; In the era of retrenchment and adverse economic condition, integration of the National information functions and proper management structures of District Statistical Offices by the Central Bureau of Statistics will further strengthen the overall information system in Kenya. In this review the researcher wishes to find references on educational information linkages in the interactive field of education for rural development which is elusive and is yet to be sufficiently understood in developing countries according to these reports.
2.5.1 Case Study in Tanzania (UNESCO Report ED - 82/WS/93 No.4)

Rural development and education S. Tanzania (UNESCO'S case study report)

The aim of the study was to determine what education had done to translate community aspirations into action and hence the significance of school activities for village community. Methods of study involved instruments such as: interviews, questionnaires, observation and analyses of available literature on the rural development project and the education system.

The sample of respondents involved Regional, District and Community authorities as well as teachers, pupils, party officials and the community. Eleven village schools each with pupils ranging between 300 and 450 were studied. The findings of the study were:

i) The expectation that schools would act as modernization and innovation centres, increase their income, combine education increase the chances of participatory planning had been overstated.

ii) There was integration between classroom teaching and practice.

iii) There was lack of coordination between the planning of educational content and the planning of economic development.

iv) Schools had relegated the need to plan self-reliance projects and, where a semblance existed, the pupils were not involved in the planning.

Any design to meet the educational needs of a strategy for rural development must take cognizance of the community's social awareness and how to influence it. In the final analysis it is the way educational programmes are perceived by communities that will determine their (programmes) success in the strategy. This section is a review of case studies in communication within a community.
2.5.2 Case Studies on Rural Information in Kenya

Kenya had District Information and Documentation Centres (DIDC) supposed to be a resource and reference centre for developing information on districts (Maitha, S.M., 1990; Ngoru, N.A. 1990). They served as a collection, storage, and dissemination point for data and information describing economic, physical, ecological, demographic, and social-cultural aspects of a district. They were expected to provide the public and those involved in the implementation of development activities in the district with information on development plans of the district, development statistics, Government and district plans, and technical information for each sector as an input to the planning, monitoring and evaluation of development projects and activities in the district.

The DIDC programme was an extension of work began in 1979 by the Ministry of Planning and National Development. There were over twenty (20) DIDCs all over the country in different stages of development. However, information was collected about a district, e.g. by Central Bureau of Statistics enumerators or academic researchers, but the results were seldom re-channeled back to the district in time. The problem was due to lack of a common collection centre for storing and making available such reports at the district level, and due to poor publicity.

The highly departmentalized and vertically oriented structure of the Government, and the relative independence of parastatals and Boards did little to promote sharing of information at the district level so that a District Agricultural Officer may have to apply to Ministry Headquarters to get reports on activities of the Cooperative Development or Water Develop-
Information or statistics officers operating in a district were discouraged from utilizing information available for a variety of reasons but mainly because of the prevalent short tenure of office. The absence of adequate storage facilities or common and readily accessible information aggravated the problem. If training officers to utilize information sources was a priority then it must be facilitated by making them more accessible to the sources.

2.6 Summary of the reviews of the studies


The studies revealed problems such as collecting the same information, even with changing needs, tailoring it to technology irrespective of immediate needs (Streatfield, 1992, Gokar, 1977); loss of data through aggregation; lack of contribution from institutions (Gokar, 1977), etc. They proposed strategies for linking educational information to policies and National Development Plans (Chapman, 1988, 1989, Tunsiri, 1977, Kinyanjui, 1977); improving dissemination (Aliomoto, Gokar, Chapman, 1988, 1989, Tunsiri,).
The review on studies of District information networks in Kenya introduced possible linkages between information systems where isolation could render an information system pathological in the absence of goodwill and resources. Studies on rural schools show that schools could not be expected to automatically impart modernization without active intervention from the authorities. Similarly studies on communities indicate that relevant perceptual knowledge in a community was needed, since what was communicated did not always impress reality upon the recipient.

The latest reports in Kenya were very limited in scope. Hence the need to carry out other studies that should have anticipated them. Streafield deliberately or inadvertently mentioned no related studies and made no attempt to draw any lessons or parallels from such studies. Concentrating on technology, Streafield ignored the real dynamics of an innovation or reform - the culture which determines the values (standards of perfection, motivation, practices, privileges, etc.) - and which need to have a directed change also.

For a system’s designer to opt to use experience or profession will restrict the system to a reflexive trust on quantitative data (Kroebu, Watson, 1984) at the expense of the non-quantitative (Eide, 1977). Then the EMIS may lose relevance to its environment (Harold, J., Whistler, L., 1958). Streafield appears to have attempted to provide an answer whose problem was not yet clear. But an answer presupposes an end to a solution, not necessarily the solution since similar answers could have different solutions. Streafield’s study was like putting the cart before the horse.

In all the reviewed studies the pertinent questions not answered were: What is the
organizational structure of EMIS and how does it relate to the functions of the Ministry's system? Who are involved with the EMIS and how do they carry out their duties? This study zeroed in on the environment and its influence on practice in the EMIS by first reviewing educational policies since independence, the organizational structure of the EMIS; those involved in educational information, their functions and the effectiveness.

Worth noting also is the caveat that the development of the Information System should not be based on inappropriate data-bases (Sassi, 1991, Tunisia) and the observation by Chapman, 1989, that the quality of information is important. New technologies can enable quick information and decision-making but should not be biased toward the use of machine language removing decision-makers from data manipulations (Chapman et.al. 1988).

In the researcher’s view the priority is on the quality of educational information to go into the processing mills of whatever technology. Lucas, H.C, 1973, proposes committees for the designer and (Hurtubise, 1984) suggests a thorough analysis of the structures of the environment both of which are the focus of this study as opposed to those reviewed. In this regard studies like those conducted by Chapman, et.al., 1988,1989, are a step on course and should ante-cede those in technology to make sure that the right information is in the right technology.
The objectives of this study were to:-

- identify the main users and producers of educational information;
- examine the quality and the content of the data collection instruments;
- assess the relevance of data to the needs of educational management;
- assess the contribution of field education officers (Inspectors, DSEOs, DEOs) towards EMIS;
- propose a suitable organisation structure for the EMIS.

3.1 Introduction

This research is based in the area of educational planning, management and policies. Previously educational planning was concerned mainly with the quantitative expansion of educational opportunities (P.H. Coombs; C.E. Beeby, 1969). The aim of educational planning is now more to do with designing and matching the supply of educational services to needs within the constraints of available resources. However, basing activities and resources on demand and supply per se can be wasteful because demand can be unrelated to needs; therefore, rather than mechanically respond to demand, planners may encourage the development of certain programs, or use incentives to guide choices (Carr-hill,1988). This demands appropriate information.

Issues in educational planning may not be obvious. Even identical programmes to the same
people may have different impacts (Faure, E., 1972). Similarly, planned educational opportunities do not always correspond to learning needs (Evans, 1985). A society has wide ranging learning needs and social experiences, all of which can not be completely catered for by the school and formal institutions. Therefore, the importance of information for the right decision needs no emphasis as is common to all problem situations (Fernig L., 1980). In educational management knowledge is an instrumentality for the manager (Kennedy, 1984).

Many education systems in developing countries are in the service of ideologies or political models, thus their information systems may be devoid of rationality and efficiency. Yet, be it so as it may, the concept of EMIS is based on the scientific management model of (Weber and Taylor, 1946) designed to serve the various management functionaries, (fig. 3). Managers (Brittain 71., Evans, 85) may have specific needs but the basic data needs of many planning functions require related data and conform to a database, though different information is needed for different decisions.

The existence of better information per se does not guarantee improvement in the quality of education (Ross, K, et al. 1989) although it could increase accountability by giving indicators of quality and guiding decisions for improving quality (Murnane, R., J., 1987). One needs to tie various policies, processes, inputs and out-puts together to convert information into strategies for raising quality. One must also know the determinants for which educational information can improve quality. In the context of an education system there are a variety of sub-systems which are used for management and they may be devoted to opposing concerns so that determining the right action/information becomes vexed (Davis, G. B., M. H. Olson, 1985; Lucey, T., 1991).
An education system, like social organizations, is subject to alternatives hence the concept of equifinality also applies to it (Katz, D.R.L. Kahn, 1987). There is need for possibilities of improvement, with a view to identifying alternative forms that can best achieve the same goals, if at all, optimally. A receptive management regards an information system as an instrument of perfection. This literature is expected to give insight on the function of an EMIS and hence to help in determining its effectiveness later in the conclusions of this study.

3.2 Review of Related Theoretical Literature

![Management Levels in Educational Planning]

When considering the relationship between an information system of an organization and its activities one sees them in relation to those of managing education categorized at three levels depending on the time horizon. Consequently, an information system for managing education can be devoted to the management functions shown diagrammatically on fig.(3).

An information system comprises data collecting and production, data processing, data communication and information processing and production (fig.4). The information processing function of an information system often needs data to be collected and processed.
earlier. Thus data storage is necessary for an information system so that at any time, the processing function has current, data previously collected (Davis, G., M. Olson, 1985, T. Lacey, 1991, A. Aktas, 1980, Ta Ngoc Chau, 1990).

For an information system to yield quality information, it must have effective processing of information, effective management of information, flexibility for wider use and adequate user satisfaction (Brookes, 1982).

An information system consists of two subsystems called the Management information system (MIS) and the operations information system (OIS). If the information system is supported by Computers, the OIS becomes focused on electronic data processing (EDP) which is most useful at operations level in the preparation of factual or summary reports. The MIS can also be sub-divided into Decision Support Systems (DSS).

3.2.1 System's Design and Analysis.

It involves: investigating the objectives of the information systems; defining the criteria for effectiveness; examining alternatives in terms of effectiveness and cost and analysing the feasibility of the existing information system. In an information system, one should see the system's concept applied, particularly so regarding: a definition of the objectives and boundaries to determine what educational information is involved in what sub-system; a definition of processing, operation and application; and system's development schedule (Weber, 1984).

Once the system is in operation it is necessary to determine its performance, benefits and
cost-effectiveness. A system's performance involves examining: its coverage, its recall or retrieval ability, its precision, its timeliness and user effort. A system's benefits involve examining: cost incurred in its use compared to using another system, loss of productivity if the system is not used, improvement in decision making, avoidance of duplication of past mistakes, predictive capacity. A system's cost effectiveness is determined by the resources invested in it compared to its benefits. Data processing involves: specification of data needs; selection of appropriate indicators; data collection; data analysis; and relating of results to policy issues.

3.2.2 Specifying data needs

The management of an information system requires that the needs of those who manage or are served by the system be known. The definition of data needs is thus a critical step in designing an information system. This could be done in three ways:

(i) using data which are just collected for the sake of it, usually manifest in abundant data with unspecified use (K. Ross, et al., 1989)

(ii) after conducting an analysis of felt needs of major decision makers (Kusiyo M. Lewanika, 1988)

(iii) using some criteria derived from the experience of the system's designer (D. Knehu, H. Watson, 1984)

In the researcher's opinion the felt needs criteria could create more relevance in the information system. However, the problem is that rarely are decision makers in a position to anticipate the kind of information they would need and some of the users and beneficiaries are not recognized by those mandated to design the EMIS. For some decision-makers this
is due to either circumstances beyond their control or frequent redeployment, which denies them an opportunity to accumulate experience.

In either case, this could be a major cause of dissension between the decision makers and the information producers (Matthies and Matthies, 1977). Where the information system's designer opts to use his experience and professionalism to establish the system, then the system is doomed to be mechanistic and simplistic because of over simplifying processes in an educational enterprise even if technical and engineering applications may justify the approach. The information system will be characterized by a reflexive trust in quantitative data and fixed objective criteria which have no full application in reality (Kroebu, D. W. and H. J. Watson, 1984).

It is noteworthy for the designer of an information system that many decisions taken are not based on objective criteria. Such criteria would normally aim at establishing a measure of consistency (Barry, Clemson, 1978). This is not normally the case with social organizations where the final path to a decision may be untraceable and untenable. Thus, in real life, situations are subjective and may not withstand the rigorous test of objective data and the attending technical applications.

Hurtubise, 1984, concedes this point in suggesting that a thorough analysis of the structures of the environment, control, planning, documentation review and interviews should be done before establishing an information system. Otherwise, left on his own, the designer may lapse into an abstract model of the enterprise. Hence the information system.

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But (Lucas, H.C 1973), further suggests that the designer constitute at least two committees which should include one for: priorities (to help in understanding why certain projects, allocations, decisions are preferred); and users (to understand existing structures and functions).

3.2.3 Organising staff

Staff turn-over is usually high and this implies that training be continuous and not just for accommodating expressed needs. It also implies that documentation and management of data must be good enough to allow new people to maintain the work-flow without disruption. This may need an incentive scheme.

The organisation of staff in some countries follows one of these patterns: a member of staff handling issues about a specific category of activities; a member of staff handling activities across cycles of education; several members assigned to several issues. Whereas the last two enable an acquisition of a varied experience, they limit specialisation. The ultimate deployment of staff should, however, take cognizance of their number, their personal attributes, and, of course, the over-all objective of the information unit. The real issue then becomes the measure of the system’s effectiveness and which has to be done periodically (Broadbent, K. P., 1982).

The need for training is a common cause of poor utilization and formatting of information. But it is manifold: on the one hand manifesting in lack of personnel and, on the other, in the inability of decision makers to appreciate and question the implications and assumptions in
the information they use. If a proportionate number of decision makers had the basic knowledge of data interpretation then they would probably have understanding about information producers and be more explicit about format and kind of information needed for their use.

The EMIS should at least be kept at parity with information systems in other ministries in respect of its professional and other requirements to enable horizontal integration across agencies, ministries etc, while maintaining a vertical integration among decision makers at all levels so that departments with related functions share information needs. This could reduce cost while increasing information synergy to the advantage of the departments involved.
INFORMATION SYSTEM  
(General Model)

- Data Collection
- Data Storage
- Data Processing
- Data Communication
- Users Processing/Understanding
- Other Sources
- Information
- User's Knowledge
- Decisions, Actions, Change
- Real world

Sources:

i) T. Lucey, 1991, Management Information Systems
ii) Ta Ngoc Chau, Basic Unit on Information Systems (IIEP/Prg.TNC/90)
3.2.4 Data collection

According to (K. Ross, T. N. Postlethwaite, 1989, et.al.) good standards of data collection and processing depend on: complexity, depth, scope of data, design, management, preparation procedures (eg. sampling, instrumentation, field work, data entry, data preparation), analysis and manner of reporting content.

There must be prior to data collection, a clear notion of methods to use. Consequently, procedural questions should be asked regarding: what information is needed, number of units involved, time span, type of scientific sampling to be used for the desired scope, depth and time limit? One needs to know data periodicity and therefore determine beforehand whether it is for operational services, managerial or strategic planning. All these will be determined by the availability of resources and the capacity of the EMIS. Sampling has several advantages. Often, however, the problem is in designing a good sample (Ross, K., 1990).

Organising data does not only involve choosing indicators but also establishing data sets, databases and data codes. These enable a linkage to be made between data that were collected by different agencies at different times about the same phenomena. Thus data can be combined to serve several analytical needs. For this reason, it is preferable, to maintain one data coding system in a country.
Level of aggregation

Data organisation may require aggregation or condensing of data at different levels for analysis such as provincial, national, etc.

Decisions about levels of aggregation to collect, analyse and store data are necessary since most activities are designed for or occur in set contexts. However, there are inherent problems in data aggregation; for example:

(i) The same indicator can take different meanings at different levels of aggregation.

(ii) Data predominantly include learning inputs but rarely the indicators of the learning process: rarely are the qualitative dimensions of the quantitative measures revealed (UNESCO: Meeting the Basic learning needs).

(iii) Details are lost with levels of aggregation because data are so highly aggregated that they do not reflect the internal diversities of the system/institutions.

The decision as to which level to use depends on the issue at hand and the information system's capacity for storage and analysis. An information system should accommodate multi-level data requirements.

Whenever data is operationalized as a set of indicators (the proxies used to represent) one should realize that a proxy should be judged by how it reflects the real situation (Jerome, J., 1984).

3.2.5 Data analysis

Data analysis has undergone great improvements with the advent of computers, and the glaring advantages of micro-processors over the main-frame system can not be emphasized. These include, low-cost, portability, powerful management and analysis soft-ware, lack of
programming, expediency and speed as opposed to those which are associated with the mainframe system such as high cost, complicated programming, unreliable equipment, unavailable servicing.

Data analysis depends on the power of the software and the complexity involved in its use. Micro-processors require little training, financial investment and their maintenance cost is low (Hallak, J., 1990). For an information system that uses micro-processors to remain functional and coordinated with other departments using micro-processors, several criteria will be used to select appropriate hard-ware but the criteria are often elusive. For this reason, some authors propose that a good selection criteria would take into account the need for compatibility, redundancy, versatility, simplicity and durability.

But (Kroebu and Watson, 1984), warn against the dangers inherent in the fascination of planners with advanced hardware technology of information systems while they remain oblivious of the low quality of data sources and decision making criteria. Thus the emphasis should be on what the information system does rather than how it does it.

In some countries it has been found desirable that a priority be given to data analysis to avoid the congestion of requests and over reliance on ad-hoc measures for producing required information. In ensuring this some criteria are used which take into account: the consistency and urgency of data requests, the objectives of the programmes under review, the amount of the time it takes etc. Standard report formats can be made for requirements of routine reporting to create time for responding to special reports.
3.2.6 Data interpretation

This requires skill in developing projections, designing and testing simulations, interpreting the emerging trends in data and a clear presentation of those trends. The outcome of interpretations is not usually popular with decision makers because of the innate divergence in approach between decision and information making which are sometimes irrational and rational respectively.

The discrepancy in practice between the two complements is often a major source of frustration for data and information officers who feel that their professionalism, dedication and competence is dissipated and could be one explanation for the rampant exodus of professionals that bedevils information units in ministries, Kenya not being an exception.

3.2.7 Problems and defects in the use and design of EMIS

EMIS, as much as any other educational service, should operate in a cost-effective manner. Unfortunately, while information systems are said to be necessary for better decision making, their contribution towards improved educational quality is hardly documented. Apparently, this weak impact is predicated on the fact that decision makers are either forced to use other criteria for their decision making or are simply unwilling to use the EMIS. It is perhaps also indicative of how expedient an information system should be designed for the exigencies of the tasks in hand.

In some developing countries there is a missing link between the decision makers and the designers of information systems so that the information provided does not take into account
the complex determinants of the choices which decision makers have to grapple with (Hallak, J., 1990). Sometimes the designer of the information system is pre-occupied with the simplistic objective criteria and quantitative needs of the system.

The list of management tasks that an EMIS purports to address often has no relation to the management and planning tasks actually performed (Imboden, 1980).

Decisions and activities in many contemporary education systems of developing countries are not consistent because those countries cannot dictate their own pace of development without relying on wealthier countries. Consequently, educational programmes are greatly influenced by external factors and thus, ad hoc and inadequate decisions have often to be made by developing countries from time to time. Such decisions which are often made in crises defy good decision making procedures and good information.

Lack of effective use of information can be traced back to the fact that sometimes, information is not usually communicated to the users effectively. There is a tendency for information to be presented to the decision maker in a manner too technical to use, thereby negating the very advantage intended for the user's decision-making. For example, intricate projections for direct consumption by most decision makers require some technical expertise for the internalisation and interpretation of these projections.

The decision makers need to understand the errors involved in all the data and the projections which they use (Chapman, D.W., 1988). Yet, all these hardships withstanding, decisions must be taken expeditiously.
An additional problem is that, even if understood, the interventions needed as a result of the aforesaid information may need long negotiations, involve conflicts and even political risks not attractive to decision makers and also issues the information specialist may not be aware of.

A common problem in designing an information system is that very often, some information demands are untimely and leave neither time for collection nor analysis of data available before it is presented for use. In a bid to stave off recurrence of this problem, an information system's designer may be tempted to adopt a 'decision support system' (DSS) as is common in industrialized countries. Then the system becomes over-designed in terms of the information that is really needed. For a developing country beset by lack of requisite personnel, equipment, proper service scheme, etc., this approach may be a fiasco because it introduces a huge spectrum of information which may encumber and hamper the system.

Thus if the information system is focused broadly to serve unanticipated needs then it may result in more users but less satisfaction. Therefore, it is better to focus on data that relates to already recognized needs (Ibid.). Absence of an identified user of an information system is one reason for the failure of the system (Imboden, 1980).

According to (Hallak, Postlethwaite, Ross, 1989) the information designer should not only be receptive to expressed information needs but also be pro-active in assisting decision makers to realize other useful information. The problem may be that some information can not be quantifiable (Ta Ngoc Chau,1990). This requires pragmatism and good training for information designers. The advantage is that the designer organizes information activities
with a proper focus on the users.

Incomplete, untimely and inaccurate information usually becomes suspect and no body wants to use it. But the real challenge for the designer is that decision makers hardly specify their information requirements, and this often means that the information service is at the discretion of the information specialist.

Many developing countries are beset by the problems of weak management capacity because their education systems have been forced to expand faster than training needs, systematic communication, implementation, evaluation and monitoring. These factors conspire to weaken and limit information systems as they undermine the information system’s logistical capacity to collect and process better data.

An EMIS may require restructuring the line of authority to enable it to collect information in the best way for decision makers. If the EMIS serves the parochial needs of arch bureaucrats then its scope is likely to be narrow and of little use and justification. Cost-effectiveness may be achieved if there is more data that can be used across many levels (Chapman, 1988).

Sometimes there is antagonism among departments of a ministry and this can deny some potential users. In some countries, there are no incentives for use of objective data as decision makers resent careful analysis of data for fear that it may uncover undesirable information, lead to loss of privilege and cause unnecessary delays or trouble. Failure of
information systems' designers to anticipate how data from other departments could be useful to other social sectors is a problem.

Finally, it must be mentioned that common causes of problems for EMIS are: poor infrastructure for operating EMIS, lack of resources and the fact that the results of a cost-effective EMIS may not be realized until after a long time. The latter case also raises the problem of justification.

3.3 Management in Education

In the ensuing section it has been found necessary to first mention management and the concept of decentralization before reviewing the information system for management. In this case an information system will be seen as a management tool. The EMIS must respond to the management model. Besides, educational quality is a derivative of educational management which also gives the EMIS its skeleton.

3.3.1 Management orientations

Education management can be defined as a function which assumes responsibility for ensuring the fulfillment of educational policies and objectives. However, several definitions have been developed based on various approaches and views. These include the functional point of view; the operational point of view (B. Gournay); the structural point of view (J.W. Getzels, J.U. Liphan, R.F. Campbell, 1968). None of which will be a focus of this study. All in all, the designer of an EMIS should recognize it as a management tool.
Studies in education recognize the central role of educational management and some schools of thought argue that educational administration should adopt orientations that take into account the concept of the human quality of life to enhance freedom and justice both in school and society (B. Sander and P. Murphy, 1989).

Formal education is a means of progress and modernisation and this has caused governments to face insatiable demand for wider educational opportunities and participation. Consequently, there has been unprecedented expansion in education systems resulting in more public expenditure on education. In many incidences this has grown to such phenomenal proportions that governments in developing countries are caught up in serious financial strands and are only providing a semblance of education.

Thus parallel to this trend has been the obvious need to improve management for better educational quality, relevance and equity. Therefore, there must be fresh strategies in the management of educational programmes (A. Bordia, 1987). Besides, frantic effort needs to be made towards reducing wastage not only in the resources but also in the process variables of teaching, learning, supervision, etc.

Education management can no longer function on established norms, concerned with accomplishing routine tasks only. It is required to provide a stimulus for innovation, development, growth and change on the one hand and to manage planned reforms on the other. It has, therefore, to have the required orientation and skill. Thus in retrospect the role of educational management has become complex with concomitant changes in society.
In some countries educational management has come under the strong influence of public administration. In such cases to understand the functioning of the education system, one will need to know the evolutionary context of the forces that govern the entire public administration and the society at large. This often results in the panicky disruptive or interventionist role of state administration.

Sometimes it is conceivable that when the state is a major investor in education a reasonable measure of state intervention is exercised from now and then as public funds are at stake. However, often such intervention is devoid of adequate professional consideration. State administration puts a premium on purely political and economic rationalism while pedagogical pragmatism, effectiveness and participatory models are given prominence in varying degrees of convenience. State administration in an educational context can puzzle an education management system as much as would be the case of super-imposed and imported management models (J. M. Claffey, 1988).

The question as to whether the growth of the management function of a ministry has been commensurate with the complexity and the enormity of the tasks at hand needs elaboration. This will save the management from getting bogged down with routine matters instead of dispensing services relevant to educational quality.

Depending on the orientation of the management it can emphasize the instrumental quality or the substantive quality of human life. The instrumental quality of human life is concerned with utilitarian and extrinsic qualities of human life. It leads to competition, disparities, independence from established ethical values, lack of cultural identity, environmental degradation, disruption of social bonds and final annihilation of humanity (B. Sander and P. 72.
The results of the substantive notion are based on ethical and intrinsic values of human life. The notion presupposes satisfaction of basic needs of survival and mutual benefit. It, therefore, fosters equity, open participation and commitment to cultural autonomy. For a contemporary society there is a case to argue for the education management to adopt this last orientation. Inherent in it is participation and open administration.

Three management schools have been noted: the classical school, the psycho-social (humanistic) school and the contemporary school. The analysis in terms of the system leads either to a closed or open system of management. Analysed from criteria management can be said to be: efficient, effective, responsive or relevant.

(i) Efficiency-based management
This system aims at producing maximum outcomes with minimum resources, energy and time. It has economic concern and it is characterized by instrumental/extrinsic quality of human life. It is classical and closed.

(ii) Effective-based management
It is a system that aims at the attainment of educational objectives and their attainment takes precedence over utilitarian aspects of an economic nature. Consequently, effectiveness is held higher than efficiency. It is from a psycho-social school of thought based on behavioural approach. It is half open and combines emphasis on intrinsic and instrumental quality of life.
(iii) **Responsive-based management**

The system is derived from contemporary management theories. It is open and adaptive in that the system has the capacity to meet social and political demands made of it. It involves participatory methodologies. This approach is relevant to substantive quality of human life.

(iv) **Relevance-based management**

It is a more recent model of management. Relevance is a cultural/social criterion measuring the performance of the management. It is measured by its improvement on the substantive and intrinsic quality of human life. It is a participatory system and open. Despite all these lofty ideas, it is still in vogue for a management system not to lose sight of the need for efficiency and effectiveness; however, what is important is the matrix of mix for these two so that the subtle qualities of education are not lost in the obsession with the market and its sheer utilitarian values.

In arguing for the last two models of educational administration some authors have pointed out that a system modelled on them, besides enhancing participation, relevance and responsiveness can also hold a powerful antidote against institutionalized authoritarianism of formal bureaucracy and dogmatism.
3.4 Quality in education

The concept of quality is a vexed one because it connotes values but values are not objective. Quality depends on society, and society is a hydra-headed monster that speaks many tongues (C.E. Beeby, 1969). The quality of education, which is supposed to enhance the quality of human life leads to the philosophy of science, the politics of knowledge, the model of society and the concept of a human being (B. Sander, 1989).

Industrial nations, developing countries, market, mixed and central economies all have their versions.

Planned quality in the same organisation with the same goals and objectives, can connote different concepts to different implementors. Thus quality has no absolute meaning but it is in relation to an explicit and agreed function (T.R. Bone, H.A Ramsay, 1981). Sometimes to understand its meaning needs specification of the scale (Ross, K.N., Mahlck, L., 1990).

Qualitative education is bedeviled by confusion about the level of analysis that should be used (Burstein, 1976, and 1985). If the level of analysis is national, then quality in education may be seen in quantitative terms: the proportion of the population that gains access to what level of education, performance or reward. At school level, the concern will be about the class that has access to educational quality (quality of teachers, facilities).

At individual level, it may be the extent to which an individual realizes and uses his/her potentialities. The concept then has multiple criteria (B.C. Sanyal, 1989). Qualitative change
can be examined in two dimensions: in the class-room: what is taught and how it is taught, in the flow of students: who is taught and where (C. E. Beeby, 1969). But the search for quality may raise the need for indicators of quality and the means for achieving it. These two change with goal, objective and level of analysis (R. S. Adams).

A distinction must be made between the qualitative condition of the education system and the qualitative condition of society. Although the two are related, their impact on each other is still a subject of great uncertainty (Levin, H., 1978). For example, a desired improvement in a certain social attribute may not result from a corresponding improvement in the quality of education but from a totally unplanned happening in the society. On the other hand, some improvements in the 'quality' of education can be suicidal to society.

For example, while increasing the number of qualified teachers may improve the quality of education, it may raise the salary associated costs much to the peril of other necessary economic investments in a society. Qualitative changes in curriculum could carry monumental monetary implications for implementation which may be the cause of great frustration. By contrast, improvements in society are almost certain to have an ameliorating effect on the quality of education.

Some authors suggest that a distinction be drawn between the quality of the product and the process. In developing countries most children begin with poor background, therefore, their achievements tend to be low: this need not mean that instruction is of poor quality (Carrier, C. A., 1987).
Further more improving access means enrolling pupils from more deprived families. That could lower performance levels even with the same quality of teaching. Thus the expansion of the formal system tends to lower the educational output even if the inputs and the processes remain the same (E. Schieselhein, 1990).

The output of a school should be considered in association with the nature of the student intake and the prevailing social and physical environment in which schools operate. Otherwise many schools that are doing well could be misjudged (Ross, K.N., Mahlick, L., 1990).

Distinction can still be made between internal quality judged by how the system has attained the goals it was meant to achieve and fitness or relevance quality judged by the extend to which the system produced the person the society needs or who can be useful and contribute to its development. Fitness can not be achieved without internal quality although the reverse is true (Sanyal, B.C., 1989).

Some authors point out that there is a danger in emphasizing instrumental or utilitarian quality of education because of its relevance to market values; yet education has also other values which are not in the realm of market values (Beeby, C.E., 1969).

As governments try to discover the best policy matrix to use in tackling the problem of quality, there are important side issues that need to be distinguished when considering an EMIS. These include drawing a line between what is regarded as a successful school and an effective school (Fagerlind, I., 1991). Elsewhere in the discussion on administration, a distinction has been made between an effective and efficient administration. What should be
the focus of the EMIS in this regard?

These distinctions are very fine, but they constitute the challenge that an EMIS faces. One may pose the question: which is better to aim at, an effective school or a successful school? Is a successful school necessarily effective? As seen earlier, efficiency is concerned with costs. The concern in both these questions is the relationship between cost and effectiveness (Hartwell, 1989).

Some authors think that the costs in the relationship of effectiveness are financial, whereas the costs in the relationship of success are of a social, cultural, psychological, pedagogical and political nature. Implicitly, targeting the aims of an education system on successful education has a more lofty idea than otherwise not only because it offers a chance for the system to be effective but also because it improves the quality of education.

A system's operation is predicated on the operations of each of its components. In this regard, from this dynamic relationship between the components of an education system, it then follows that every component of the system is important to the quality of the product of that system since each component's operation has a complementary function to the final product of the system. Below is a broad representation of the education sector and its setting to explain the operation of the system and other common influencing factors (fig. 5).
3.4.1 Educational quality and user interests in information

Information for educational quality control must not only address the education system or EMIS or human performance but also the environment of all interacting systems. Thus by recognizing that the EMIS operates in an eco-system one accounts for the influence of the economics, socio-political and other related factors. Over years there has been undue preoccupation with aggregated measures of quantitative change. Hence preoccupation with, how many schools, classes, teachers, what new syllabuses etc. This has been a concern with only formal quality and not real quality (Ta Ngoc Chau, Carron, G., 1981).

User interests vary and they may not overlap or they may even be in direct conflict. For teachers and parents information is likely to be qualitative, but for those at National levels the information is likely to be highly aggregated and quantitative (Windham, Levin, Bathory, 1989). Most information systems are quantitative, concerned with simple numerical measures of status rather than the detailed descriptive information of status.
This shows the 'aforesaid emphasis on the Ministries' officials. And if the EMIS is focused on the needs of the few influential decision makers of the Ministry, then there is the danger that the EMIS scope is narrowly defined to serve the parochial needs of those officials.

Access of educational information to users will vary since some information is either privileged or classified. Lack of openness to information is common in developing countries and is one reason why donor agencies prefer to have their own information finding missions.

**User's and information demand**

One needs to know the nature and the structure of information demand, and the users whom the information system is to serve. This creates a good picture and helps the designer to frame important questions. Several studies have been carried out (*Brittain*, J. M., 1971; *Huguet*, F., *Viet*, J., 1979; *Bonnefoi*, C., 1977) and they reveal a range of functions in the education system with various users who can be categorized as administrators, research workers, teachers, teacher educators, parents, students, policy makers and communities, donor agencies, politicians, unions, associations, commissions (Fig. 6 and Fig. 7).
INTERNAL INFORMATION FLOW IN THE SYSTEM OF EDUCATION

Policy Makers

INTERNAL INFORMATION FLOW

Administrators

Teachers and Students

Researchers


(a) Policy-makers

These people decide and state goals that give the broad directions of the education enterprise. The group comprises politicians, Unionists, Organizations, Boards at National level, etc. For them contextual information is their interest. Thus they are concerned with: the political and economic setting of education; the evidence of the performance of the system; how education relates to employment and productivity; the achievement of political goals of democracy, equality etc.; data on regional disparities, evaluation and costing.

For them evidence of these facts will depend on the political structure of a country; which can muzzle public opinion or set up information generating functions like commissions (ICE Report, 1977). An information system cannot be devoted to this group because of the qualitative, general and wide range of information needed.
(b) Educational Administrators.

Information requirement for Educational Administrators have been studied (Brittain, J., 1971) and it was concluded that administrators required packages of accurate, timely information on specific subjects in good journalistic style easy to assimilate. The administrators need to know the part of the system they manage (nationally or locally). The required information is contained usually in reports (descriptive or statistical) on institutions and on the progress of the education system.

Administrative functions consist of evaluating programmes and planning for future within the set goals. Information is for diagnostic planning and statistical tables, graphics, indicators are a good condensed package of information. Another aspect of the administrator’s information system can be ascribed to external information (Blanc, E., Egger, E., 1970) who show programmes of international co-operation and their direct impact on changes in their country through the participation of the Administrators in international activities. All in all, however, it will depend on the type of administration.

Levels of decision making in Administration

Decisions can be taken at a planning level, management level, or operational level. Planning decisions have a long effect and a wide scope and involve long-term policy orientations and objectives. In view of the scope of the changes involved and the proverbial inertial effect of existing practices the changes envisaged in the plans can be imperceptible, marginal or perceived only in the course of time.
Management decisions have less scope, often made to implement planning decisions. In this case the obstacles, or the final effects as per expected outcomes are not easily discernible. Hence their careful monitoring. On the other hand, operational decisions have limited scope and effect; they are concerned with daily decisions (fig.3,p.74)

(c) Teachers

Teachers need information about their profession. The educational information to teachers was rarely through the formal information system (Brittain,J.,1971), but it was through informal channels like radio, television, teacher to teacher, weeklies. Hence new forms of information on educational literature relevant to practice for teachers was necessary. Usually professional information reached more than half of the teachers through intermediaries (Kristiansen, 71).

Necessary information for teachers is related to the task in hand: teaching methods, specific content, instruction materials in text, visual or audio form. However, many programmes which provide educational information may be aimed at the practising teacher, forgetting parents who are the other alternatives to teachers (Fernig,L.,1980)

It is the right of teachers to receive educational information and to produce it (International Teachers' Organization, 1977). According to the organisation, the content of the required information by teachers should cover:- directions and objectives of the education system; teaching techniques and methods; opportunities in the educational system; guiding them to develop all round without necessarily short-time economic gains; regulatory and statutory problems of the teaching service.

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While it is important that state officials be given prominence by the EMIS, the main reason for exorbitant cost in education is may be due to the relegation of teachers and other categories of users and implementors. An information system for regulating quality can not neglect these front line users and implementors.

Programmes could have a direct or indirect cost to users and implementors in varied degrees. They may demand extra time; an alteration in authority structures and prestige or any other unwelcome consequence. Therefore incentives are an integral part of any programme and envisaged changes. An information system should be focused on them as well (Kemmerer, F., Malck, L., 1991). Problems in the design and operation of incentives are the single causative factor for failure to implement programmes. The benefits of the program may go to society as a whole but fail to accrue to those asked to change work styles, learn new skills and, even alter professional relationships. The success of a large scale educational programme depends on a myriad of micro-decisions by individuals which can be taken to the advantage of the programme depending on the inherent incentives.

Incentives need not be pecuniary. Incentives should also be addressed from a systems approach to avoid a localized incentive structure that may compromise the entire programme. A common problem observed is when a system of incentive structure envisaged for a programme acts inadvertently as a disincentive for another programme. For example the training allowance exceeding the salary of the job can cause apathy among employees on qualifying.
(d) Teacher Educators.

Many of the needs of this category of users cannot be met by the information systems that were in common practice (Brittain, J., 1971). Since much of their literature is likely to be restricted to colleges there is need for a suitable package. At the same time, these teachers are also information producers and they need an expanded view to make this contribution.

Regarding teacher training; the role of the teacher in improving the quality of education cannot be maximized; experiments have been carried out for raising quality of instruction in some developing countries but there is almost total silence on their evaluation; enough is not known about how instruction is provided; enough studies have yet to be carried out to establish the advantage of individualized instruction; the effect of teacher training on pupil achievement is not clear; teachers are not trained to handle the large classes they often end up with; instead, teachers continue to be trained to handle learners in the same way.

In most developing countries this involves student centred approaches. What may be clear is that if training is not relevant or of poor quality or delivered badly, it deflates the confidence of the teachers and the quality of delivery. Experience is the filter through which people view events, interpret new experiences and judge their own capacities.

(e) Research Workers.

These groups of users are also information producers. Although they rely on bibliographical materials related to research, trends, methods and results (Fernig, Hugnet, and Viet) a great deal of their information is by means of communication and meetings. Depending on the case their information needs may cut across many disciplines e.g. sociology, economics etc.
The problem of the relevant information system for research workers may be because of the fact that they are not a homogeneous group for whom specific information would be prescribed. This variation often results in lack of communication among the researchers (Fernig, L., 1980). This may also account for lack of documentary evidence of the researchers' contribution to the EMIS as producers of educational information.

**INFORMATION FLOW AROUND THE SYSTEM OF EDUCATION**

![Diagram of information flow around the system of education](image)


*(f) The Parents and the Community*

They are responsible for the educational cost at primary level in Kenya and the entire educational cost rests on them. In the case of Kenya, it is regrettable that although parents bear this great burden of education the design of EMIS does not recognize them as major users.
3.5 Summary of the review on theory

In any contemporary education system occupies a single place not only because it provides early education but also continues giving the educational support of a psychological and material nature so that it is difficult to delineate the formative boundaries between the family and the school (Fernig, L., 1980).

This means that there are other important educational information users outside the education system. In taking stock of the socio-cultural dimension of the education system as far as an individual is concerned, the EMIS should, therefore, reckon with the contribution of homes and families and reach out for them. In Kenya where decentralization has been identified as a strategy for rural development, the involvement of communities as per strategy means that adequate educational information should flow to them from the education system to impel them to greater involvement.

The involvement of communities appears the common practice in many countries (Strudwick, 1986; Burke and Cowell, 1988). In Kenya it is very clear that community support has greatly inspired the implementation of educational plans. An informed community, however, knows: what an effective school is, what expectations are legitimate, what demands to make, what authority to invoke. This in turn puts in focus and improves educational processes and implementation in schools.

Those charged with implementing and designing educational programmes should appreciate the significance of cultural factors (Glass, 1990, Mahalan, 1987). Yet intrinsically this emphasizes the importance of having information on processes. Teachers in training colleges
CHAPTER 4

METHODOLOGY

The objectives of this study were to:-

- **identify the main users and producers of educational information**;
- **examine the quality and the content of the data collection instruments**;
- **assess the relevance of educational data to the needs of educational management**;
- **assess the contribution of field education officers (Inspectors, DSEOs, DEOs) towards EMIS**;
- **propose a suitable organisation structure for the EMIS**.

4.1 Introduction Methodology

The Education Management Information (EMIS) should not just be tailored to the needs of education managers independent of the other users and the needs of society. As explained in the theory, the elements of educational quality stem from society, but the factors are essentially vested in the management types which ensure that the right elements are transferred and made inherent in the education system which they manage.

Only then can the planned programmes be relevant to quality. For this reason the researcher designed the study instruments to meet these requirements within the practical constraints of the study. In particular the study was targeted on those members in the Kenyan society who had the most direct influence on educational practice as regards information collection and
processing. The specific considerations are explained presently in the research design below.

In this study effort was made to adhere to scientific sampling while selecting the samples for this study. The purpose of scientific sampling was to identify and make selections in such a way as to ensure a representative sample of all members of the population. To be representative, each sample (Allan, G. J., 1977, p:161) must satisfy four basic conditions:

(i) all members of the population must have a chance to get into the sample;
(ii) the probability for each member to be picked must be known (state what each member's probability was);
(iii) sample selections must be independent;
(iv) a sample that represents a population should also represent the sub-groups of the population (Ibid: 167) if it is large enough.

Use of these selection rules was to improve accuracy so that any remaining errors could be non-sample (Ward, M., p:125-142). Though it is usually difficult to determine whether a sample is representative (Allan, G. J., 1977 p:164) it is possible to determine the efficiency of a sampling procedure. Since samples greater in size than the absolute do not make a difference, excessively large samples were avoided.

Due to cost, time and accessibility, especially when units are wide-spread, it is not always possible or practical to obtain all desired measures from a population. The researcher tried, therefore, to collect information from a smaller group of the population under study in such a way that the knowledge gained was representative of the total population under study. An efficient sampling procedure helped to overcome management problems.
There are two methods of sampling one of which yields *probability samples* (random or systematic) in which the probability of selection of each respondent is known. The other yields *non-probability samples* (purposive or purposeful) in which the probability of selection is unknown (*L. Kish, 1965*). The latter are not susceptible to scientific analyses and inferences (*Ward, M., p:125-142*) and therefore they have only been used in this study when carrying the pilot study.

In this study the Education Statistics Officers were not sampled, consequently the survey instrument was administered to all of them. This was an effort to enhance the reliability of the information gathered from the districts. The ESOs were, in effect, the central respondents of this research since their duties were specifically to facilitate educational information production and use. Their practice, information behaviour, inhibitions in their duties together with those of their collaborators (School Headmasters, etc.) were a point of interest for the study.

### 4.2 Research Design

This section is about the research design, population samples, research instruments, reliability, validity and data collection procedures which have been employed for the study. The methods employed for this study have been presented alongside the relevant theory. In this study, a survey was carried out on the following:

i) the Kenya National Examinations Council(KNEC).

ii) the Kenya Institute of Education(KIE)
iii) the District Education Offices where the participating officers were:

- District Education Officers (DEOs).
- School Inspectors (District Primary schools’ Inspectors (DPSIs), Assistant Schools’ Inspectors at Divisional or Zonal levels (APSIs),
- Education Statistics Officers (ESOs).

iv) the Teachers’ Service Commission (TSC)

(v) the Offices at the Ministry’s Headquarters producing or using educational information (Planning Unit: Statistics Unit, Inspectorate, Field Services).

Kenya is divided into 8 provinces and 47 administrative districts respectively and whose jurisdictions coincide with the provincial and district education offices. In the District Focus Strategy for Rural Development (DFSRD), the district commissioner is the chairman of the District Development Committee (DDC) and the District Education Board (DEB)—although he may have little knowledge about educational services. Being the overall Head of a district he would normally have very many other committees to chair in the district. However the two bodies are central to educational planning in a district.

Each district comprises administrative divisions and locations headed by District Officers (DOs) and Chiefs respectively whose jurisdictions also coincide with educational divisions and zones respectively. The Provincial Administration (District Commissioners and the entire hierarchy of the Officers under them) can be instrumental or detrimental in any educational effort within their jurisdictions.
Assistant Education Officers (AEOs) and Assistant Primary Schools' Inspectors (APSIs) run educational services in Divisions and Locations (Educational Zones) respectively. The Provincial Education Officer co-ordinates D.E.Os in the districts and the District Education Officer in turn co-ordinates the District Secondary Schools' Inspectors, Primary Schools' Inspectors, and all education officers within his jurisdiction in the district. Some of the AEOs are in-charge of educational services within the divisions and they coordinate the APSIs and Teachers Advisory Centre Tutors (TACT)s.

The education system, though supposed to be decentralized, is still essentially centrally controlled. This is with regard to budgetary provisions and curriculum planning in non-university institutions. In fact, there were no decisions of consequence made at the periphery except from the centre of authority.

Although in this study, accessibility and communication infrastructure should have been taken into account while choosing the districts of the study and compiling the research instruments - since these could be significant to the operation of an education management information system - the requirements of probability samples made this consideration untenable. As expected the obvious influencing factors for an independent researcher in designing and planning a survey are the financial cost and other related resources. In this particular case, the necessary resources that would have made such a study approach susceptible to sound analysis would have been prohibitive.

Sample surveys are labour-intensive, the largest single expenditure being the field work where costs arise out of the interviewing time, travel time and transport claims of the
interviewers themselves. At pilot stage, some districts were chosen purposively (Warwick and Lininger, 1975: 98) to represent typical situations that occur in Kenya generally. This was due to the need for achieving the frugal use of human and other resources later in the study. At the same time other non-probability samples were used to obtain responses that were nonetheless useful in making amendments to the research instruments.

4.2.1 Samples

Perhaps a consideration of the districts from which to draw the samples should have been from two clusters of districts: those districts with inhabitants of pastoral and migratory habits and those districts with major communication hardships. This would have led to a purposive selection which would have ensured the inclusion of particular districts in the sample. However, such a sample would not have been also susceptible to scientific analysis and hence futile for this purpose. Otherwise it would have been impracticable with the resources at the researcher's disposal, considering the expansive nature of some of those districts in question.

More important, it is doubtful whether this would have enhanced the representation of the samples.

As a better alternative, a random sample was drawn from a set of provinces from which subsequent probability samples of districts were drawn. The samples for the District Education Officers and the District Inspectors of schools were not drawn. Instead each selected district automatically had these two officers chosen to participate.
However a different method was used to select APSIs in divisions and zones. These officers appeared to do similar inspection duties apart from the number of schools each was responsible for. According to Inspectorate records: Feb., 1992, File Ref. Inspectors/APSIs, which were the most reliable records available in the Ministry of Education, the total number of Assistant Primary Schools’ Inspectors was recorded and using a probability of 0.1 the required numbers were calculated per province (table P. 1) and a selection was then done per province.

As expected, this should have been per district but many district boundaries had changed and they were still changing to suit political changes that were taking place in the country. Therefore, using the numbers at the provincial level was more meaningful. In the circumstances, the researcher made strenuous effort to use the best records available to serve the purpose well. It was necessary in each case to first ascertain the records using as many corroborative sources as possible. From the lists of provinces (see map of project area: appendix -) four provinces were chosen at random out of eight provinces. Each province had a selection probability of 0.5. In each province a selection probability of 0.5 was also set for each district on the provincial list (table P. 1). Thus four of the 8 provinces in Kenya were selected and 15 districts out of 29 were chosen from the chosen provinces. Accordingly the following number of districts were selected from each province:

<table>
<thead>
<tr>
<th>Province</th>
<th>Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Province</td>
<td>2</td>
</tr>
<tr>
<td>Rift Valley Province</td>
<td>7</td>
</tr>
<tr>
<td>Eastern Province</td>
<td>3</td>
</tr>
<tr>
<td>Coast Province</td>
<td>3</td>
</tr>
</tbody>
</table>

These represented a total of 15 districts.
Table 2: Zones in the selected districts per province

<table>
<thead>
<tr>
<th>PROVINCE</th>
<th>DISTRICT</th>
<th>SAMPLE DISTRICTS</th>
<th>SAMPLE ZONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WESTERN</td>
<td>4</td>
<td>1. Busia</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Vihiga</td>
<td></td>
</tr>
<tr>
<td>RIFT VALLE</td>
<td>14</td>
<td>1. Nandi</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Nakuru</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. U/Gishu</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Kajiado</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Baringo</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Laikipia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Samburu</td>
<td></td>
</tr>
<tr>
<td>EASTERN</td>
<td>6</td>
<td>1. Machakos</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Embu</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Isiolo</td>
<td></td>
</tr>
<tr>
<td>COAST</td>
<td>5</td>
<td>1. Kilifi</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Taveta</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Kwale</td>
<td></td>
</tr>
</tbody>
</table>

In each district a list of APSIs was drawn (table 2 above). Thus the expected maximum sample size of the APSIs was found by using a probability of 0.1. About 43 APSIs in all the chosen districts were expected to be selected. The number of choices for the APSIs per district was determined by a random selection of the proportional total per province. Once the number of APSIs was chosen for a district the DEO and the DPSI were requested to assist the researcher to give out the (questionnaire) to a randomly selected APSI from the list available at the district office at that point in time.

All the systematic and random selections for this study were done without replacement. Thus each selection could not be strictly regarded as being independent. However, the alternative
could have been disastrous since the researcher was dealing with finite samples (Kish, L, 1965, Allan, G. J., 1977).

Due to the objective of this study which was focused on the responses about the practices in educational information and which obviously did not depend on the boundary by itself, there is therefore every reason to trust the approach adopted for the study and hence the findings. In this survey, facts about the districts in Kenya were found from an analysis of the district records in the Ministry of Education, the Central Bureau of Statistics (CBS) and the pilot survey.

4.2.2 Sampling theory as applied to the study

Only those departments, officers and agencies of the Ministry of Education which were concerned with educational information were selected for the study. Thus in a sense, the selection of the agencies could be said to have been initially purposive. After a pilot study necessary adjustments were made both in the respondents and the instruments in order for the study to be focused on major producers and consumers of educational information in Kenya.

Simple Random Sampling

In simple random sampling, each member of the population under study has an equal chance of being selected. The method involves selecting at random from a list of the population (a sampling frame) the required number of subjects for the sample. Because of probability and
chance, the sample should contain subjects with characteristics similar to the population as a whole.

One problem with this sampling method is that a complete list of the population is needed and this is not always readily available. In this study, however, this method was used with modification which took into account proportion (as explained below). All the numbers used to determine the proportions depended on what was retrieved from records in the ministry’s agencies. Hence some practical solutions mentioned above.

**Systematic Sampling**

This method is a modified form of simple random sampling. It involves selecting subjects from a population list in a systematic rather than a random fashion. If from a population a sample of size \( n \) is required, then every \( N^{th} \) item can be selected using say a simple algorithm as \( \text{population size(}\overline{P}\text{)/required samples size(}\overline{N}\text{)}=P/N \). Any random number smaller than \( P/N \) could also be selected (Borg and Gall, 1983) to give the selection interval \( N \). In this technique, to ensure against bias, all the members of a defined population are put on a list in random order or registration lists.

This approach was used in selecting provinces, districts and APSIs but it would have been extremely tedious if it had been applied to the selection of a particular APSI where there are very many officers and hence changes. It was enough for purposes of this study to get any APSI within a specified district using systematic selections of samples of APSIs in Zones and Divisions.

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Weaknesses of Random Sample and Systematic Sample

The two sampling techniques may be samples with *equal probability* or samples with probability *proportional* to size. In equal probability samples the setback is that the probability for each element of the sample remains equal no matter the size of the populations from which the samples are drawn.

If other important characteristics which may bias the responses are not taken into account the sample may not be accurate and the inferences thereof may be severely affected by poor representation. Besides this, if samples with equal probability are also to be *random* and *independent* then repetition is allowed, which may not be useful for a limited sample size (*Kish, 1965:635*). The weakness of this sampling approach is that it ignores size.

Samples with probability proportional to size were found to be more preferable for this survey since the researcher was interested in monitoring educational practice and places of educational activity. It was more important to the researcher to observe the frequency of the activity, hence proportional probabilities were used appropriately for this study keeping in mind the computational load and constraints on the resources.

**Stratified sampling**

It is the process of dividing the population into sub-groups or strata in order to carry out separate selections in each (*Warwick, D.P., and Lininger, 1975: 96, et al.*). This is useful in controlling the accuracy of the sample and in permitting the application of different selection procedures in different strata. Stratification often improves representativity of those
variables on which it is based and those variables which are closely related. Under this technique, no unit or group can remain unrepresented. However, improper stratification due to overlapping in the strata may be caused by bias in the sample (Reddy, 1987).

This sampling procedure is appropriate in studies where the research problem requires comparisons between various sub-groups. Following a pilot study considerations were made for such differences as in the professional training and responsibilities of the respondents, as in the case of DEOs, DPSIs, ESOs and APSIs. Instead of stratifying them, the researcher preferred to administer separate questionnaires.

But due to inconsistencies in records on the professional experience of the respondents this consideration could not, however, be made for APSIs. The researcher did not stratify the APSIs among those who were coordinators and those who were being coordinated at the zones. In fact the finding in the pilot study did not justify this special consideration since they all seemed to be deployed interchangeably.

In some areas affected by tribal clashes a certain category of inspectors - so called outsiders - could have been more affected in their duties than others and could have given different responses on the questionnaire. Fortunately, most of the APSIs at zones were locals and not outsiders. It was thus sufficient for purposes of this study to regard these inspectors a group with similar contribution to the EMIS.

In stage sampling the margin error of estimates depends on the size of the samples and also on the between samples variance, between district variance and the overall variance as in this case within the province. The necessary scientific measures have been taken.
Cluster sampling

It is a procedure of selection in which the elements of the sample are chosen from the population in groups rather than singly (Warwick and Lininger, 1975:98). The cluster elements may be formed into single clusters first, and then a given number of clusters are drawn randomly to form the sample (Reddy, 1987). Each cluster must be similar to the others and within the clusters the individuals must be heterogeneous.

For purposes of administration this is convenient and cost-effective where large scale studies involving very many units at say: national, provincial, district levels are concerned. In such circumstances it would be impracticable to list members of the target population. However, the drawback could be increased sampling error, reduced representation and limited applicability (Ibid.). Also the purported heterogeneity within the cluster and the similarity among the clusters are difficult to achieve. This sampling was not necessary for this study.

Stage Sampling

Stage sampling is an extension of cluster sampling. It was used in this study. It involved selecting some samples in stages, that is, taking samples from samples. The type of stage sampling used involved selecting a number of Provinces at random, and from within each of the provinces select districts at random then within each district select a number of APSIs systematically due to increased numbers. The whole process was random to enable the researcher to carry out scientific analyses.
This was the process followed in this survey and it was designed to involve multi-stage sampling to cover a good cross-section of respondents in the country. The pilot study that was used to design this survey was based on non-probability samples as they enabled quick and useful results to be obtained. A theory of non-probability sampling is given below.

*Non-probability samples*

Small-scale surveys often resort to the use of non-probability samples because, despite the disadvantages that arise from their non-representativeness, they are far less complicated to set up. They are considerably less expensive, and they can prove perfectly adequate where the researcher does not intend to generalize his findings beyond the sample in question or where he is simply piloting a survey questionnaire as a prelude to his main study. The chief kinds of non-probability sampling are mentioned below.

(i) *Convenience Sampling*

Convenience sampling or accidental sampling involves choosing the nearest individuals to serve as respondents and continuing that process until the required sample size has been obtained. Captive audiences such as pupils or student teachers often serve as respondents in surveys based upon convenience sampling (*Ibid*).

When piloting for the respondents in the districts and divisions the researcher preferred to do this kind of survey because it was easier to manage and less costly. Although the choices were convenient the findings helped to make the necessary alterations in the survey instruments.
(ii) Quota Sampling

Quota sampling is the non-probability equivalent of stratified sampling. It attempts to obtain representatives of the various elements of the total population in the proportions which they occur there (Ibid). This could have been done instead of making the fore-said purposive selections of the districts but instead, the researcher preferred to do content analysis of district facts from the CBS and records from the ministry of education. This was easier and less costly to do.

(iii) Dimensional Sampling

Dimensional sampling is a further refinement of quota sampling. It involves identifying various factors of interest in a population and obtaining at least one respondent for every combination of those factors. Thus, in a study for example, within each group the researcher may wish to distinguish between the attitudes, training types, etc.

The sampling plan might take the form of a multidimensional table with groups across the top and attitudes or training down the side. It was not necessary to do this kind of sampling for the pilot study of this research.

(iv) Snowball Sampling

In snowball sampling, the researcher identifies a small number of individuals who have the characteristics that he requires. The people are then used as informants to identify others who qualify for inclusion who in turn identify others. This approach was not used. However, it would have been useful when carrying out the pilot studies among respondents where genuine
responses may not have been easily obtained for some reason e.g. suspicion among the respondents if most of them were not exposed to the practice of interviews and surveys or if they were not well disposed to release privileged information.

Such respondents could have been the parents, the PTAs, and the school committees, school leavers as had initially been considered for inclusion in the study. In that case using enlightened members of the community could have fostered the confidence of such respondents. The obvious bias could be that enlightened respondents who could be organized and responsible members of the community might also suggest their friends. Depending on the parameter under investigation this could give false results.

4.3 Research instruments

What follows are the ideas that were used in constructing the research instruments used for this survey. According to Warwick and Lininger (1975:p:8):

Researchers want methods which can lead to generalisability and which have accuracy, explanatory power, low cost, speed, minimal management demands and administrative convenience.

A researcher has a variety of such methods to use and they include: observation, interview and questionnaires (Borg, Gall, 1983).
4.3.1 Designing self-completion questionnaire

An ideal questionnaire possesses the following properties:

It is clear, unambiguous and uniformly workable. Its design must minimize potential errors from respondents . . . and coders. And since people's participation in surveys is voluntary, a questionnaire has to help in engaging their interest, encouraging their co-operation, and eliciting answers as close as possible to the truth (IIEP training material, 1990, Ward, M, 1983, p:125-142)

Having identified subsidiary topics of interest in the survey and itemized specific information requirements relating to them, the researcher then designed the structure of the questionnaires.

In this survey, three different questionnaires were used for three different sets of respondents: the educational statistics officers (ESOs), District Education Officers (DEOs), Primary Schools' Inspectors: DPSIs or APSIs. Since all the statistics officers were given the questionnaires to answer, the questionnaires contained a small amount of open questions all of which were simple and less involving. The questions were so designed because they were intended for many respondents and the researcher was interested in getting as many responses as possible. The researcher was also conscious of the computational load that was imminent.

On the other hand, only a sample of the DEOs, the DPSIs and the APSIs answered their respective questionnaires which contained several questions most of which were closed. This entire strategy was for purposes of having plentiful and reliable information. The researcher also had in mind the inherent computational demand.
4.3.2 Interview

Interview involves constant communication between the (respondent) interviewee and the interviewer. It can be a source of accurate data since the interviewer can also interpret the meaning of the responses he/she receives from the respondents. Interview, apart from being direct could also be by means of telephone or other electronic or telecommunication. Organizational advantages derived from each will depend on convenience and constraints. The face-to-face or direct approach has the advantage of having greater accuracy, and being amenable to adjustment to suit the interviewer, but it could be costly.

The other approaches lack the advantage of communication by other means due to the presence of the interviewer (Warwick and Linenger, 1975). When well designed and conducted, a direct interview provides qualitative, in-depth flexible data (Reddy, 1987:90). Also, the approach has the advantage that the interviewer can gain the confidence and interest of those being interviewed manipulate the interview to the advantage of those being interviewed (Stone and Harris, 1984:10) and obtain the best results.

The interviewer can repeat the questions and the responses do not depend on literacy, or educational background (Warwick and Lininger, 1975; Reddy, 1987). An interview schedule was prepared and used with due consideration for the aforementioned for collecting information at the ministry’s offices in the Head quarters.
4.3.3 **Observation**

Two types of observation techniques are the participant and non-participant observation (Leedy, 1980; Christensen and Stoup, 1986). Observation is a qualitative primary research instrument for gathering data in a more natural way that ensures validity and reliability (Reddy, 1987). It is an extensively used method in social science research. **In participant observation the observer mixes with the groups; freely part-taking of what they do as a fully fledged member of the group (Op.cit.p.85).**

This provides access to detailed, accurate and authentic information. The method could take a lot of time to collect data, hence inappropriate for extensive coverage. As well as this, the researcher may get bogged down emotionally and lose both impartiality and objectivity.

In non-participant observation, the researcher observes the phenomenon from a distance or while being in the group without participating in the group’s activities (Ibid:87). The advantage is that more data can be collected in a short time. However this method may detract the participants due the presence of the researcher who is regarded as a stranger. **By the same token, impartiality and objectivity by the observer are possible because of non-emotional involvement. Non-participatory observation may be naturalistic, involving direct observation or anaturalistic, involving document analysis.**

Naturalistic observation is more deliberate than simply noticing things. It involves watching and recording phenomena as they occur (Stone and Harris, 1984:2). Such information facilitates the derivation of more authentic information from a given sample. It is suitable in
descriptive research where certain types of information can best be obtained in this way (Best, 1970). In this study this technique has not been used.

Content analysis involves analyzing certain relevant documents to derive certain information. This was done to collect data and analyse documents such as: questionnaires from the ministry's agencies used to collect information for improving the quality of primary education. The documents analysed were from KIE, KNEC, DEOs, TSC, Inspectorate and Ministry Headquarters (Appendices:5-13).

4.4 Validity and Reliability

This research was intended to provide evidence from which solutions could be suggested. However, since the evidence of this report is based on samples (population estimates) inevitably, the inherent suggestions can not yield complete solutions to practical problems.

The descriptive research approach adopted in this study can be justified by the fact that: in human and social studies situations can not be simulated for typical situations in which to study phenomena and establish cause and effect. In fact, were it so then some of the significant variables could be lethal and annihilative to the phenomena under study (West, 1970, p.117).

Social Scientific studies can only deal with people in their natural setting and at best they can only describe what happened to discern trends hence what could happen in the future. Using expert knowledge or established theory a researcher can then recommend or make suggestion.
about the finding of a research study. Descriptive research describes, interprets conditions, relationships, practices that prevail, beliefs, effects felt, trends developing, etc. and the significance of what is described (Ibid. p:116)

The report follows from an analysis and interpretation of the data gathered and a logical reporting of the findings. This report focused on: the present conditions, the set functions, targets and hence the requisite practice, expert view on the best practice from review of theory and studies, possible remedies. The recommendations and suggestions made here have been inspired by the need to exercise care to ensure that the recommendations are justified by the descriptive method adopted in this study.

Descriptive research is recommended even for behavioural sciences because, under the natural conditions that occur in any context, human behaviour can be systematically analyzed and modifications of influencing factors of human interactions made. The research method is therefore suitable for this study but this does not, however, force the researcher to carry out a routine task of gathering and tabulating figures and describing what happened. That is not the essence of a research process (Op.cit.,p:118).

The research project is not complete until data has been organized, analyzed and significant conclusions derived. Descriptive research, should not be prescriptive, therefore solutions have not been attempted. The research study stopped at suggestions, conclusions and recommendations. Decisions will be expected to be taken by policy makers and other functionaries.
While making suggestions and conclusions restraint was exercised in limiting personal experiences influencing the research findings. Such experiences can be too unique and unrepresentative to warrant generalization. Similarly, this report avoided consensus as the basis for suggestions, conclusions and generalizations because consensus is often hard to reach or establish without objective means.

Measures for enhancing validity and reliability were taken throughout the research activity: from the design, sampling, data collection and analysis. The research design was based on the quantitative research approach as opposed to the purely qualitative to ensure that the analysis and the inherent findings and conclusions are based on a scientific approach.

_Sampling Error_

A sampling error exists where a sample fails to represent accurately the survey population (Cohen, L., Lawrence, M., 1980; Ward, M., 1983, p.125-142). If many samples are taken from the same population, all will not have identical characteristics either with each other or with the population. There will thus be a sampling error (Cohen, L., Lawrence, M., 1980).

Sampling errors are not necessarily the result of mistakes made in sampling procedures. Rather, variations may occur due to the chance of selection of different individuals. The Central Limit Theorem which states that if random, large samples of equal size are repeatedly drawn from any population, their means are approximately normally distributed. The mean of the sample means is approximately the same as the population mean.
Two kinds of sampling errors exist: namely, random error and bias (Allan, G. J., 1977; p. 196; Ward, M., 1983). Samples vary around the accurate sample. The random variation results in a random sampling error. Stratifying and use of large sample size would reduce the chance of the error.

**Bias:**

It may be easier to detect common important characteristics which can affect the results of a survey. The bias could result in a systematic exclusion of some members of the population, as could easily be the case in systematic sampling due to periodicity. Mail interview may also be biased against those without phones or mail boxes. The survey procedure to be adopted should take into account the purpose of the survey.

**Over-Representation**

Even when selection is done fairly, there could be over-representation of, say, one sex compared with its actual distribution in the population. With extra information on the characteristics of the population care can be taken to ensure accurate representative sample by drawing samples separately within the different groups of the population (sex, education, age, occupation, etc. (Allan, G. J., 1977, p:166).

This procedure can eliminate samples that grossly in error or bizarre and increases the likelihood of samples with greater efficiency (more accuracy). At the worst a stratified sample yields the same level of accuracy relative to sample size as Simple Random Sampling. It can only help the sample but not lower its accuracy (Op cit, p: 167).
A country like Kenya and any other developing country has its demerits on the sampling frame and the chosen samples which can sometimes inflate the Total Sample Errors (TSE). Usually, the TSE has four dimensions which the researcher attempted to limit as far as possible within the constraints of available resources. In general (Ward, M., 1983 p:125-142) the four dimensions in which it can arise are:

(i) The Statistical Sampling errors: which can be calculated and depends on the nature of the parameter to be estimated and the sample size;

(ii) The Non-Sampling error: due to variability in the posing of the questions and the way responses are made;

(iii) The Sampling bias: due to the extent to which the final sample is representation of a true random sample of the sample population;

(iv) The Non-sampling bias: the departure from the population actually used as the sampling frame from the desired target population.

In the section on the sample designs these points were taken into account in order to minimize the errors. However, all errors cannot be eliminated completely due to practical and resources constraints. A problem was noted at the Coast province when one of the three selected districts did not respond at all and so the respondents were fewer than those targeted. However, this problem was negligible (table 3).
4.4.1 Responses

Table 3: Percentage of respondents among the APSIs from the selected provinces

<table>
<thead>
<tr>
<th>PROVINCE</th>
<th>NO. SELECTED</th>
<th>NO. RESPONDED</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>WESTERN</td>
<td>7</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>EASTERN</td>
<td>11</td>
<td>7</td>
<td>64</td>
</tr>
<tr>
<td>COAST</td>
<td>5</td>
<td>3</td>
<td>67</td>
</tr>
<tr>
<td>RIFT/VALLEY</td>
<td>20</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

The total number of APSIs in the selected districts of the selected provinces was 414. A probability of 0.1 was used to select an APSI in the provinces. The expected number was approximately 43 because of rounding in each province.
Table 4: Percentage response to Inspector's Questionnaire

<table>
<thead>
<tr>
<th>QUESTION NO.</th>
<th>RESPONSES</th>
<th>%</th>
<th>N=58</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.c</td>
<td>50</td>
<td>86.2</td>
<td></td>
</tr>
<tr>
<td>8.d</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>9.b</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>9.c</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>9.d</td>
<td>50</td>
<td>86.2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>48</td>
<td>82.8</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>48</td>
<td>82.8</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>49</td>
<td>84.5</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>48</td>
<td>82.8</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>51</td>
<td>87.9</td>
<td></td>
</tr>
</tbody>
</table>

NB. These percentages are based on the total number of inspectors expected to respond to the entire questionnaire. They are lower because N is 58 instead of 51. If say, 3 Inspectors
did not respond to a question then altogether, 10 did not including those 7 who failed to respond completely.

Table 5: Percentage of responses to DEO’s Questionnaire

<table>
<thead>
<tr>
<th>QUESTION NO.</th>
<th>RESPONSES</th>
<th>%</th>
<th>N=15</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>13</td>
<td>86.7</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>13</td>
<td>86.7</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>13</td>
<td>86.7</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>11</td>
<td>73.3</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>12</td>
<td>80.0</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>10</td>
<td>66.7</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>13</td>
<td>86.7</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>11</td>
<td>73.3</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>13</td>
<td>86.7</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>11</td>
<td>73.3</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>13</td>
<td>86.7</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>12</td>
<td>80.0</td>
<td></td>
</tr>
</tbody>
</table>

Apart from these questions, all the questions were answered by all the respondents. The response analysed above includes the DEO from the district which did not respond to the questionnaires.

The cases of non-response could easily introduce non-sampling errors because non-respondents often turn out to have very distinct characteristics from the rest of the units in
the sample. The result could be a skewed representation of the target sample which would eventually affect the results of the analysis but as can be seen from the tables (3, 4, 5) of responses, cases of non-response were not many and the researcher hopes that the errors which may have been introduced could only be non-sampling and where, though impossible to remedy, not serious.

The generally good response resulted from co-operation of the respondents who were government officers and colleagues. Although the questionnaires for the field officers were mostly self administered, where response was not obtained repeated visits were made and this effort paid in most cases. In such cases the researcher took the opportunity to carry out an interview based on the questionnaires. The responses elicited in this manner compared well with other responses and so the researcher was satisfied that failure to respond completely was not mainly due to problems inherent in the questionnaires.

A non-sampling problem which could have caused errors was the out-datedness of records, in some cases due to recent political changes which caused corresponding changes in the boundaries of educational administration and related duties. The worst affected were zones which as per writing of this report are still changing. Obviously if this survey were to be repeated now, the proportions within the sampled areas would have altered.

Ward, M., 1983 while conceding this problem in developing countries states:

The resulting inadequacies and incompleteness of National lists and registers arise from administrative, political and financial reasons ... No amount of subsequent manipulation, however statistically sophisticated can compensate for the inadequacies.... So that ...the bias, while probably large is unknown.
In this study, as already mentioned, the numbers used for calculating proportions were the best available. Never the less, apart from the sampling probabilities which may be affected by unanticipated increase in the number of APSIs in the Republic, the validity of the findings remains the same. This is because the proportional composition of the samples and the attributes of the population were not changed by this sheer increase in size of the sampling frame. Thus applying the same procedures and proportions would yield similar results overall.

4.5 Field experiences

(A break-down of the research activities)

The research activities started in June 1992.

Duration 2 months

Stage 1: (June to August, 1992)

The researcher visited selected districts, Zonal Education Offices, provinces, selected schools and the various institutions mentioned above. This enabled the researcher to have comprehensive discussions necessary for the development of research design, instrumentation and strategy. In this stage a comprehensive inventory of all requisite information was drawn up after a profile study of the selected populations.
Duration 3 months.

Stage 2: (August to October, 1992)

The researcher designed research instruments.

Duration 4 months.

Stage 3: (November, 1992 to February, 1993)

The instruments were tested on selected samples of population and amendments made where necessary. The researcher also secured research permits.

Duration 3 months.

Stage 4: (March to May, 1993)

The researcher administered the instruments.

Duration 1 month.

Stage 5: (June, 1993)

This involved data analysis, hypothesis testing and interpretation. The anticipated micro-software facilities were not available for analysis and so the analysis was done manually.

Duration 1 month.

Stage 6: (July, 1993)

Report writing.
### Table of Research Activities

<table>
<thead>
<tr>
<th>Period</th>
<th>Phase</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 months</td>
<td>stage 1</td>
<td>Visits/pilot-study/instrumentation/records/inventory</td>
</tr>
<tr>
<td>3 months</td>
<td>stage 2</td>
<td>Designing instruments</td>
</tr>
<tr>
<td>4 months</td>
<td>stage 3</td>
<td>Pre-testing</td>
</tr>
<tr>
<td>3 months</td>
<td>stage 4</td>
<td>Data collection</td>
</tr>
<tr>
<td>1 months</td>
<td>stage 5</td>
<td>Data analysis</td>
</tr>
<tr>
<td>6 months</td>
<td>stage 6</td>
<td>Report writing</td>
</tr>
</tbody>
</table>

Total Research duration = 14 months, ending on July 27, 1993.

Since the researcher was an employee of the Ministry of Education, Kenya, it was sometimes easier to get response when this research was directed to the personnel in the Ministry of Education. At times the researcher took advantage of the good relationships in the ministry to persuade the respondents to respond in good time.

Many officers in the field cooperated because they personally experienced problems in information requests from the ministry which they thought were cumbersome. They hoped that this project could go along way in solving those problems.

Where there was no response the researcher either wrote reminders or personally visited the officers concerned and this helped to improve the response rate. Initially questionnaires had been sent to field officers in the selected districts who included:
- the District Education Officers (DEOs)

- the Inspectors of schools (DPSIs, APSIs)

- the Education Statistics Officers (ESOs)

Most DEOs could be reached by phone except in Taita/Taveta, where the researcher was unable to get any response. In some cases several journeys were made before the DEOs and Inspectors responded. Some districts had a serious transportation problem and it was not possible to follow up non-responses beyond the DEO especially when this involved zonal officers.

All the ESOs had been given a questionnaire to respond to in an unsampled situation because the information that they collected was for all the officers of the Ministry who dealt with educational information. In some cases departments by passed the DEOs, but involving all the ESOs was for the purpose of getting a quick cursory look at the data collection practice in the Ministry since the ESOs were handling information requests from all departments of the ministry.

Their questionnaire was simple and with a few questions (appendix 1). The DEOs and departments of the ministry had longer, with greater depth questionnaires designed for only a sample of them (appendices 2, 3). The pilot study which had been carried out earlier enabled the researcher to make the questionnaire as explicit as possible.

The inspectors were the largest sample. Their information gathering concerns were expected to be different from the DEOs since they were supposed to be involved in professional and
hence non administrative work. It was the researcher's view that whatever they were involved in was relevant to the EMIS as they would be able to gather qualitative information that would be used in improving the quality of education.

The Inspectors' questionnaire (appendix 2) also had greater depth and had many questions. Their questionnaire fulfilled two roles: to assess their contribution to the EMIS and to assess whether the DEOs' offices had the potential to carry out information gathering effectively in the present set up.

Overall, their responses and those of the other aforementioned officers would give a clear picture of what was happening in the districts concerning the collection of educational information. It was easier to make follow ups for the district based Inspectors because they were as few as the DEOs. Once the DEO appreciated the need, it was possible for the DEO to explain the reason for late response from the Inspectors. In most cases, the DEO then asked the district inspector to fill his and to ensure that the selected Inspectors in the district did the same.

Even with the assistance from the DEO's office by way of sending reminders, it was not entirely possible to get response from some APSIs who had failed to respond. Due to immense hardships involved in repeated travelling to the zones some of which did not have accessible roads, the researcher could not continue pursuing such inspectors. This was the case in some parts of Samburu, Nandi, Isiolo, Kilifi, Kwale, districts as reflected on table:3. Fortunately such cases were not many (7 of the expected 58.12% ) to affect the accuracy of the chosen samples and choosing new samples.
Table 6: Academic qualifications, experience in data collection, officers' seniority

<table>
<thead>
<tr>
<th>Experience in data collection</th>
<th>5 gave no response (10%)</th>
<th>15 had less than one year (32%)</th>
<th>16 had less than 3 years (32%)</th>
<th>5 had less than 5 years (10%)</th>
<th>9 had more than 5 years (16%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Qualification</td>
<td>10 were graduates (20%)</td>
<td>3 had a Diploma (6%)</td>
<td>31 had A-level (62%)</td>
<td>4 had O-level (8%)</td>
<td>2 had less than O-level (4%)</td>
</tr>
<tr>
<td>Seniority</td>
<td>2 were S.E.O. (4%)</td>
<td>5 were E.O. I (10%)</td>
<td>18 were E.O. II (36%)</td>
<td>24 were E.O. III (48%)</td>
<td>1 clerk (2%)</td>
</tr>
</tbody>
</table>

S.E.O = Senior Education Officer
E.O. = Education Officer

Educational Statistics Officers in the Districts and Municipalities prepared educational information for all educational levels (pre-primary, primary, secondary) and educational agencies. One of the Education Statistics Officers had not trained as a teacher, but the majority of them had initially been trained as teachers for primary schools.

In retrospect, by the standards of education in Kenya and by the requirements of the task at hand, this was a limited level of education. The officers could have some ideas about how educational information was crucial in correcting ills at primary level, but without adequate educational experience at higher levels or subsequent training they would not be useful information producers or users at those levels. Their contribution as information producers would easily be relegated to merely ministering to information demand, without a full appreciation of the needs in question and without being in a position to guide and evoke unanticipated demand.
Thus for purposes of continuity and efficient functioning of the information system the ESOs need good educational background and experience, preferably at University graduate level. Working with information and producing it should be characterized by a mutual appreciation of the needs of the users/producers. That requires constant dialogue between the user and the producer for the users to interpret the limitations inherent in the information they use and to interpolate/extrapolate information requirements accurately for the purposes at hand.

The information generation so characterized helps liberate the decision maker from the ignorance about information limitations and the problems of making disastrous decisions based on that information. On his part, in the absence of specific demand, the producer with foresight should be able to anticipate and marshal important information for later presentation.

The findings of the training experience is shown on table 7 below. The statistics unit in the Ministry of Education seemed to be encumbered with a high turnover (more than 42%) with less than a year's experience and 74% with less than 3 years. This attests to a high arbitrary deployment of the ESOs in Kenya or a problem in the ministry's information service. This may lead to inadequate skills in educational statistics, which can only be alleviated by frequent training.
Table 7: Types of training received by Education Statistics Officers (ESOs)

<table>
<thead>
<tr>
<th>TYPE OF TRAINING</th>
<th>NUMB</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. KESI</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>2. Inspection</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>3. UNESCO/SIDA</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>4. Educational Planning</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>5. No Training</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>6. General Administration on 8.4.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>7. No Training</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>8. Other Statistics related course</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

Most of the courses received by the ESOs were given by the Kenya Education Staff Institute (KESI) and they were about general educational administration but not educational information. The officers had received the KESI courses during their tenure as Headmasters, Deputies, APSIs or officers in administrative responsibilities and not as information officers. Only 10% of the officers had previously had a relevant course in statistics, and 4% had received a course specifically concerned with educational statistics.

The only two officers who had training in Educational Planning were also graduates. However, many graduates who were ESOs rarely received training. For example, of those statistics officers who indicated that they had no training at all, 50% of them were graduates.

In order to promote efficient production of educational information, adequate training should first be given to graduates because they have a higher educational latitude and aptitude and
they could be useful for a multiplier effect in organizing further training for the non-graduate colleagues.

*Problems experienced by ESOs*

For some officers educational information processing/production was only one of those duties which they carried out occasionally, otherwise, they had several other responsibilities. Consequently, there was frequent lack of preparation for and anticipation of information demands. In most cases the ESOs waited to be prompted by a demand source. In this situation, the prioritization of the urgency to the demand depended on the seniority of the demand source. If its authority elicited awe then snap responses were made, albeit in crises.

In a show of duty there was bound to be inherent and convenient inaccuracies that were not easy to prove! Such unpreparedness could be a recipe for intricate lies and fabrications.

*The problems listed were:*

1. Poor storage facilities services which made it impossible to respond accurately to demands related to information from several years back (as is often made by politicians);

2. Lack of stationary for reading and lack of duplicating facilities for reproduction especially when information instruments need to be dispatched to source centres;

3. Illegible, late or non-response from sources;

4. Lack of response from private institutions where direct enforcement was not easily achievable.
5. Falsification, contradiction, inflation of figures, and repetition of data;
6. Lack of transportation for follow-up, verification and co-ordination;
7. Lack of training and trained personnel;
8. Overload and lack of supporting staff;
9. Haphazard, requests (sometimes by phone) with conflicting datelines;
10. Low status and recognition:
   (a) Lack of support from DEOs. Other officers were accorded better recognition by the DEOs;
   (b) Many secondary Schools’ Heads were more senior and looked down upon requests from Information Officers;
11. Unclear requests from the Ministry with unclear definition; for example, though there were only two types of schools (Private and Public) questionnaires demanded statistics on private, assisted, harambee and maintained schools;
12. Lack of commitment from the DEOs in the worth of Educational Statistics. Information officers were given assignments as need arose which on many occasions caused the problems of inconsistency in record keeping;
13. Lack of incentives (no career prospects envisaged, nor training).

Challenges and achievements by ESOs

As several of them had not served long, they were not able to determine what achievements they could be making but among the challenges mentioned were: how to get accurate data from poor sources; convincing the producers on the need to submit educational data as demanded; meeting untimely demands and datelines; verifying data in the absence of means
of transport; over-coming confusion that arose from frequent changes in definition, collection instruments; how to report on important but sensitive information.

Suggestions

1. Frequent deployment of statistics officers affected sustainability, consistency in statistics and the commitment of statistics officers.
2. Inexperienced staff (clerks, etc.) handling statistics should be removed and instead, responsibility be given to education officers.
3. Improve terms of service.
4. Statistics officers should be trained and given relevant experience in information at least once a year.
5. Overloading statistics officers should be reduced by minimizing untimely and duplicate requests and by providing calculators and support staff.
6. A central storage unit should be introduced at the district or appropriate level to cater for historical information.
7. Monthly returns were tedious, frequent and redundant. In most cases there were no changes in the information sought eg. staffing and enrolment in schools. The up-date period should be extended to be once per term.
8. Officers should be given offices and telephones to facilitate information compilation and follow-ups.
9. Districts should be given feedback.
10. Users from the Ministry should co-ordinate to avoid redundant requests.
11. Seminars should be frequent and involve support staff.
12. Late respondents or defaulters from the source should be punished. Adequate backing
should be given by the authorities to statistics officers for them to make effective demands from senior teachers.

13. The Ministry should send out all data instruments on time and enough should be given to all institutions from which data is to be collected.

14. The Ministry should enable statistics officers to inspect data sources, hold seminars for data producers at source level and verify data from the sources.

15. The distribution of collection instruments should be as shown in the diagram: D.1 below. The downward and upward transmissions pass through the same parts but in opposite directions. Similarly training should precede use of the instruments at the same points. At zones, the APSI should verify with school Heads and at district level the Education Statistics Officer should verify with APSIs.
5.2 Finding 2

(This analysis is based on the of the questionnaire :Appendix 2.

Contribution of inspectors to EMIS).

The training experience and the academic qualification are important characteristics of an Inspector of Schools which can affect his/her contribution. The sample which this analysis was based on comprised a total of 51 Inspectors among whom 14 were District Inspectors supervising all the schools in the district. The rest were Inspectors serving at a division, supervising less than 100 schools. Zonal Inspectors supervising about 20 schools. A total of 37 Inspectors in this category responded to the questionnaire.
In Kenya Inspectors were field officers whose work was in the schools and therefore their effectiveness and contribution depended on what information they collected in the field. This was facilitated by the methods which inspectors used to rectify any malfunctioning they noted. The Inspector certainly needs suitable time and place to reflect on the solutions and remedial actions to redress anomalies.

If Inspectors must be reflective rather than reflexive, it requires more than just qualification, experience, training and commitment. It may require the education system to provide incentives which may be in the form of co-operation, further training, good terms of service, availability of facilities, overcoming constraints, etc. The analysis on table 8 below focuses on just a few of the factors.

**Table 8:** Number of promotions, training, years of service and availability of office accommodation for Inspectors

<table>
<thead>
<tr>
<th>NO.</th>
<th>PROMOT.</th>
<th>TRAINED</th>
<th>ACCOMMODATED</th>
<th>INSP.</th>
<th>%</th>
<th>LENGTH: SERVICE/TEACHING (YEARS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>70</td>
<td>0</td>
<td>62.5</td>
<td>APSI</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>27.5</td>
<td>&gt; 1</td>
<td>37.5</td>
<td>DPSI</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td>22 42.5 19 37.5 10 20</td>
</tr>
</tbody>
</table>

In the sample, 70% of the Inspectors had received no promotion. Their appointment to Inspector had been after a meritorious teaching performance but the less competent
colleagues who were left in the classroom had acquired 2 or 3 more promotions because of a more favourable scheme of service than the one for Inspectors.

Thus the Inspector, a teacher who once excelled remained professionally stagnated and was devoid of promotion or training while the less competent teacher was promoted far beyond the Inspector. Indeed in Kenya it was stigma to be a competent teacher! The idea of increasing chances of promotion for teachers was a late contrivance which, though disastrous, was designed to keep teachers in the classroom and to discourage them from joining administration. Consequently the chain of disincentives had been unfettered by this precipitate and shot-gun therapy of the concept of incentive, and in effect stigmatized the inspectorate.

Keeping a teacher in the class was meant to create in him interest to do his work effectively. This approach was grossly misplaced because it either failed to envisage the contribution of an Inspector or assumed the Inspector already had enough job satisfaction - the latter obviously incorrect. The Inspector was thus inadvertently or deliberately condemned to be inferior to the very teacher whom he was supposed to supervise, a fact which had raised great dissatisfaction among the inspectors but continued to be glossed over by the authorities. This problem was exacerbated by lack of training, particularly for the lower level of Inspectors (APSI) or primary level inspectors (DPSIs).

In the sample (table 8) 62.5% of the Inspectors had no training. Some were convinced that school heads were better trained in school administration. These were the matters which the Inspectors spent most of their time in schools guiding and supervising those teachers in.
In the entire sample all Inspectors had a teaching experience of more than 5 years prior to being appointed Inspectors, but from (table 9) the majority of them 57.5% had each a total teaching experience of at least 10 years. There could thus be no doubt about their grasp of the teaching and related processes of educational quality at their respective levels of teaching experience. However, since this experience was not commensurate with the kind of remuneration that was given to them, the Inspectors were not motivated to dispense their duties effectively.

Table 9: Responsibility and Experience

\[ N=51 \]

<table>
<thead>
<tr>
<th>RESPONSIBILITY</th>
<th>LENGTH OF SERVICE</th>
<th></th>
<th></th>
<th>TOTAL</th>
<th>NO. PROMOTED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 &lt; X &lt; 10</td>
<td>10 &lt; X &lt; 15</td>
<td>15 &lt; X &lt; 20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. District Inspectors (DPSIs)  | 6                 | 6            | 2            | 14    | 9            | 64.3%
| 2. Divisional Inspectors        | 3                 | 1            | 0            | 4     | 1            | 25%
| 3. Zonal Inspectors             | 12                | 12           | 9            | 33    | 5            | 15%
| Total                           | 21                | 19           | 11           | 51    | 15           | 30%

The majority at least 85% (table 9) of DPSIs had served for less than 15 years. This was a higher proportion than the lower level Inspectors at least 72% of whom had served longer. That meant that the lower level Inspectors were more experienced. From the sample promotions were more in the higher cadre of Inspectors as seen on table 9, where 30% of the Inspectors had been promoted and of them 75% were District Inspectors.
In a society with the same economic values, it is not plausible to promote effective practice by only focusing on one group of people and neglecting the other group whose duties are related intimately. Hoping to change practice in teaching using an incentive structure devoid of an Inspector is like changing a coin by dipping it into a liquid, at best its value remains the same and at worst corroded! An incentive should be systematic/contextual, taking into account all the factors.

In this case, such an approach presupposes a teaching force with a high degree of professional ethics to avoid the temptation of mirroring the very society it serves - obviously impossible if social ethics were fast falling into disrepute, as in the case of Kenya.

Table 10: Inspectors' Academic Qualification in Sample

<table>
<thead>
<tr>
<th>QUALIFICATION</th>
<th>IN SAMPLE</th>
<th>AMONG DPSIs</th>
<th>AMONG OTHER INSPECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>NO.</td>
<td>%</td>
<td>NO. % of DPSIs</td>
</tr>
<tr>
<td>II</td>
<td>1</td>
<td>2</td>
<td>1  7.1</td>
</tr>
<tr>
<td>IV</td>
<td>28</td>
<td>55</td>
<td>5  35.7</td>
</tr>
<tr>
<td>VI</td>
<td>10</td>
<td>20</td>
<td>1  7.1</td>
</tr>
<tr>
<td>Diploma</td>
<td>8</td>
<td>15</td>
<td>4  28.6</td>
</tr>
<tr>
<td>Graduate</td>
<td>4</td>
<td>7.5</td>
<td>3  21.4</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100</td>
<td>14 100</td>
</tr>
</tbody>
</table>

Courses in Educational Management were provided by the Kenya Education Staff Institute (KESI). The Inspectors in the sample were asked whether they thought that Heads of schools had more frequent training than them. The analysis of the answers shown on table 11. below revealed the following proportions:
Table 11: Adequacy of Training for Inspectors

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th></th>
<th>NO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>District Inspectors</td>
<td>10</td>
<td>71.4</td>
<td>4</td>
<td>28.6</td>
</tr>
<tr>
<td>Other Inspectors</td>
<td>3</td>
<td>8.3</td>
<td>34</td>
<td>92.3</td>
</tr>
<tr>
<td>All Inspectors</td>
<td>15</td>
<td>30</td>
<td>36</td>
<td>70</td>
</tr>
</tbody>
</table>

Among the DPSIs, 71.4% thought that they had more training from KESI than Heads of schools while 28.6% thought otherwise. On the other hand, among the APSIs, 92.6% thought that the Heads of schools had more training from KESI than them. Only 8.3% of this group thought otherwise. Thus a Kenyan Inspector was not generally one who has confidence in supervising educational management functions in primary schools unless he/she was a District Inspector.

An Inspector may lack training and confidence, and yet be innovative, willing to be involved and to involve all interested parties in useful educational activities. With this ability he/she can be crucial if they are critical and actively involved in making corrections, even in the data collection instruments.

The following tables are for the responses to the questions on:

(i) The number of schools inspected over a given period of time, which was regarded as indicative of the information generating potential of an Inspector;

(ii) The number of teachers' courses the Inspector was involved in over a given period
of time, which was also indicative of the Inspector's involvement in educational information:

iii) Regularity of feedback to inspectors' reports regarded by the researcher as maintaining a dialogue between information producers and users;

(iv) Schools within the Inspectors' jurisdiction whose academic performance had been rated among the top hundred (100) in the country.
Table 12: Inspectors' effectiveness in information collection (a)

<table>
<thead>
<tr>
<th></th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PER TERM</td>
</tr>
<tr>
<td></td>
<td>0&lt;(x&lt;5)</td>
</tr>
<tr>
<td>Schools inspected</td>
<td>No</td>
</tr>
<tr>
<td>Teachers' courses involved</td>
<td>37</td>
</tr>
<tr>
<td>Regularity of Feedback</td>
<td>33</td>
</tr>
<tr>
<td>Proportion of school among the top 100 school nationally</td>
<td>1-5</td>
</tr>
</tbody>
</table>

Despite transportation hardship which all Inspectors mentioned as a serious handicap, most of the inspectors (table 12) 72.5% in the sample said that they inspected up to 5 schools a month. On average, considered over a year, the enthusiasm which Inspectors had at the start of a year reduced gradually by the end of the year. The number of teachers' courses which the Inspectors organized was not certain in a month or term, but in a year, the pattern seemed to emerge. Again on average, 65% of the Inspectors would have been involved in at least 5 teachers' courses per term.

Feedback was regular and 65% of the Inspectors indicated that they received feedback after a month, 17.5% after a term, 12.5% after a year and 5% did not receive any.
Table 13: Inspectors Effectiveness in Information Collection (b)

N=51

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>YES</th>
<th>NO</th>
<th>SOMETIMES</th>
<th>NO RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Whether inspector is satisfied with remedial measures taken to solve problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Whether inspectors' views are respected</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Whether inspector uses reporting format</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Whether the reporting proforma is exhaustive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Whether the inspector encourages community participation in schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These results showed that 65% of the Inspectors were not satisfied with the remedial measures taken to correct problems which they experienced in their jurisdictions. Only 25% of them were satisfied but 7.5% thought that sometimes the measures were not satisfactory. The proportion of the Inspectors who indicated that their views and recommendations were
respected by authorities was 62.5%, but 22.5% felt neglected. Although 90% of the Inspectors used a reporting format, 70% thought that the proforma were restrictive and not exhaustive. Nearly every Inspector (92.5%) indicated that he/she encouraged community participation in schools through PTAs, Locational education meetings and such fora that could from time to time be called to broach educational issues in schools.

In this investigation, the aim was to find out the role of Inspectors and therefore their effectiveness in the collection of educational information which, in the researcher's view, would help to improve and monitor processes for educational quality. Among them, teaching is a vital process. It was first necessary to find out whether the Inspectors had a way of telling if they were effective and whether the Inspectors had any idea about what information they would recommend the teachers to use in order to gain an insight into the kind of problems the pupils could be having.

The question asked was: *How would you ensure and measure the effectiveness of your inspection work?*

The following were the responses:

(a) It would be measured from the kind of response the Inspector received from the teachers, parents and the community;

(b) It would be measured from the positive changes in the schools' performance;

(c) It would be measured by actively involving teachers in discussion and interviews;

(d) It would be measured by making follow-up visits to determine the extent to which the ideas propagated by the Inspector had been implemented.

The analysis of these responses is shown on table 14 below.
Table 14: Methods Inspectors used to measure their effectiveness

N=51

<table>
<thead>
<tr>
<th>METHOD</th>
<th>NUMBER WHO USE</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response or feedback from teachers</td>
<td>19</td>
<td>35</td>
</tr>
<tr>
<td>Improvement in results and general performance</td>
<td>11</td>
<td>22.5</td>
</tr>
<tr>
<td>Community attitude</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Recommendation/feedback from seniors</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Making follow-up visits</td>
<td>14</td>
<td>27.5</td>
</tr>
<tr>
<td>No idea</td>
<td>4</td>
<td>7.5</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100</td>
</tr>
</tbody>
</table>

The majority, 57.5% of the Inspectors (table 14) thought that they would measure their performance from either the response of the teachers or improvement in the schools' general and academic performance. However, for most (85%) of them, making follow-ups, getting feedback or response from the teachers and noting general improvements were a good measure of their effectiveness.

Another pertinent question that was asked was: What information sources on the pupils the Inspector would recommend teachers to use. This question was misunderstood by some Inspectors to mean: What instructional information sources the Inspector recommended the teachers to use. However, for those who understood the question, the following were the responses:

(a) Teachers should seek extra information from parents who were interested and
educationally aware:

(b) Teachers should seek extra information from the general community to understand constraints which are beyond the school and the family, e.g. Political, Social and Economic constraints in a particular community.

(c) Teachers should analyse assessment records and progress records;

(d) Teachers should take personal interest in the child, interview the child, establish channels which a child could use for self-expression, as in clubs, etc.;

(e) Teachers should extract the information in the attendance registers;

(f) Apart from the suggestion box some inspectors underlined the need to rely on the guidance and counselling service in the schools.

Regarding ways of improving information processing and reporting

Inspectors were asked what suggestions they would make to improve the reporting and processing of educational information. The following suggestions were made:

1. The Inspectorate proforma for Monthly Inspection Returns (MIR I, II) should be revised to reflect the changes in the new education system (8-4-4). There should be columns for: Schools inspected: Inspector’s name: Zone and school totals for pupils; new subjects in the curriculum: Co-curricular activities in schools: physical facilities; and comments on the previous inspections. The inspectors noted that report formats should only give guidelines rather than be restrictive. This would allow room for additional information on each individual case.

2. A panel of Inspectors should be established with the express purpose of reviewing the MIRs and recommending the necessary diversification.
3. There should be a two way communication between the Inspectorate and the field Inspector. "It was as if reports fell on deaf ears" wrote some inspectors.

4. Lack of stationery, related material and equipment was conducive to the irregularity in the reporting activity.

**Regarding impediments to field Inspectors' work within the Inspectorate**

The question to which the Inspectors were responding was whether there was anything in the structure, function or otherwise, of the Inspectorate that was a serious impediment to the Inspectors' work. The following responses were given:

1. Inspectors lacked job incentives. They were frustrated with no transport facilities, no arrangements for reimbursement for their daily inspections. The Inspectors observed:

   "travelling on foot between schools tires an Inspector who most probably would be muddy and wretched when he presents himself to the teachers".

   Another Inspector further recommended:

   "the Ministry should approach companies to provide motor-cycles to all Inspectors on loan. . . . the Inspector would then own the vehicle on completing payment".

One Inspector who had served for nearly 24 years wrote:

"the most serious impediment was . . . the non-availability of office accommodation".

2. High profile Inspectors neglected suggestions from zonal Inspectors.
3. Field Inspectors were overworked. They should be relieved of administrative jobs and compiling statistics. The field Inspector down to zonal level should have typists and assistants.

4. There had been no promotion prospects and orientation courses.

**Proposed changes in the Inspectorate to Improve reporting and educational information flow with field Inspectors:**

(a) To improve reporting and educational information flow between the Inspector and the school, the Inspector should focus on:

   (i) providing adequate transport;
   
   (ii) providing adequate stationery;
   
   (iii) stepping up training/seminar/in-service courses for Inspectors in related matters;
   
   (iv) promoting mutual tolerance and appreciation of constraints experienced by field Inspectors;
   
   (v) replacing unproductive Heads of schools immediately;
   
   (vi) meting out effective deterrents to defaulters of information requests through laid down procedures and enactments where needs be (this also applied to b) and c);
   
   (vii) sending detailed proformas out to schools to facilitate and guide heads of schools in producing the required information;
   
   (viii) encouraging Heads of schools to act as Inspectors and report on all matters related to educational quality promptly;
(ix) opening out a sufficient professional gap between the Inspector and the school Heads by improving the Inspectors' terms of service. This would facilitate the Inspectors' articulation and the schools' adherence to information requests by Inspectors;

(x) allowing field Inspectors, whenever necessary, the freedom to report without having to be bogged down with reporting on routine matters in a specified format;

(xi) strengthening subject panels in schools to improve information flow between the school and the Inspector;

(b) To improve educational information flow between the inspector and the District Education Officer:

The same suggestions as above were made but there was a further suggestion for the District Inspector of Schools to be given authority to incur expenses (AIE) for all inspection services within the district. A suggestion was also made aimed at establishing a special vote at the district level to enable inspection panels to be set up at zonal level which would do more than just routine reporting.

(c) To improve reporting and educational information flow between the Inspectorate and the field Inspector:

The proposals in (a) and (b) above also applied to Inspectorate Headquarters and the field Inspectors. Particular emphasis was put on promotion, training prospects and in-service training; and concern for opinion from junior Inspectors. Some Inspectors recommended direct reporting on matters of
urgency without having to go through the routes of bureaucracy. The Inspectors recommended better feedback rate and not as often the case, reports falling on deaf ears. Sporadic, chaotic and untimely requests were discouraged.

(d) To improve reporting and educational information flow between the ministry's education officers and field Inspectors:

This was recommended to be done through the established chain of command for the Inspector to report to next senior Inspector. The aforesaid establishment of a clear chain of command could stem the problem of information distortion and leakage and enhance accountability and purposeful use of educational information. This was the same suggestion for other useful educationists and state officials.

(e) To improve reporting and educational information flow between field Inspectors and policy makers:

The Inspectors suggested that prior to any innovations or reforms, the policy makers should mobilize interested parties including: teachers, community, zonal inspectors, etc. at grass root level through seminars and workshops. This would in realizing valuable information for planning and implementation. The policy makers were recommended to keep lower levels informed of impending changes and to heed grass root opinions.
**Significant role played by Inspectors in schools (q.27)**

What the Inspectors construed to be their role could indicate the type of educational information they gave priority to and hence the role they played. It was then possible to determine if they had made the necessary contribution to the collection of relevant educational information or not. When asked which significant role they had played in schools, the Inspectors responded as shown in table 15 below.

**Table 15: Significant role played by Inspectors in schools**

\[N=51\]

<table>
<thead>
<tr>
<th>SIGNIFICANT ROLE</th>
<th>NO.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring quality of teaching</td>
<td>46</td>
<td>90</td>
</tr>
<tr>
<td>Identifying weaknesses in school management</td>
<td>31</td>
<td>60</td>
</tr>
<tr>
<td>Participating in promotion on merit</td>
<td>26</td>
<td>50</td>
</tr>
<tr>
<td>Developing school/community relationship</td>
<td>24</td>
<td>47.5</td>
</tr>
<tr>
<td>Monitoring school resources</td>
<td>23</td>
<td>45</td>
</tr>
<tr>
<td>Involved in local development committee for educational planning</td>
<td>17</td>
<td>32.5</td>
</tr>
<tr>
<td>Other activities, e.g. co-curricular, health, etc.</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

Thus the most significant activity in which Inspectors were involved was monitoring the quality of teaching. This was a vital educational process. Yet the Inspectors regarded monitoring school resources as being the 5th concern in importance.
The Weaknesses of the Inspectorate

Table 16: Weakness of the Inspectorate

\( N=51 \)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>NO.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is undue concern with administrative and accounting matters at the expense of academic matters</td>
<td>34</td>
<td>67.5</td>
</tr>
<tr>
<td>There is lack of specialization</td>
<td>19</td>
<td>37.5</td>
</tr>
<tr>
<td>There is pre-occupation with maintaining the status quo</td>
<td>24</td>
<td>47.5</td>
</tr>
<tr>
<td>Inability to ascertain the extent to which the school meets local needs</td>
<td>28</td>
<td>55</td>
</tr>
<tr>
<td>Lack of transport</td>
<td>51</td>
<td>100</td>
</tr>
</tbody>
</table>

From this table one would easily be tempted to say that while all Inspectors mentioned lack of transport as a major setback, the Inspectorate was not seriously concerned with academic matters in the school. Instead it stressed administrative and accounting matters more. The Inspectors were not competent enough to inspect these educational aspects since the Heads of schools were generally better trained by KESI. Besides, apart from the high profile Inspectors, most Inspectors had a weaker professional scheme of service than teachers. Indeed many Inspectors complained of Heads who looked down upon them when ever they recommended some actions to be taken.

From table 16 above, more than half (55\%) of the Inspectors thought that the Inspectorate was unable to ascertain the extent to which the schools met the local needs. Thus it may be said that the Inspectors’ inability to ascertain the extent to which the school meets local needs.
is contradictory to the primal role of the Inspector in monitoring quality.

Lack of specialization meant that Inspectors were made to behave like general inspectors. This message was emphasised by almost all zonal Inspectors who doubled both as administrators and Inspectors in the zones. Lack of specialization was a problem which was occurring even in the cadres which were formerly specialized. From table 16 above 37.5% of the inspectors mentioned this problem. For example, in the districts secondary schools' subject Inspectors spent more time doing administrative duties in the office while they were unable to reach schools for reasons from the DEOs ranging from lack of transport to lack of fuel or a driver.

The problem of maintaining the status quo referred to lack of innovation by the Inspectorate in schools and in the terms of service for the Inspectors. Lack of promotion prospects, insensitivity to Inspectors' problems and passive treatment of dynamic issues in schools (e.g. resource needs, etc.) was mentioned by nearly 50% of the Inspectors.

5.3 Finding 3

(From appendix no.3: contribution by DEOs to EMIS)

The District Education Officers were asked about the state of communication in their districts. It was important for the researcher to explore this aspect to see if there was a problem in information gathering which could be ascribed to communication facilities. Other related aspects which could cause problems in information gathering are shown in the table 17 below from the DEOs' questionnaire (appendix 3).
Table 17: Problems encountered in information gathering

<table>
<thead>
<tr>
<th>No.</th>
<th>%</th>
<th>N=14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Good communication network</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Average communication network</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Bad communication network</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>Lack of means of transport</td>
<td>14</td>
</tr>
<tr>
<td>5.</td>
<td>Lack of trained staff</td>
<td>10</td>
</tr>
<tr>
<td>6.</td>
<td>Political/Cultural constraints</td>
<td>10</td>
</tr>
<tr>
<td>7.</td>
<td>Financial constraints</td>
<td>14</td>
</tr>
<tr>
<td>8.</td>
<td>Unanticipated requests</td>
<td>13</td>
</tr>
</tbody>
</table>

From table 17, in nearly (88%) districts, the communication network was average or bad. Lack of means of transport and financial constraints were paramount problems afflicting information gathering activities in the districts. These problems were experienced by all the districts in the sample. Unanticipated requests were a major problem reported by 94% of the districts. Lack of trained staff and political or cultural constraints were serious problems.

For the DEOs to make their contribution, they must be mindful of the quality and quantity of the data they receive. An idea about this was found from a content analysis of the data instruments used in the districts. It was also necessary to find out what opinion the DEOs had about the data quality, quantity and related data aspects.

From table 18 below it can be said that many (94%) DEOs regarded the information in their districts as being unreliable. In a majority of the districts (88%) information was collected indiscriminately and rarely, only in 18% cases, with a specific purpose.
94% and 88% of the DEOs reported that the information they collected was mainly on educational statistics and administrative matters respectively. About 60% of the districts reported that the scope, depth and data collection instruments were satisfactory and (76%) of the districts reported that their data entry management was satisfactory.

Table 18: Quality and quantity of data collected

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.5</td>
<td>Unreliable</td>
<td>16</td>
<td>94</td>
</tr>
<tr>
<td>Q.22</td>
<td>Satisfactory depth</td>
<td>11</td>
<td>65</td>
</tr>
<tr>
<td>Q.22Q</td>
<td>Satisfactory scope</td>
<td>10</td>
<td>59</td>
</tr>
<tr>
<td>.22</td>
<td>Satisfactory instruments</td>
<td>10</td>
<td>59</td>
</tr>
<tr>
<td>Q.22</td>
<td>Satisfactory entry and processing</td>
<td>14</td>
<td>82</td>
</tr>
<tr>
<td>Q.22</td>
<td>Satisfactory data management</td>
<td>13</td>
<td>76</td>
</tr>
<tr>
<td>Q.25</td>
<td>Content of information collected:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Educational Statistics only</td>
<td>16</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Administrative matters in schools</td>
<td>15</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Utilization of resources</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Q.29</td>
<td>Quantity of data collected:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>15</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>As much as could be useful</td>
<td>10</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Only with specific purpose</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

The researcher considered the effectiveness of the DEOs in information gathering as related to some of the following:

(i) The DEOs awareness of the needs of the users;

(ii) The DEOs training, especially in educational planning or information gathering;

(iii) The DEOs willingness to encourage those who work to collect educational information in his district by helping them to train or by giving other incentives;

(iv) The kind of information the DEO shared with other departments or interested parties (parents, communities, teacher etc.).
14. The majority of the DEOs (71%) did not contemplate any incentives for those who collected educational information within their jurisdiction. However, a few (29%) suggested that giving commendation where it was due and making timely responses would act as a feedback and help to encourage the information officers.

They suggested that basic materials or equipment should be made available for the information officers and as far as possible seminars be organized for them. This would boost their morale. Some DEOs suggested that recommending efficient educational information officers for promotion was desirable.

Table 19: Information redundancy, incentives and financial support

\( N=14 \)

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Departments with overlapping or redundant information demand:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspectorate</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>TSC</td>
<td>13</td>
<td>94</td>
</tr>
<tr>
<td>DEBs</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>DDCs</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>2. Provision of incentives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>10</td>
<td>71</td>
</tr>
<tr>
<td>Some</td>
<td>4</td>
<td>29</td>
</tr>
<tr>
<td>3. Provision of financial support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>7</td>
<td>47</td>
</tr>
<tr>
<td>Some</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Not specified</td>
<td>3</td>
<td>18</td>
</tr>
</tbody>
</table>

Regarding overlaps and redundancy in information gathering practices, the DEOs thought that certain departments had a high tendency towards conflicting and overlapping information.
demands. In particular 100% (94%) of the DEOs identified the Inspectorate and the TSC respectively as having this problem. On the other hand 24%, 18%, of the DEOs identified, the District Education Boards (DEBs) and the District Development Committees (DDCs), respectively.

The information processed for users at the lower level was normally prescriptive. The prescriptions were confined almost entirely to circulars. Regarding the DEOs training, it was found out that some DEOs had attended KESI management courses. A course had also been organized by the Ministry of Education in 1992 on Educational Statistics. As a result of this a revised questionnaire (Appendix 7) had been dispatched to the districts in March, 1993. Apart from this none of the DEOs had any related course in educational information.

The kind of information which the DEOs shared with other departments consisted of: statistical information on population; the infrastructure of educational institutions; geographical/environmental information including transportation problems. In addition there was inter-district exchange of quarterly reports.
5.4 Finding 4

(From appendix 4: Educational Information at MOE HQs.)

5.4.1 The Planning Unit

THE ORGANISATION STRUCTURE OF THE PLANNING UNIT

![Organizational Structure Diagram]

Fig. 9

The Planning Unit does not have officers in the field. Consequently there are no statistics officers in the field who belong to the statistics office. There is no permanent coordinating body for educational statistics except the one constituted once for this purpose in 1992. The Officers in the Planning Unit are seconded from the Ministry of Planning and National Development. Until recently, the Unit was exclusively manned by economists who had no background in education.
From the order of seniority on figure 10, it is clear that the economists control the functions of the Planning Unit. The Deputy Chief economist is the same rank as the Deputy Permanent Secretary who heads the Section of Development under which the planning Unit now exists. Before then, the Planning Unit and the Development Section used to exist as separate Sections of the Ministry.

Statistical information collected by the Statistics Unit of the Planning Unit, Ministry of Education: (based on content analysis of departmental records and responses to the interview schedule: Appendix 4)

Procedures for collecting data by the Planning Unit of the Ministry of education

The Statistics unit of the Ministry of Education is the principal office responsible for collection, compilation, analysis and dissemination of educational statistics. The Central Bureau Of Statistics (C.B.S) of the Ministry of Planning and National Development, through education statistics unit, collaborates to produce statistical information about the education sector through various methods which include:-

a) School censuses (detailed data collected at school level).

b) Abridged Questionnaires (data collected in a generalized form at district level covering both primary and secondary schools).

c) Other sources (especially those collected for administrative purpose) for example:-
   (i) School Registration Department.
   (ii) Teachers Service Commission.
Kenya National Examination Council.

Other Government Bodies, Ministries and Institutions of higher learning and Population Censuses and Sample Surveys.

The last school census was carried out in 1987 but plans were underway to have the exercise carried out twice a year, in March and September. It covered the Primary and Secondary schools but plans were under way to spread the coverage to all educational institutions beginning with pre-primary schools.

Data Collected from primary and secondary schools focused on particulars of the School; Data on pupils by age, level of education and sex; Data on classes and classrooms; Data on teaching staff by age, qualification, teaching experience and sex; Data on non-teaching staff; Data on examination results and admission to secondary schools; Data on the flow of pupils: repeaters and new entrants; Data on end of year enrolment; Data on school fees and other levies; Data on physical facilities and school equipment; Data on other social amenities e.g. water, access to health facilities etc.

Abridged questionnaires captured information in a summarized form at district level and were dispatched to the District Education Officers (DEO's) annually. Other sources involved various government bodies generated statistics: bodies such as the Kenya National Examination Council (KNEC). had data on the examinations they administer; institutions of higher learning (post secondary institutions) kept records of their students and teachers and hence were data producers. Population census and sample surveys' questions, related to education generally covered literacy, educational attainment and school attendance.
Design of the questionnaires
Statistics from institutions of learning were obtained through questionnaires designed specifically for each particular level: Primary schools had questionnaires specifically for first level and secondary schools. Previously the design of questionnaires had been done largely by the education statistics section. Other departments of the Ministry also used to design questionnaires to collect a range of statistics tailored to their needs to supplement those of education statistics unit. Consequently, there was a lot of duplication and confusion in the field.

To strengthen sector management and information systems, a step had been taken to centralize data collection within the Ministry by forming a statistics committee with a membership from all the departments of the Ministry to make a comprehensive questionnaire at each level. The education statistics unit was the secretariat of this Committee.

When designing the questionnaires effort had been made to make them clear and convenient to school heads who were supposed to complete them. Basic instructions and definitions had been included in the forms. The final versions of the questionnaires were scrutinized and coded by the computer systems analyst to limit problems associated with processing the returns.

The questionnaires were packed according to the districts using a list of schools in each districts and dispatched by mail to either the PEOs (for onward delivery to DEOs) or DEOs; by physical delivery by the headquarters staff. The DEOs would finally arrange to distribute the forms to the schools. All dispatches had a covering note on the questionnaire
and specified a deadline for returning them. Before the questionnaires were delivered, the DEOs were briefed on the sections of difficulty and they were asked to deliver the questionnaires to the school Head teachers and brief them. However the DEOs often delegated the actual work to other officers.

Consequently in launching the new questionnaires in March, 1993 the Ministry decided to deal directly with those Education Officers dealing with educational statistics by giving them briefing sessions in the form of a training seminar to induce the participants into the essence of statistics, introducing them to statistical principles, role of statistics in planning, going through the questionnaires to harmonize concepts and to ensure uniform interpretation of the likely errors.

On the whole the response to the census of schools had been poor. There had not been any systematized administrative sanctions against schools which continuously ignored requests to complete and return the census questionnaires. For the abridged questionnaires - the data from the DEOs the response rate was usually 99%: on the school census a response rate of 95% and 85% respectively for 1st Level (Primary) and 2nd level (Secondary) schools was acceptable. For non-response schools, estimation was done from previous years' return. After the deadline for returning the questionnaires, reminders were sent through the District Education Officers.

Two statistical officers were assigned the job of controlling the flow of returns, one for primary and the other for secondary schools. The tremendous volume of records involved (about 14,000 and 3,000 primary and secondary schools respectively) made the receipt and
proper control of the returns complicated. The received questionnaires were then edited and consistency checks made by comparing previous entries in the related items such as enrolment by grade and age and number of pupils by attendance and sex, etc. On discovering inconsistencies the returns would be sent back to the institution for explanation.

Until 1974 school census data were processed manually. Lately processing was being done by CBS using the main frame at Government computer services. But from 1993 the processing will be done at the Ministry of Education headquarters. Data collection ended up with the production of tables which had been decided upon during the design of the census questionnaire. Table outlines were prepared showing the data to be classified and the cross-tabulations to be made. The final output were computer printed tables from which summary tables were extracted for publication.

The data was published in summary in three main annual reports: Ministry of Education Annual Reports: Statistical Abstracts - produced annually by the Central Bureau of Statistics (CBS); Economic survey - also produced annually by the CBS and other publications which had extensively used school census data were Social Perspectives, Ministry of Planning and the (CBS) publications.

5.4.2 Information collected by other departments

Details of data collected by other departments are shown on appendix 6 and 7.

Problems experienced in data collection/use by the Planning Unit and other departments

The problems could be broadly categorized in five main areas were as follows: problems pertaining to record keeping; problems pertaining to data collection; problems pertaining to
The problem of content and coverage was that coverage was limited or there was total lack of information in some essential educational areas. This was particularly so for indicators on access, equity, quality, community, parental and private cost sharing. For Kenya, lack of information on the latter is quite problematic considering the disproportionate non-governmental financial input in education.

Also inadequate was information on pupil/textbook ratio, teachers' subject work load; financial records in schools, resources utilization rates and estimates of shortages in the resources including teachers, books, etc. Dis-aggregated data at appropriate levels were not easily available. Lack of skills in the use of statistical information was a problem that was aggravated by the non-numerate culture in decision-making where decisions were taken without information. This limited use of educational information also limited pressure on the producers to improve information content and coverage. Inappropriate demands for information were frequently made without enough specification or definition of the minimum standards or expected norms.

Last minute requests for specific information were often by people who lacked experience and knowledge of the information production capacity of the producers. and by inefficient functionaries that were unable to plan ahead but sought to place culpability on others. However, sometimes there was genuine need for such specific and ad hoc information: for example such information was sometimes required by donors. Consumers sometimes
demanded projections without providing raw data necessary and this, in the absence of baseline data was a puzzling problem for information producers.

(iv) Producers’ capacity

The problem regarding producer’s capacity was mainly one of limited skills and facilities. The users were dissatisfied because the information being produced had limited use and it could not enable the users (especially policy makers and decision makers) to make quick interpretations. It was inaccurate, unreliable and lacked analytical information. Part of this problem was due to the producers’ inability to make follow-ups for verification and late responses.

Other inabilities of the producer were due to lack of clearly targeted users, incapacity to produce cross tabulations other than administrative and a few fixed breakdown variables; inability to cross tabulate flexibly and quickly; limited capacity to produce dis-aggregated tables; incapacity to respond to urgent requests.

The producers had an organizational problem which did not enable them to enjoy a favourable staff policy, have equitable training opportunities, acquire promotion, upgrade their skills, etc. The administrative organization often failed to curb duplication of data collecting and caused lack of subject records (such as the financial records) system in important areas of planning, lack of records and lack of statistics units at lower levels and in many departments.
The organizational problem was also manifest in: lack of regular service units to cater for major ad-hoc consumers, such as donors and researchers, failure to operationalize job functions; lack of coordination and late returns. Proper organization would ensure constant logistical support, improve working procedures and task management. The existence of a shared data bank, availability of material, equipment and enhance the data processing capacity especially towards the data sources (in regions and districts).

(v) Data collection (instruments, distribution, personnel, verification)

Census instruments were out dated and did not cover new information needs. Consequently the ministry had constituted a committee to review data collection instruments from all the departments with a view to having one instrument to cover information needs of other departments.

The problem of inadequate funds for printing/production of the instrument often resulted in under-production, limited circulation and delays in data gathering. There was no established mechanism for data distribution and each year had a different approach. The inconsistency could account for delays in returns. Follow-up was wrought with difficulties of low budgetary allocation for data collection functions and communication problems, yet different departments of the Ministry continued to collect the same information repetitively. The school Heads who were required to fill the questionnaires were either negligent or not aware of the urgency of educational statistics to ensure accuracy and timeliness.

On the other hand the Inspectors, who were the officers most frequently in contact with the teachers, had not realized their role in EMIS. The need for verification arose from the high
percentage of missing data due to total non-response, partial response, errors in transferring and summarizing data and lack of verification mechanism at all levels of data collection.

(vi) Data processing

Some of the problems were organizational while others were due to the weaknesses in people assigned duties. Some data was not processed because either it was missing or there was non-response, late response and errors. Irregularity in data volume at different periods of the year created bottlenecks or slackened data processing. The organizational problem resulted in lack of a coordinated structure and procedures for data processing and management, lack of a work plan for data entry and processing, lack of supervision for data entry and processing, inadequate data verification mechanism during data processing, lack of systematic teachers’ record management database and inadequate operational budget.

Limitations to the Ministry’s processing capacity for large data sets was due to several reasons. Some of these were: hardware and software capacities, hardware breakdowns, lack of the Ministry’s capability to maintain and repair and hence dependence on outside companies for this service, and incompetence among the personnel.

The problem of incompetence was rampant at all levels beginning from the database design and maintenance, sub-optimal deployment of staff with incompatible competency levels of data input, processing, analysis, production and management. There was a high attrition rate for data processing staff who include: the operators, programmers and data processing managers. This highlighted the running dissatisfaction with conditions and terms of employment.
The problems experienced in data analysis were due to unreliable information and incomplete coverage. In a year most of the time available was spent collecting information and little time was left for analysis. The most frequently presented analyses in indicator form were percentages by gender, growth/change, distribution by region, pupil/teacher ratio, pupil/classroom ratio.

Analyses on equity trends were rare and inadequate. Graphical means of presentation were under-utilized if at all inappropriately. This caused problems of synthesizing and interpreting on the part of the users and hence aversion to information and a tendency to non-numerate decision making modes.

Data analysis using packages was limited by low competence and only basic use was made of spread sheet software and statistical packages for data analysis. This lack of competence and poor data quality were among the main reasons that had restricted systematic use of specialized analytical software applications. This in turn had led to inadequate projections and simulations, inability to perform analyses of causal-effect relationships and multi-variate patterns which would have otherwise enhanced policy decisions and planning. Data analysis had for a long time been rendered dysfunctional by lack of analytical and research unit, nonexistence of budgetary provision for research and analysis and dissemination of results.
5.5 *The summary of the findings*

The statistics unit of the Ministry of Education was the main office collecting, compiling, analysing and disseminating educational statistics and information. The Central Bureau of Statistics (C.B.S) collaborated with the unit to produce statistical information on the education sector through various methods. These include: School Censuses (detailed data collected at school level). Abridged Questionnaires (data collected in a generalized form at district level covering both primary and secondary schools. Other sources (especially those collected for administrative purposes) viz: School Registration Department, Teachers Service Commission, Kenya National Examination Council, Other Government Bodies, Ministries and Institutions of higher learning and Population Censuses and Sample Surveys.

Plans were underway to have a School Census twice a year, in March and September. The questionnaires used for the census were normally dispatched to individual schools and Head teachers were requested to fill and return them to the statistics unit of the Ministry of Education through the District Education Officers. Often, they neglected the requests and some were not aware of the urgency of educational statistics to ensure accuracy and timeliness.

The schools census covered the Primary and Secondary schools but only but all institutions from pre-primary schools would be covered. The current content of the primary and secondary school census questionnaires had been increased in coverage. The new coding could ease the difficulties of filling and processing them. However, information processing was still encumbered as only two statistical officers handled all the returns comprising about 14,000 and 3,000 primary and secondary schools respectively.
There was no established mechanism for data distribution and each year had a different approach. Data collection/follow-up was wrought with difficulties of low budgetary allocation yet different departments of the Ministry continued to collect the same information repetitively despite efforts towards harmonisation.

The study showed that the main users of educational information in Kenya are: Planning Unit, Teachers' Service Commission, Kenya Institute of Education, Inspectorate, National Examination Council, and various departments at the Ministries Head quarters dealing with Primary, Secondary Tertiary education levels. The departments preferred to produce their own information independently, seeking data repetitively from the same educational institutions.

There had been a move to harmonise information production through a committee, but modalities were being worked out and there was yet to be a corresponding committee to harmonise information use. While this effort was being made, there was no indication that avenues were being explored to discover new vital information users or producers. The same trend, in which the information service was devoted to the parochial needs of state officials was poised to continue; and this, inevitably, with the concomitant over-emphasis on quantitative information.

The contribution of the various field officers was very much in the hands of the District Education Officers (DEOs) who determined who in the district (Inspector, statistics officer, clerks, etc.) went to the field to collect what information or deserved what facilities. While lack of facilities was a common problem cited in most districts, some problems were due to perpetrations by the DEOs. These include frustration and lessez faire deployments of staff.
The DEOs rarely, if at all, made decisions based on the data available, often preferring to pass the buck to the central authorities. Some cited the problem of conflicting, repetitive, untimely and unclear requests from the central departments.

Only about 20% of the District Education statistics officers were University graduates. The rest had no educational experience at levels higher than O-level. The statistics officers were relegated, rarely got opportunities to train or be promoted. This was also true about Inspectors whose communication with the higher authorities was poor, and whose terms of service were worse than those of the teachers whom they supervised.

Whenever Inspectors prepared reports they were rarely varied as they made them on prepared proforma MIR 1 or 2 (for primary level Inspectors). Such proforma were out-dated, having been modelled on the previous education system. Secondary level inspectors prepared their reports in a stipulated format. All these intrinsically discouraged originality among Inspectors.

Apart from the afore-mentioned problems and lack of transport facilities for inspectors there was a general lack of facilities, such as: office accommodation, support staff, material, etc., which an inspector needed to be functional. Field inspectors were overworked with other responsibilities that had nothing to do with fetching educational information and often had administrative duties. Their high profile colleagues often neglected suggestions from them.

Lack of competence was evident at all levels of information processing in the entire Ministry, from the use and production to database design and maintenance. Data analysis and
presentation had problems associated with unreliable information and incomplete coverage. Most time was spent collecting information leaving little time for analysis.

The most frequently presented analyses in indicator form were percentages: by gender, growth/change, distribution by region, pupil/teacher ratio, pupil/class-room ratio. Analyses on equity, trends were rare and inadequate. Graphical means of presentation were under-utilized. This caused the problem of synthesizing and interpreting on the part of the users and hence aversion to information and a tendency to non-numerate decision making modes.
CHAPTER 6
DISCUSSION OF FINDINGS

The objectives of this study were to:-

- **identify the main users and producers of educational information;**
- **examine the quality and the content of the data collection instruments;**
- **assess the relevance of data to the needs of educational management;**
- **assess the contribution of field education officers (Inspectors, DSEOs, DEOs) towards EMIS;**
- **propose a suitable organisation structure for the EMIS.**

**Introduction**

Careful planning depends on suitable factual information to inspire insightful decisions. This requires an effective EMIS so that such information takes in account crucial participants and incorporates a wide range of information to serve the various users is within the grasp of the EMIS.

The needs of an information system have been known to vary from country to country depending on the policies and objectives of the system. In Kenya, at Independence, education was meant to achieve rapid expansion to meet the needs of Africanisation which were stipulated by the National policy then (Ominde Report, 1964, Development Plan, 1964). As one would expect the EMIS followed the tradition of having the data-base designed to serve the quantitative concerns of educational managers (Coombs, 1969; Chau and Carron, 1987; Brittain, et al. 1971).
With time, Kenya's educational information needs have become increasingly complex and diversified but the EMIS has yet to come of age. Despite the developments and exponential expansions in education, the EMIS in Kenya is still essentially based on the quantitative concerns of the education managers in total neglect of information on essential educational processes.

Kenya's philosophy of the District Focus Strategy for Rural Development had enabled the authorities to impose on the various communities' desire for education and pass to them heavy educational funding responsibilities. For this reason, although the EMIS should give due regard to state officials to facilitate their decisions on resource allocation, it is not tenable for EMIS to relegate other users in preference for state officials. Such users are many (Brittain, 1971; Bennefoi, 1977, et al.), and often important because they make an essential partnership with the government.

In Kenya particularly, it is more plausible to argue this case since the government holds no preserve for educational funding. The partners should not be relegated as they had become major educational information users.
6.1 Data quality and factors to reckon with in Kenya

(datum accuracy, coverage, consistency)

When officers who have first hand information can not take decisions on behalf of the organisation then the need for accurate information becomes abstract (Imboden, 1980; Savage, 1990). The value of information is often determined more by when it is available (ENSTINET, 1991). When information has run the full course of sanctions and authorities it may not help to retrieve or remedy the situation for which it was intended. Greater involvement in data analysis and use at district levels will motivate the producers as to the urgency of good quality data (Chapman; Mahlek, 1993).

Some producers found it necessary to withhold information because it could lead to loss of benefits. For example, private schools often reflected lower enrolments and more facilities in their records to give the authorities the impression that their schools met the set norms. In fact they were over-enrolled and seriously lacked facilities. On the other hand public schools which under-enrolled feared being closed down when the TSC tried to deploy its resources effectively. Consequently, Heads of such schools may falsify records to convince the authorities that their schools had enough enrolment to warrant the deployment of teachers and related resources. Thus limited resources continued to be thinly stretched over many schools at the expense of quality.

The poor terms of service for information officers meant that educational information officers were junior in rank and could not make redoubtable demands to information sources. This, coupled with inadequate official backing in the districts, had been one cause of late or non-
responses and information gaps. On their part, the frustrated information officers had not taken their duties with verve. Instead, their attitude had been to fill up the gaps with at least some kind of response needless whether it was accurate. Because of this it was common to see the same figures 'plugged' into the questionnaires and sent to the National offices.

Where political rationality prevailed over data evidence it had led to the enforcement of some policies which had adversely affected the reporting of certain data. Political rationality could be counter productive to the search for good quality education. In Kenya policies of automatic promotion discouraged reporting on repeaters and this in turn clouded the worrying trend of drop-outs and push-outs (P.P. Achola, et. al., 1988; Daily Nation, June 5, 1993).

In this survey it was revealed that the Inspectors, District Education Officers and District Information Officers frequently received information demands that were neither anticipated nor timely and which related to data of many years back; this, with lack of storage facilities and stationery, can conspire to defy effort to maintain accurate data. The District Education Officers made frequent and indiscriminate deployment of information officers, thereby introducing inconsistency in records and removing culpability. Yet such deployment by DEOs was indicative of their low understanding of the information service, their vested interests and fear of exposure from good records. Poor records affect information processing and hence demand (Brookes, 1982). In Kenya there was the problem of effective management and processing of information in the DEO's office which had led to user dissatisfaction with the quality of data from the DEO's office (Konyango, T.B., 1993).
Although each district prepared an annual report which was sometimes descriptive and qualitative, such reports in most cases lacked meaningful analyses on trends etc. They remained just dreary reports, repetitive and devoid of imagination. Those who prepared them seemed not sure in what form and for what specific purpose the users needed the reports. Not surprisingly, these kind of reports appeared to be relegated by the users who shunned them away. The presenters rarely, if any, got feedback from the users save for cases of commission or omission.

For the users, it was as if getting the annual reports from the field was an end in itself. This cast doubt as to whether the users were sure of what suited them best and as to whether there was a general lethargic approach among most users and producers in the Ministry regarding the quality of information. This intrinsically caused poor information practice. If good use of field annual reports was made then the reports could focus on specific qualitative information about processes and attitudes in education. This would perhaps save the Government frequent spending of large amounts of public funds and resources on review commissions to provide this much needed information.

The District Education Officers were in charge of all educational services within the District: they directed all the officers including inspectors. Although Inspectors were professionally more experienced and aware of the educational needs than the DEO, who most probably had been only recently a teacher. The DEO in most cases refused to facilitate the inspector’s programmes preferring him, instead, to do ceremonial/administrative functions. Thus the Inspectors’ programmes were hampered despite of because of the DEO’s power.
This encumberence by the DEO was one of the main reasons for the Inspectorate's failure to contribute to the EMIS by providing qualitative information on processes. The other reason was the sheer failure of the Inspectorate to recognize their vantage point in acquiring this kind of information. This bespoke of the inferior quality of those Inspectors at the helm. It was not on the agenda of the Inspectorate to look for this kind of information apart from the quantitative and sometimes obstructe to the direct contemporary concerns of an Inspector.

Lack of specialization meant that Inspectors were made to behave like general Inspectors. Zonal Inspectors often doubled both as administrators and Inspectors in the zones. This lack of specialization was cropping up even in the levels that were formerly strictly specialised. For example, in the districts secondary schools' subject Inspectors spent more time doing administrative duties in the offices and unable to reach schools.

The problem of maintaining the status quo referred to was due to lack of innovation by the Inspectorate in the terms of service for the Inspectors. Lack of promotion prospects, insensitivity to Inspectors' problems and passive treatment of problems in schools made it seem as if the Inspectorate was its own enemy not interested in its own work and in making innovative use of the many resources at its disposal.

Although the problem of untimely information requests may be addressed, it may not be fully solved unless information users have adequate experience and competence to anticipate the kind of information they may need. The findings revealed that many changes occurred among the field producers because the DEOs deployed them haphazardly, a fact which caused many of them to have limited experience in educational information production.
Among high profile users, lack of experience was predicated on precipitate circumstances which necessitated their frequent redeployment. It must be appreciated that Kenya, like most developing countries is still in the throes of experimental deployment procedures whose necessary upshot could be inappropriate appointments. This had caused disservice to Kenya's educational documentation, management of data, maintenance of records, work-flow, etc. These were persistently sub-standard.

In this circumstance, a more reliable corrective measure would be to reduce changes among the field producers who would to be less susceptible to precipitate circumstances that afflict the high profile users in Kenya. This can be done by improving their terms of service, stepping up or enhancing training, introducing incentives, impressing on the DEOs the need to have consistency in information collection by avoiding arbitrary appointments of educational information personnel and maintaining reliable records.

If the Ministry's Planning Unit under which the Statistics Unit belongs can be allowed to appoint its statistics personnel to man the field offices then these personnel would be answerable to the statistics unit at the Ministry's HQ and it may reduce the problem of selective reporting, misreporting, inconsistencies in record keeping and privileged information associated with the D.E.O.s, field officers and schools. This may mean consistency in record keeping and personnel appointments at the district, school and national level which would enhance experience.
Various problems in information gathering and the performance of the information system have been cited. They all boil down to the problem in the management of educational information. This, with the problem in storage facilities, has meant that the information processing function has been constantly under pressure and in a crisis, a condition which has provided a recipe for unreliable, inaccurate and incomplete information. In turn this could account for user dissatisfaction, the non-numerate culture and the proliferation of various information production functions in the ministry's departments.

Overall there was inadequacy in information personnel in Kenya (Rosenberg, 1990). To suit the needs would involve training trainers for a multiplier effect. The multiplier effect would be best if the information officers who were graduates could be used. The need for training does not apply to producers alone but perhaps more seriously to the users who, many times, cannot anticipate what information they would need. Consequently they contribute to inaccuracies by making impossible or untimely information demands. Frequent deployment of officers has led to poor utilisation and hence poor production of information.

Because of general lack of trained personnel sample surveys were rarely done done by the Ministry's Statistics Unit, but it has several advantages, despite problems in designing a good sample (K. Ross, 1990). Instead census was the main procedure of data collection. The sheer data size did not permit much analysis. Hence many educational facts in Kenya remain unknown.
Chapman and Boothroyd, R.A., 1988 observed that the most serious errors were those at school level. For these problems, also experienced in Kenya, while training is a feasible solution, the final solution will probably depend on the incentives which the authorities are prepared to give to information personnel. Besides, the chaotic manner of training which prevails requires the government to co-ordinate training as stated in various policy statements: (Sessional paper No. 1, 1986. Sessional paper No. 6, 1988). Training needs a new orientation so that though it may lead to new career prospects it is geared to efficient production.

The EMIS will require restructuring in the line of authority and defining new terms of service to enable it to collect information in the best way for decision makers. It will establish desirable horizontal integration across agencies. Ministries etc, and vertical integration among decision makers at all levels. This can reduce cost.
CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

The objectives of this study were to:

• identify the main users and producers of educational information;
• examine the quality and the content of the data collection instruments;
• assess the relevance of data to the needs of educational management;
• assess the contribution of field education officers (Inspectors, DSEOs, DEOs) towards EMIS;
• propose a suitable organisation structure for the EMIS.

7.1 Conclusions

On the basis of the findings the following conclusions were made:

1. The factors which had affected the quality of educational data and hence educational information in Kenya were: limited financial resources; lack of storage facilities; untimely demands for information; lack of forward planning among those who made information demands when in crises; poor status of educational information officers and lack of incentives to information producers; lack of transport facilities and poor communication network in some districts.
2. Other important factors were:

(i) the prohibitive organizational structure in which little information flowed between some departments causing them to function like a loose arrangement of cumbersome information services. The worst affected by this problem were the Inspectorate and the Teachers’ Service Commission (TSC). Prohibitive information structures and information hoarding was inhibitive to good information practice and use.

(ii) there was a regulative practice from the centre. Information production and the mode of communication was by central intervention and prescription. This restrictive practice discouraged creativity and participatory information production and use.

(iii) while some departments like the Inspectorate, Planning Unit and the Kenya Institute of Education had received opportunities, very little had been offered to information personnel.

(iv) the EMIS was often a confluence of opposed currents of values between the client communities and education information managers so that the purported priorities from education managers were by and large irrelevant to the needs of those communities. When important information strayed in the information system it was either derided or remained unnoticed.

(v) Information units in departments were just storage units for requests on stored information sometimes with no elaboration of the use in demand. Consequently, the producers often presented inappropriate or even inaccurate information.

3. Regarding the effectiveness of field offices the following conclusions could be drawn:

(i) follow-up activities had been relegated as manifested in the grounding of Inspectors and a considerable lack of transport. This had resulted in the paucity of information on educational processes.
education managers not anticipating serious under-currents in educational processes were more concerned with quantitative information. This was mainly due to inadequate communication between schools and the field offices.

(iii) failure to have accurate information had been due to the failure of officers like the DEOs who had first-hand educational information to use on behalf of the system.

(iv) Subject Inspectors who could have been fully used to enhance the EMIS by providing qualitative information had instead not done so. Partly because many of them could not reach the schools or if they did they engaged in the general inspection of school administration instead of educational processes in the classroom.

(v) training and career prospects for field Inspectors were low making them lose interest in their duties and concentrating instead on moon-lighting. In turn this was detrimental to the production of information on educational processes.

4. Regarding the organisation of the information unit of the Ministry the following could be said:

(i) the Ministry’s Planning Unit did not extend its services to the grass-roots which was the main reason for the exclusion of vital users: the communities, parents and other partners of the government who had contributed tremendously to educational developments in Kenya.

(ii) the afore-said lack of organisational structure also accounts for the unit’s inability to monitor the needs of other departments of the Ministry and hence design appropriate data collection instruments.
7.2 Recommendations

1. A permanent service for commissioned work and special studies should be established to provide specialized information such as the one demanded by donors.

2. There should be periodic surveys of information requirements for various users including communities and practitioners.

3. Qualitative information from educational review commissions, provincial and district annual reports, studies, surveys should have particular emphasis.

4. Staff development policy should be geared to developing and implementing career development schemes.

5. Working procedure and task management should be streamlined to enable coordination of data collection and supervision by the statistics unit.

6. Duplication of effort should be reduced by creating a central body to coordinate data collection.

7. Material, equipment, manuals and logistical support should always be available to the district offices particularly those located in remote rural areas for speedy data-processing.

8. Data collection instruments should be accompanied by incentives, stipulated guarantees for timely submission of returns, instruments and desired ends.

9. Cost effective means of transport should be provided to rural remote areas by pooling resources with other departments, using available power structures, involving the CBS, etc.
10. The EMIS should be re-organized in the power and administrative structure to facilitate procedures for data verification, supervision, collection, etc.

11. To improve the competence of personnel, training programmes should be task-specific according to identified task areas.

12. There should be information on educational processes to enable comparative analyses to be made by geographical regions, population groups, level and types of education, trends, etc.

13. There should be a clear programme to increasingly make more sophisticated use of spreadsheet software, statistical packages and specialized analytical software applications in education.

14. Provisions should be made for crucial users to understand the assumptions used in their decisions by having more user friendly interfaces to enable them to directly perform analyses and simple verifications.

15. There should be an information policy to enable more collaboration between other information agencies and EMIS to dovetail and augment its information service.

16. To enhance processes in education, foster accuracy and good use of information teachers and inspectors must be principal users and producers of educational information.
7.3 PROPOSED INFORMATION FLOW IN EMIS

NATIONAL COMMITTEE FOR EDUCATIONAL INFORMATION
(Receiving information from other related ministries, Donors, NGOs, etc.)

1. Decides on: relevant requests for/about information
2. Collects information requests

EMIS

NATIONAL INFORMATION COMMITTEE

3. Specifies information needs
4. Deals with information, staff development, job modernization, incentives policies.

DISTRICT EDUCATION INFORMATION COMMITTEE

Works with Plan. and Stats.Unit

Works with Planning and Statistics Unit

ZONAL EDUCATION COMMITTEE

Fig 10. Data sources at grass-root level: schools, development committees, etc.

Fig.10. above is the proposed structure to coordinate information activities in Kenya. It takes into account the need for participatory planning and Kenya's District Focus Strategy for Rural Development. The idea is to have a national committee that plans and decides on all information needs. It processes information enquiries and passes then to the Chief Information officer (fig.11) for necessary action. Information needs assessment allows the body to alter information policies which will include training, deployment, job creations, etc.
The committees should comprise members from policy makers, planners, information producers and users at various levels. Recommendations from lower committees should be easily availed at higher committees.
7.4 Proposed Organisation Structure for EMIS

The Chief Educational Information Officer (CEIO): Level of Deputy Director, Education (DDE)

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ADDE

Head, Systems Analysis and Development

SEO

Expert, Computer Operations
- Programme Applications
- Computer maintenance
- Data input/output
- Systems' Design

Expert, Systems Development

SEO

Head, Publications and presentation formats

SEO

Head, Research Section

SEO

Expert, Ed. Research
- Research design
- Report design
- Survey design

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Fig. 11

The office of the Chief Educational Information Officer (CEIO) comprises of experts in various educational information areas. The five main areas (fig. 11) will be: Computer Operations, Hardware maintenance, System's Development, Research Design/Survey Design, and Information presentation and dissemination. The Chief advisory body to this office will be the National Information Committee, which the office will work with closely. The CEIO will be the level of Deputy Director of Education with various senior officers as shown in
the fig. 11. He will work closely with the section of planning and he will have officers at the district and zonal levels with relevant skills for each level. The information committee and the planning unit will similarly have officers at lower levels. This figure should be seen in line with recommendations: 2, 5, 7, 10, 13, 15, 20, 24

7.5 Further Research Studies

1. A study should be carried out aimed at analysing the effectiveness of the information system for education, training and employment in Kenya.

2. A parallel study should be carried out for pre-school, out of school, youth and adult, non-formal and informal educational information in Kenya to determine an appropriate information system.

3. A study should be carried in the districts to determine the factors in the local power structures, possible resources in the rural areas, better channels of communication and co-ordination to enhance the decentralization of information use, production and educational decision making in line with Kenya’s District Focus Strategy for Rural Development.

4. A study on appropriate information technology, training and other needs. Such a study should also examine traditional modes of communication with a view to identifying those that are still viable.

5. There should be a study on appropriate incentives for information production and use.

6. A study should be carried out to determine the extent to which information wants and needs compete in Kenya.
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QUESTIONNAIRE

STATISTICS EDUCATION OFFICERS

Please fill in the blank spaces appropriately:

1. (a) Your present grade/status

   (b) Date of appointment

2. (a) Highest academic qualification

   (b) Please indicate subjects of specialisation:
       (i) 
       (ii) 
       (iii) 

   (c) (i) Name of college/University attended

       Year

   (d) Other courses attended

3. Indicate your experience in data/information collection, collation, analysis, use and dissemination

4. (a) What you disliked most in being an education officer for statistics?

       (i) 
       (ii) 

4. (a) What do you consider to have been your major achievement(succesess) as an Education Officer (Statistics)?

       (i) 
       (ii) 
       (iii) 

   (b) List the main challenges or problems which you have experienced as an Education Officer for Statistics

       (i) 
       (ii) 
       (iii) 

5. State what you hope to achieve through participation in seminars

6. Any other comments
Appendix 2

MANAGEMENT INFORMATION SYSTEM FOR MONITORING EDUCATIONAL DECISION MAKING AND EDUCATIONAL QUALITY IN THE DISTRICT FOCUS STRATEGY FOR RURAL DEVELOPMENT.

(Questionnaire for Inspectors of Schools)

NAME OF DISTRICT: (....................)

1. What educational information do you process?

2. What use do you think is made of the information which collect and forward to the higher offices?

3. To which offices or organisations do you submit your educational information?
   1. The ministry official
   2. Inspectorate
   3. District education officer
   4. Teachers' services commission
   5. Kenya curriculum centre (KIE)
   6. The District Development Committee
   7. The Board of Governors (Committee)
   8. Others (specify)

4. How regularly do you get a feedback of your reports.
   1. At least monthly
   2. At least once in a term
   3. At least once in a year
   5. Never

5. Do you involve the school community in schools school activities?
   1. Yes  2. No

   Explain the mechanism used if any?

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
6. How long did you serve as a teacher, prior to being appointed inspector?
1. Less than two years  2. 3-5 years
3. 6-9 years  4. 10-15 years
5. More than 15 years.

7. Which new demands do you experience in your job as a result of changes in education?
1. Expansion in curriculum
2. Expansion in school
3. Increase in the number of remote schools
4. Increase in the number of untrained heads
5. Reduction office accommodation
6. Others (specify)

8. What routine information do you collect from:-
   a) Heads of schools?
   b) Teachers?
   c) Schools?
   d) Pupils?

9. In your area of jurisdiction, what are the most common problems experienced by each of the above mentioned?
   a) 
   b) 
c) 

10. Do you think that the authorities are well informed about these problems in your area of jurisdiction?
   1. Yes 2. No

11. Are you satisfied with the remedial measures taken?
   1. Yes 2. No

12. Are your views and recommendations respected by the authorities?
   1. Yes 2. No

14. Do you have an office to yourself?
   1. Yes 2. No

15. Which is your highest academic level?
   1. Standard 8 (KPE) 2. Form II (KJSE) 3. Form IV (KCE)
   4. Diploma 5. Graduate

16. What professional training have you had that is related to your present work since your appointment as inspector of schools?

17. How many promotions have you had since you became inspector of schools?
   1. None 2. One 3. Two 4. Several

18. Do you think that you have had adequate training as inspector of schools?
   1. Yes 2. No

19. In educational management, do you think that KESI (Kenya Education Staff Institute) has favoured school Heads with more training than inspectors?
   1. Yes 2. No
20. How many schools are under your supervision?

1. Less than 20
2. Between 20 and 29
3. Between 30 and 49
4. 50 - 99
5. More than 100

21. How many schools do you inspect on average per year?

1. (0 - 5) 2. (6 - 10) 3. (11 - 15) 4. More than 15 years

22. How many schools in your jurisdiction have been rated as being among the top 100 in the whole country?

1. 0 - 5
2. 6 - 10
3. 11 - 15
4. More than 15

23. In which of the following have you played a significant role?

1. Developing community and school relations
2. Representing the ministry on local developmental committees for Educational planning
3. Promotion of teachers on merit
4. Identifying the weakness of school management
5. Monitoring the quality of teaching
6. Monitoring resources in the school
7. Other (specify)

24. To what extent do you consider the following helpful to you

Very much A little More

1. District Education officer
2. Inspectorate Headquarters
3. Planners in the Ministry
4. The examination Board
5. The teachers' service commission
6. The Kenya Institute of Education

25. Which of the following do you regard as having had the most frequent and important influences to the teaching behaviour in your schools?

1. The community response
2. The Head teacher (principal)
3. The economy of the school and the community
4. The status of the teaching profession
5. The teachers' training
6. School policies
7. Other (specify)

26. How would you rate the following teachers?

Very Good Good Rather Good

1. Interested in individual pupils
2. How good mastery of subject matter
3. Gives clear explanations
4. Gives regular homework
27. How do you measure the effectiveness of your supervision?

28. Do you use a reporting format provided by the inspectorate?
   1. Yes
   2. No

29. Do you find the reporting proforma exhaustive?
   1. Yes
   2. No

30. What suggestions would you like to make to improve the reporting and processing of educational information?

31. Is there anything in the structure, functioning or otherwise, of the inspectorate that you think seriously hinders your work?
   1. Yes
   2. No

   Explain if this is the case

32. Do you think the inspectorate is concerned about your welfare?
   1. Yes
   2. No

33. What would you like changed in the inspectorate to improve the information flow between:
   1. You and the schools
   2. You and the Educational Administrators
   3. You and the District Education Officer
   4. You and central inspectorate
   5. You and the policy maker
   6. You and other would be useful educationists

   1. 
   2. 
   3. 
   4. 
   5. 
   6. 
34. What would you recommend teachers to use as sources of educational information about their pupils?

1. 
2. 
3. 
4. 

35. Which of the following is the greatest weakness of the inspectorate?

(please rank these alternatives)

1. Relies mostly on observance in class
2. Lacks specialization
3. Inability to ascertain the extent to which the school meets local needs.
4. Inability to help heads of schools and to ensure optimal use of school resources.
5. Undue concern with administration and accounting issues at the expense of the academic issue
6. Failure to encourage institutional supervision by school Heads.
7. Pre-occupation with maintaining the status quo.
8. Being concerned with irregularities and inadequacies.
9. Other (specify)
Appendix 3

QUESTIONNAIRE
THE MANAGEMENT INFORMATION SYSTEM FOR MONITORING EDUCATIONAL DECISION MAKING AND EDUCATIONAL QUALITY IN THE DISTRICT FOCUS STRATEGY FOR RURAL DEVELOPMENT.

NAME OF DISTRICT: (..................)
(DISTRICT EDUCATION OFFICERS:-D.E.Os)
Please tick where necessary.
1. How many of the following do you have in your District?
   1. Number of divisions  2. Number of zones
   3. Number of schools
   4. Number of Teacher Advisory Centres
2. How would you describe the communication network in your district?
   1. V. Good  2. Good  3. Average  4. Poor  5. Very poor
3. How regularly are you able to personally meet

   1. 2. 3. 4.
      1. Divisional Education Officer
      2. Divisional Assistant Inspectors of school
      3. Zonal officer
      4. TAC Tutor

4. Which of the following is a serious problem for you in trying to reach the fore-said officers and the schools?
   1. Lack of transport means.
   2. Lack of good communication network
   3. Poor geographical location
   4. Other (specify)

5. Which problem do you have in collecting educational information?
   1. Lack of means of transport
   2. Lack of staff
   3. Lack of trained staff
   4. Unreliable reporting
   5. Lack of information facilities
   6. Other (specify)
   Please give further information where necessary
6. How long have you served as District Education Officer in the present District?
   1. 0 - 2 years 2. 3 - 4 years 3. More than four years.

7. Which of the following levels or units of Educational Management do you use as the smallest unit for collecting information?

8. Which of the following educational levels are not covered by your office in terms of educational information?

9. Please state year and institution, if any, in which you have done a course related to educational planning.
   1. I= institution 2. Y= Year 3. C= Course
   __________ __________ __________

10. Which educational planning activities does your office carry out?
    1 
    2 
    3 

11. Do you think that the educational management and planning in the ministry is adequately decentralized?
    1. Yes 
    2. No

12. Are you sometimes asked by higher offices to collect educational information whose value you do not understand?
    1. Yes 
    2. No

13. Do you think that the educational information collected by your office is effectively used by related offices and the District Education Boards?
    1. Yes 
    2. No

Please explain: ------------------------------
14. Which information do you share with other Departments or Districts?

15. Which data centre do you use for compiling your educational information?
   1. Population census
   2. Employment statistics
   3. Budgetary allocations
   4. Other (specify)

16. Please indicate what information is sought under each of the following headings of data-bases.

   Pupils records
   Educational facilities
   Examination results
   Training
   Curriculum Management
   Financing
   Others (please specify)

17. Which of the following is your educational information primarily concerned with:

   1. Educational statistics within the schools in the Districts
   2. Conditions in educational administration within the educational institutions in the district
   3. Utilization rates within the educational institution in the Districts.
   4. Other (please specify).
18. Which of the following may be causes of lack of participation in educational programmes in your district?

1. Poverty 2. Ignorance 3. Indifference
4. Ethnocentrism 5. Other (specify)

19. What sort of incentive do you have for your information producers and users?

20. In which way do you think that the type of information you gather is useful to the following:

1. Teachers 2. Parents 3. Community
1. 2. 3.
2. 2. 2.
3. 3. 3.
4. 4. 4.

1. Does your office have the right to determine the procedure and from which institution to collect what type of information?

1. Yes 2. No

(a) Who prepares the questionnaires you use for collecting data?
1. Education officers in your office
2. Information specialists from the ministry
3. Clerks in your office
4. Other (specify)----------------------------------------

(b) Are they varied?
1. Yes 2. No

(c) In which specific data are the variations most frequent? -

1. Which of the following are not satisfactory about your information service?

1. Data depth
2. Data scope
3. Data collection instruments (questionnaires etc.)
4. Data management
5. Data entry and processing.

2. What factors of educational quality do you consider important for your educational information?

1. 3.
2. 4.

Other (specify) ----------------------------------------
How do you determine these factors?

24. What percentage of your allocation is spent collecting educational information on quality? 

25. When collecting educational information for quality, from which departments do you experience overlaps?

1. The Teachers' Service Commission 2. The Inspectorate
3. The District Education Board 4. The District Development Committee
5. Other (specify)

26. What do you suggest to remove these overlaps?

27. a) Are you expected to produce definite reports in a specified format and field

1. Yes 2. No

b) Do you also report on new aspects encountered within the reporting time?

1. Yes 2. No

28. The smooth operation of information and data collection is subject to constraints, indicate which of the following influence your case greatly?

1. Culture
2. Shortage of trained personnel
3. Political
4. Financial
5. Other (specify)

29. How much data does your office collect?

1. All educational data 2. As much as could be useful
3. Only data with specific purpose 4. Other (specify)

30. (a) Are you frequently faced with information demand that you did not anticipate?

1. Yes 2. No
(b) From whom do you frequently get this demand?

1. Ministry of education officials
2. Politicians
3. District education board
4. Community
5. School committee /PTA
6. Parents
7. Others (specify)

31. Apart from processing information for the central and provincial education offices, do you process any educational information to lower offices or offices outside the ministry of education?

1. Yes 2. No

32. Have you or your staff had any opportunity to train as information producers, processors etc?

1. Yes 2. No

33. Which of the following information do you have?

1. Annual educational achievements for each school in the districts
2. Annual employment rates for school leavers in the district
3. Tracer records for school leavers in the district
4. Reports on educational involvement of the various committees in the district.
5. Pupil/Teacher ratios
6. Other (please specify).

34. (a) In your district and from your educational information, are you in a position to answer questions regarding the educational achievement of the pupils according to their particular communities?

1. Yes 2. No

With regard to sex, percentage and community of origin for the pupils, please comment on:

(b) Who go through the education system in your district?

(c) Who perform well in the education system?
35. What particular advantage/disadvantage over neighbouring districts does your district have?

**Advantages**

1. More transport facilities
2. More physical facilities in schools
3. Adequate office accommodation
4. Adequate staffing
5. Other (specify)

**Disadvantages**

36. Is there a way in which good practices in schools are communicated vertically and horizontally?

1. Yes 2. No

Please explain

37. Apart from the District Education Board, the Parents Teachers Association and other management organisations stipulated in the education act, which participatory programmes do you have for the decision makers at various levels of education in your district?

Please explain
Appendix 4

INTERVIEW SCHEDULE

EDUCATION MANAGEMENT INFORMATION SYSTEM

NAME OF DEPARTMENT

MINISTRY

NAME OF OFFICER (OPTIONAL)

This interview is for the purpose of helping to strengthen the Education Management Information Systems (EMIS) in Kenya. This project which is being carried out in the Ministry of education aimed at making a thorough diagnosis of users, producers of educational information to discover the weaknesses of the EMIS. Therefore your cooperation will be very valuable.

OBJECTIVE I
(users, producers, functions)

1.1 Using tables 1, 2, and 3 below please indicate on table 4 what producer or user you are and what functions you carry out (in the first row only). In the same table 4 indicate who are the users or vice versa using the other rows.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Table 2</th>
<th>Table 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>P (producers - sources)</td>
<td>U (Users - consumers)</td>
<td>F (Functions)</td>
</tr>
<tr>
<td>P1 Planning Unit</td>
<td>U1</td>
<td>F1 Educational Planning Project (preparation, monitoring, etc)</td>
</tr>
<tr>
<td>P2 Statistics Unit</td>
<td>U2</td>
<td>F2</td>
</tr>
<tr>
<td>P3 Inspectorate</td>
<td>U3</td>
<td>F3 Educational Management</td>
</tr>
<tr>
<td>P4 KNEC</td>
<td>U4</td>
<td>F4 Personnel administration</td>
</tr>
<tr>
<td>P5 KIE</td>
<td>U5</td>
<td>F5 Research and evaluation</td>
</tr>
<tr>
<td>P6 PIU</td>
<td>U6</td>
<td>F6 Inspection</td>
</tr>
<tr>
<td>P7 TSC</td>
<td>U7</td>
<td>F7 Financial administration</td>
</tr>
<tr>
<td>P8 Adult Educ. Dept.</td>
<td>U8</td>
<td>F8 Construction and maintenance</td>
</tr>
<tr>
<td>P9 CBS</td>
<td>U9</td>
<td>F9 Financial administration</td>
</tr>
</tbody>
</table>
Table 4

<table>
<thead>
<tr>
<th>Producers</th>
<th>Users</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P10 P.E.O</td>
<td>U10</td>
<td>F10 Examinations</td>
</tr>
<tr>
<td>P11 D.E.O</td>
<td>U11</td>
<td>F11 Teacher Education</td>
</tr>
<tr>
<td>P12 School</td>
<td>U12</td>
<td>F12 Staff Development</td>
</tr>
<tr>
<td>P13 Community</td>
<td>U13</td>
<td>F13 Action on policy</td>
</tr>
<tr>
<td>P14 Primary section</td>
<td>U14</td>
<td>F14 Co-ordination of field offices</td>
</tr>
<tr>
<td>P15 Personnel section</td>
<td>U15</td>
<td>F15 Feeding programmes</td>
</tr>
<tr>
<td>P16 Training section</td>
<td>U16</td>
<td>F16 Co-ordination with other ministries, NGOs and UN agencies</td>
</tr>
<tr>
<td>P17 Publications</td>
<td>U17</td>
<td>F17 School mapping</td>
</tr>
<tr>
<td>P18 Own records</td>
<td>U18</td>
<td>F18 Curriculum development</td>
</tr>
<tr>
<td>P19 Others</td>
<td>U19</td>
<td>F19 Others (specify)</td>
</tr>
</tbody>
</table>

NB: A producer can have several users with several functions.

1.2 Is the MOE statistics unit a major information source for your department?

1. Yes  
2. No

b. If the unit is not, please explain in terms of:

(i) Whether it understands your professional needs
(ii) General quality of its information output

OBJECTIVE 2

(Collection instruments, content, records, processes)

2.1 Which data instruments do you use for collecting educational information?

1. Standard Proforma
2. Questionnaires
3. Interviews
4. Letters
5. Telephone enquiries
6. Visits
7. Others (specify)

2.2 What data and details are collected for:

(i) Educational Planning purposes

<table>
<thead>
<tr>
<th>Data Areas</th>
<th>Type of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Population</td>
<td></td>
</tr>
<tr>
<td>2. Teachers</td>
<td></td>
</tr>
<tr>
<td>3. Pupils</td>
<td></td>
</tr>
<tr>
<td>4. Schools</td>
<td></td>
</tr>
<tr>
<td>5. Equipment</td>
<td></td>
</tr>
<tr>
<td>6. Teaching material</td>
<td></td>
</tr>
<tr>
<td>7. Finance</td>
<td></td>
</tr>
<tr>
<td>8. Examination</td>
<td></td>
</tr>
</tbody>
</table>
2.2 (ii) What are the purposes of data areas which your department is concerned with?

<table>
<thead>
<tr>
<th>Type of data collected</th>
<th>purpose</th>
</tr>
</thead>
</table>

(ii) Additional information:

2.3 What problems does the department have regarding the information needed for:

(i) Decision-making

(ii) Educational quality

2.4 Please recommend the measures to improve access to the above mentioned information.

2.5 What does your department regard as necessary for inclusion in the statistical publications or reports from your department and the departments which serve you?

2.6 a. Does your department experience any information gaps?

1. Yes 2. No

b. If any gaps are experienced please recommend ways of filling them.
2.7 Who decides on what data your department should collect?

2.8 How often and what is used to review the data content?

2.9 Please enclose a sample of the questionnaires and all the data collection instruments you use. Mention:

1. Regularity of data collection and the period of collection;
2. Collection methods and data collection staff at various levels;
3. Methods of data verification;
4. Survey design staff if any;

2.10 With regard to the quality of data managed by the department please indicate the major problem in terms of:

1. Timeliness
2. Accuracy
3. Completeness of coverage
4. Competence of users
5. Non-response
6. Unfavourable policies
7. Vested interests
8. Training
OBJECTIVE 3
(The EMIS administrative structure, tasks, career, financing)

3.1 Please indicate in the table the number of people assigned to the following tasks.

<table>
<thead>
<tr>
<th>Task</th>
<th>No. of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. survey design</td>
<td></td>
</tr>
<tr>
<td>2. data collection</td>
<td></td>
</tr>
<tr>
<td>3. record keeping</td>
<td></td>
</tr>
<tr>
<td>4. data compilation</td>
<td></td>
</tr>
<tr>
<td>5. computer programming</td>
<td></td>
</tr>
<tr>
<td>6. statistical analysis</td>
<td></td>
</tr>
<tr>
<td>7. report writing</td>
<td></td>
</tr>
<tr>
<td>8. supervision</td>
<td></td>
</tr>
<tr>
<td>9. others (specify)</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Are the people adequate? 1. Yes 2. No

Is the training adequate? 1. Yes 2. No

3.3 a. What organizational and manpower problems does your department experience regarding the use or production of educational information?
   1. Supervision
   2. In-service training
   3. Career development
   4. Other

b. Is lack of manpower development programme for information personnel a serious cause of:
   1. Yes 2. No
   1. lack of commitment
   2. data inaccuracy
   3. vested interests
   4. demoralization
   5. neither of these?
   6. Other

3.4 Is the shortage of finance a serious problem for data management operations?
   1. Yes 2. No

b. How are the budgetary expenses for data management covered?
Appendix 5

OTHER DEPARTMENTS OF THE MINISTRY OF EDUCATION
MAIN USERS/PUCTIONS AND INFORMATION USES

(A) Statistical Information Collected by various sections of the Ministry

<table>
<thead>
<tr>
<th>Department/Section</th>
<th>Information collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grants</td>
<td>Number of Government Maintained Schools. Enrollments in these schools, Non-teaching staff, and Grants to schools. The information is supplied through a monthly return.</td>
</tr>
<tr>
<td>2. Inspectorate</td>
<td>Inspectors - Numbers and names available at zonal, divisional, district and provincial levels; the number of primary and secondary schools; Laboratories, workshops and special rooms; teaching staff by qualification; and the number of TAC tutors. The information is collected periodically as need arises.</td>
</tr>
<tr>
<td>3. 8-4-4</td>
<td>Physical facilities, workshops, laboratories, Home Science rooms, libraries and any other special rooms completed, under construction or not yet started; the level of equipment in the workshops and laboratories; teachers by qualification who handle the practical subjects. Number of schools and classes in the Zones, divisions and district. Name of officers in every district dealing with 8:4:4 programme. The information is sought once in every school term.</td>
</tr>
<tr>
<td>4. TSC</td>
<td>Name and Address of every school; Number of schools; enrolment by sex; number of streams by standard; Teachers by qualification; Personal details on teachers such as date of birth and date of first appointment. Information on schools is compiled annually while teachers' information supplied monthly.</td>
</tr>
</tbody>
</table>

Primary Schools:

Name of school; school type; attendance basis; enrolment and streams; approved establishment; all teachers by qualification and citizenship; teachers by sex, grade, terms of service, date of birth and date of first appointment. Information is supplied through monthly returns.
Other Educational Institutions:

Included here are teacher training colleges, special schools, Technical Training Institutes, Harambee Institutes of Science and Technology; Enrolment in the institutes; Number of teaching staff by qualification; Information on individual teachers by sex, terms of service, subject combination, date of birth, date of first appointment. In case of special schools, information available on type of school/disability, number of classes and teachers by specialization (i.e. whether teaching blind, deaf, etc.). This information is up-dated monthly.

5. Schools Registration

Number of secondary schools by type, including commercial schools; Each secondary school with its registration number, the maximum number of students allowed, number of streams per class. The plot number on which the school stands. A list of all special schools registered, private, nursery, pre-primary and kindergarten, all technical training institutes, all harambee institutes of technology. The list is up-dated every year.

Note: Public primary schools are not registered.

7. Special Education

Schools and units by disability; children enrolled by sex; Teachers by grade and specialization (disability and whether trained or untrained); List of educational equipment and their approximate cost. The information is collected annually, using questionnaires.

8. School milk/Feeding Programme

Milk Programme: Total number of schools; Enrolment in the schools; Number of children taking either fresh or UHT milk.

Feeding Programme: Enrolment by sex in both primary and pre-primary schools in 21 districts covered in the programme (Mandera, Garissa, T/River, Lamu, Wajir, Marsabit, Isiolo, Meru, Kitui, Makuene, Kajiado, Laikipia, Samburu, Turkana, W. Pokot, Baringo, Narok, Embu, Keiyo Marakwet, Kilifi and Kwale); Number of primary and pre-primary schools in the 19 districts.

9. Pre-primary

Number of pre-primary schools; Number of teachers, trained or untrained by sex and citizenship; Enrolment: boys and girls by age; Sponsorship of schools; List of schools by Zone/Division; Academic qualification of teachers (i.e. above KCE, KJSE, CPE, etc.). This information is collected annually.
10. Field services

Number of administrative (education) personnel in the field; Number of primary schools. KCPE performance, merit position in KCPE, children under school milk programme and feeding programme, total pupils enrolled; Number of special schools and units, classes, teaching staff, enrolment by sex; Teacher training colleges, enrolment: 1st years and 2nd years, sex, teaching staff, non-teaching staff, in-service trainees, college finances, staff houses, dormitories, etc.; Number of secondary schools, maintained, private, enrolment in schools by type and sex, teachers by qualification and by school type; Physical facilities (primary and secondary): Workshops, home science rooms, laboratories, libraries, class rooms, staff houses, dining halls, dormitories. This information is collected periodically as need arises.

11. Examinations Council

Examination candidates by type of examination (KCPE, KSCE, Secretarial, Business Education, etc); Examination centres: Number of schools with examination classes; Merit position of schools and/or districts in the various examinations; Number of passing or failing in the various examinations; Examiners of various examinations.

12. Secondary School Administration

Projections of available form I places in the provinces; Form I enrolment returns; Staff monthly returns - subjects/qualification; List and addresses of all public schools.
## MINISTRY OF EDUCATION

### Analytical breakdown of data types per user departments

<table>
<thead>
<tr>
<th>Data type</th>
<th>User/dept.</th>
<th>Update rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of schools by category/type</td>
<td>1, 2, 4, 5, 7, 8, 9, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>2. Enrolment by sex</td>
<td>1, 6, 7, 8, 9, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>3. Non-teaching staff by qualification</td>
<td>1, 4, 8, 9, 13</td>
<td>Monthly</td>
</tr>
<tr>
<td>4. Grants to schools</td>
<td>1</td>
<td>Monthly</td>
</tr>
<tr>
<td>5. No. of inspectors by Zone/Div./Dist./Province</td>
<td>2, 3, 9, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>6. Physical facilities</td>
<td>2, 3, 9, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>7. Number of TACs by district</td>
<td>2, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>8. Number of TAC tutors</td>
<td>2, 3, 9, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>9. Level of Equipment</td>
<td>3, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>10. Number of streams/classes by district and standard</td>
<td>3, 4, 17</td>
<td>Termly</td>
</tr>
<tr>
<td>11. Approved establishment (student)</td>
<td>4, 5</td>
<td>Termly</td>
</tr>
<tr>
<td>12. Other educational institutions by category</td>
<td>4, 9, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>13. Enrolment</td>
<td>4, 9, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>14. Number of teaching staff by qualification and sex</td>
<td>4, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>15. Plot number</td>
<td>5</td>
<td>Monthly</td>
</tr>
<tr>
<td>16. All registered institutions by category</td>
<td>5</td>
<td>Monthly</td>
</tr>
<tr>
<td>17. Schools and units by disability</td>
<td>6, 4, 9, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>18. Teachers by specialization (disability)</td>
<td>6, 4, 9, 17</td>
<td>Monthly</td>
</tr>
<tr>
<td>19. Equipment and costs (in special institutions)</td>
<td>6, 17</td>
<td>Annually</td>
</tr>
<tr>
<td>20. Number of children in feeding programme</td>
<td>7, 17</td>
<td>Annually</td>
</tr>
<tr>
<td>21. Sponsorship of schools</td>
<td>8</td>
<td>Annually</td>
</tr>
<tr>
<td>22. Number of educational administrative personnel in the field</td>
<td>9, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>23. Performance (KCPE) &amp; merit position of schools</td>
<td>1, 10, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>24. In-service training</td>
<td>9, 17</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>25. College Finance</td>
<td>9</td>
<td>W.I.N.</td>
</tr>
<tr>
<td>26. Examination candidates by type</td>
<td>10, 17</td>
<td>Annually</td>
</tr>
<tr>
<td>27. Examination centres</td>
<td>10</td>
<td>Annually</td>
</tr>
<tr>
<td>28. Number of schools with exam. classes</td>
<td>10, 17</td>
<td>Annually</td>
</tr>
<tr>
<td>29. Number of candidates by performance</td>
<td>10, 17</td>
<td>Annually</td>
</tr>
<tr>
<td>30. Examiners by subject</td>
<td>10</td>
<td>Annually</td>
</tr>
<tr>
<td>31. University Applicants</td>
<td>11</td>
<td>Annually</td>
</tr>
<tr>
<td>32. University enrollments by faculties</td>
<td>11, 17</td>
<td>Annually</td>
</tr>
</tbody>
</table>
33. Finance/allowances to students 11
34. University loan given out/matured/repaid/defaulted w.e.f. 1980 12
35. Projections of available form I places by province 13
36. Form I enrolment returns 13.17

Annually
Annually
Annually
Annually

Legend

Number Department

1. Grants Section
2. Inspectorate
3. 8:4:4 Section
4. Teachers' Service Commission
5. Schools Registration
6. Special Education
7. School Milk/Feeding Programme
8. Pre-Primary Section
9. Field Services
10. Examination Council
11. University
12. Loan Recovery
13. Secondary School Administration
14. Unesco National Commission
15. Project Implementation Unit
16. Teacher Education
17. K.I.E (Kenya Institute of Education)

W.I.N - When In Need
Republic of Kenya

Ministry of Education

Annual Questionnaire on Statistics of Secondary Schools 1993

Note: For Headquarters Use Only

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Form Number</th>
<th>School Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>4 - 5</td>
<td>6 - 12</td>
</tr>
</tbody>
</table>

Batched by | Verified by | Edited by
OFFICIAL NOTICE

AUTHORITY
These statistics are collected under the Statistics Act. Cap 112 and the Regulations of the Ministry of Education.

CONFIDENTIALITY
Information supplied on this questionnaire is treated as confidential and the use is restricted to statistical and planning purposes only.

SCOPE OF THE CENSUS
All secondary schools operating in Kenya are required to fill the questionnaire.
GENERAL NOTES

1. Read the instructions on the questionnaires very carefully before starting to complete it.
2. If you have questions regarding the interpretation of the questionnaire, contact the Education Officer in your area.
3. The completed questionnaire should be returned to your DEO by 15th April, 1993. Please note the following definitions:
   (a) Public school, i.e. any school which receives at least one teaching staff from the Government or any Local Authority.
   (b) Private i.e. any school which does not receive any aid from the Government.

INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

1. Enter only one digit in each unit space provided, e.g. enter 1, 2, 3 as 1 2 3
2. Always add zeros before the digit entered so that all unit spaces are filled e.g. enter 1 as 0 0 1
3. Whenever the answer to a question is NIL DO NOT enter anything in the space provided.
4. When a code list is provided, enter the code in the appropriate space.

<table>
<thead>
<tr>
<th>SCHOOL TYPE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Public</td>
<td>1</td>
</tr>
<tr>
<td>Private</td>
<td>2</td>
</tr>
</tbody>
</table>

   If your type of school is public, enter 1 as 1

5. Ignore all numerals already entered in the questionnaire. They are for computer use only, e.g.

   Write here
   do not write here 16
(a) Particulars of school

(i) Name of school ________________________________
Address ____________________ Tel. if any ____________________
Zone ____________________ Education div. ____________________
Name of sponsor ________________________________

(ii) School Type and Attendance Basis (as at 31st March, 1993)

<table>
<thead>
<tr>
<th>Rec. type</th>
<th>School type</th>
<th>Attendance basis</th>
<th>Boys</th>
<th>Girls</th>
<th>Mixed</th>
<th>Boys</th>
<th>Girls</th>
<th>Mixed</th>
<th>Boys</th>
<th>Girls</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Private</td>
<td></td>
<td>46-48</td>
<td>49-51</td>
<td>52-54</td>
<td>55-57</td>
<td>58-60</td>
<td>61-63</td>
<td>64-66</td>
<td>67-69</td>
<td>70-72</td>
</tr>
</tbody>
</table>

Type of School
(1) Public. (2) Private. Enter appropriate code here.

Year school first opened (enter month and year only)

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>75</td>
</tr>
</tbody>
</table>

Status of School
(1) Boarding (2) Day (3) Day and Boarding

Category of School
(1) National (2) Provincial (3) Other Public (4) Private
### Data on ENROLMENT by Form, Streams, Gender, Nationality and Repeaters (as at 31st March, 1993)

#### Public Schools

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Form</th>
<th>Stream</th>
<th>Boys</th>
<th>Girls</th>
<th>Total Enrolment (including repeaters)</th>
<th>Repeaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>42-43</td>
<td>44-46</td>
<td>47-49</td>
<td>50-52</td>
<td>53-55</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66-68</td>
<td>67-69</td>
<td>70-72</td>
<td>73-75</td>
<td>76-78</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Enrolment and Nationality

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Form</th>
<th>Stream</th>
<th>Boys</th>
<th>Girls</th>
<th>Total Enrolment (including repeaters)</th>
<th>Repeaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kanyak</td>
<td>Non-Kanyak</td>
<td>Kanyak</td>
<td>Non-Kanyak</td>
</tr>
<tr>
<td>03</td>
<td>2</td>
<td>41</td>
<td>42-44</td>
<td>45-47</td>
<td>48-51</td>
<td>51-53</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>63</td>
<td>64-66</td>
<td>67-69</td>
<td>70-72</td>
<td>73-75</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>85</td>
<td>86-88</td>
<td>89-91</td>
<td>92-94</td>
<td>95-97</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Data on Special Education

1. **Is your school a special school?**
   - Yes.  
   - No.  
   - Enter the appropriate code:  
     - Yes: 107

2. **Does your school have special units?**
   - Yes.  
   - No.  
   - Enter the appropriate code:  
     - Yes: 108

3. **What type of disabilities do you cater for?**
   - Physical handicap
   - Visual handicap
   - Mental retardation
   - Hearing impaired
   - Speech problems
   - Multi-handicap
   - Others.
   - Enter the appropriate code:  
     - Physical handicap: 109
## Number of Students by Form, Gender and Age (as at 31st March, 1990)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 Years and Below</td>
<td>19-21</td>
<td>22-24</td>
<td>25-27</td>
</tr>
<tr>
<td>14 Years</td>
<td>28-30</td>
<td>31-33</td>
<td>34-36</td>
</tr>
<tr>
<td>15 Years</td>
<td>37-39</td>
<td>40-42</td>
<td>43-45</td>
</tr>
<tr>
<td>16 Years</td>
<td>46-48</td>
<td>49-51</td>
<td>52-54</td>
</tr>
<tr>
<td>17 Years</td>
<td>55-57</td>
<td>58-60</td>
<td>61-63</td>
</tr>
<tr>
<td>18 Years</td>
<td>64-66</td>
<td>67-69</td>
<td>70-72</td>
</tr>
<tr>
<td>19 Years</td>
<td>73-75</td>
<td>76-78</td>
<td>79-81</td>
</tr>
<tr>
<td>20 Years</td>
<td>82-84</td>
<td>85-87</td>
<td>88-90</td>
</tr>
<tr>
<td>21 Years</td>
<td>91-93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Years and Above</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Data on Teachers and Regular Non-Teaching and Subordinate Staff (as at 31st March, 1990)

### Number of Teachers and Regular Non-Teaching and Subordinate Staff by Employer, Nationality and Gender.

**TEACHERS EMPLOYED BY**

<table>
<thead>
<tr>
<th>Nationality</th>
<th>TSC</th>
<th>School BOGs or Parents Association</th>
<th>Other Organizations e.g. Church</th>
<th>Volunteers</th>
<th>Total number of Teachers in the School</th>
<th>Curriculum Based Establishment</th>
<th>BOG</th>
<th>Others e.g. (School, Church, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td></td>
<td>M</td>
<td>F</td>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Kenyan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Kenyan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### (I) Number of Teachers by Qualification and Gender (as at 31st March, 1993)

<table>
<thead>
<tr>
<th>Type</th>
<th>Gender</th>
<th>TRAINED</th>
<th>UNTRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Graduates</td>
<td>Diploma</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (II) Number of Teachers by Age and Teaching Experience

<table>
<thead>
<tr>
<th>Type</th>
<th>Gender</th>
<th>AGE</th>
<th>TEACHING EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Years</td>
<td>Under 1 Year</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Data on Examination Results and Admission to Post-Secondary Institutions.

(i) Examination Results in KCSE 19 ........

(Enter the number of Students from the School who sat for KSCE in 19 ........... and were within each category by Gender).

<table>
<thead>
<tr>
<th>Gender</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D+</th>
<th>D-</th>
<th>E</th>
<th>ABSENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
</tr>
</tbody>
</table>

(ii) Admission to Post-Secondary Institutions.

(Enter the number of students from your school who sat for KCSE in 19 ............. and who were admitted in the listed Post-Secondary Institutions or were not admitted in any institution by Gender).

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Gender</th>
<th>Admitted in:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Universities</td>
</tr>
<tr>
<td>21</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
(e) Data on PHYSICAL FACILITIES and SCHOOL EQUIPMENT

<table>
<thead>
<tr>
<th>RECTYPE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td></td>
</tr>
<tr>
<td>17-18</td>
<td></td>
</tr>
</tbody>
</table>

(f) Land:

<table>
<thead>
<tr>
<th>Registration number</th>
<th>19-25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Registered owner(s):

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(c) Size: Acres/Hectares.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
</tr>
<tr>
<td>27</td>
</tr>
<tr>
<td>28</td>
</tr>
</tbody>
</table>

(d) Site planned: Yes/No code:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

(e) Land use:

- Tick [ ] ACRES [ ] HECTARES [ ]

<table>
<thead>
<tr>
<th>Used for:</th>
<th>Acres/Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>30-31</td>
</tr>
<tr>
<td>Playgrounds</td>
<td>32-33</td>
</tr>
<tr>
<td>Farming</td>
<td>34-35</td>
</tr>
<tr>
<td>Others (Specify)</td>
<td>36-37</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Rec Type</th>
<th>Number of:</th>
<th>Completed</th>
<th>Under</th>
<th>Planned</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Equipped</td>
<td>Construction</td>
<td>(but not started)</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Libraries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Laboratories</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Home Sc Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Teachers Hse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Dormitories</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Dining Hall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Kitchens</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Offices/Admin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Art Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Swimming Pools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Stores</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Pit Latrines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>W.C.'s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Others (Specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(f) **Other Facilities**

<table>
<thead>
<tr>
<th>Rec Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
</tr>
</tbody>
</table>

(i) **Water Supply**

1. Piped
2. Stream
3. Borehole
4. Others (specify) 38

(ii) **Mode of Lighting**

1. Electricity
2. Solar
3. Gas
4. Firewood 39

(iii) **Mode of Cooking**

1. Electricity
2. Solar
3. Gas
4. Firewood
5. Others (specify) 40

(iv) **Access to health facilities:**

(a) **Within school compound** Yes/No

(b) **Distance to the nearest facility** (if outside school compound) in m. code

<table>
<thead>
<tr>
<th>42</th>
<th>43</th>
<th>44</th>
</tr>
</thead>
</table>
| 1. Yes
2. No |

(h) **Inspection**

<table>
<thead>
<tr>
<th>Date of School's latest inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
</tr>
<tr>
<td>45</td>
</tr>
</tbody>
</table>

(i) **Auditing**

<table>
<thead>
<tr>
<th>Day</th>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>52</td>
<td>53</td>
</tr>
</tbody>
</table>
Data on school fees and other levies (in Kshs.) paid by PARENTS per school year.

<table>
<thead>
<tr>
<th>SEC. Type</th>
<th>Form</th>
<th>Boarding Fees</th>
<th>Building Charges</th>
<th>Uniform Money</th>
<th>Text Books</th>
<th>Exercise Books</th>
<th>Caution Money</th>
<th>Games Kit</th>
<th>Transport (if provided)</th>
<th>P.T.A. Funds</th>
<th>Medical Fees</th>
<th>Maintenance Funds</th>
<th>Exam Fees</th>
<th>Other Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>41 Form 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 Form 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43 Form 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44 Form 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MINISTRY OF EDUCATION

ANNUAL

QUESTIONNAIRE

ON

STATISTICS

OF

PRIMARY SCHOOLS

1993

NOTE: For Headquarters Use Only

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Form Number</th>
<th>School Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>5 - 6</td>
<td>7 - 13</td>
</tr>
</tbody>
</table>

Batched by

Verified by

Edited by
OFFICIAL NOTICE

AUTHORITY
These statistics are collected under the Statistics Act, Cap 112 and the Regulations of the Ministry of Education.

CONFIDENTIALITY
Information supplied on this questionnaire is treated as confidential and the use is restricted to statistical and planning purposes only.

SCOPE OF THE CENSUS
All primary schools operating in Kenya are required to fill the questionnaire.
GENERAL NOTES

1. Read the instructions on the questionnaires very carefully before starting to complete it.
2. If you have questions regarding the interpretation of the questionnaire, contact the Education Officer in your area.
3. The completed questionnaire should be returned to your DEO by 15th April, 1993. Please note the following definitions:
   (a) Public school, i.e. any school which receives at least one teaching staff from the Government or any Local Authority.
   (b) Private i.e. any school which does not receive any aid from the Government.

INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

1. Enter only one digit in each unit space provided, e.g. enter 1, 2, 3 as [123]
2. Always add zeros before the digit entered so that all unit spaces are filled e.g. enter 1 as [001]
3. Whenever the answer to a question is NIL DO NOT enter anything in the space provided.
4. When a code list is provided, enter the code in the appropriate space.

<table>
<thead>
<tr>
<th>SCHOOL TYPE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>1</td>
</tr>
<tr>
<td>Private</td>
<td>2</td>
</tr>
</tbody>
</table>

   If your type of school is public, enter 1 as [1]

5. Ignore all numerals already entered in the questionnaire. They are for computer use only, e.g.

   Write here
   do not write here [16]
### Particulars of school

**Name of school**

**Address**

**Tel. if any**

**Zone**

**Education div.**

**Name of sponsor**

### School Type and Attendance Basis (as at 31st March, 1993)

<table>
<thead>
<tr>
<th>Rec. type</th>
<th>School type</th>
<th>Attendance basis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Boarding</td>
</tr>
<tr>
<td></td>
<td>Public</td>
<td>Boys 18-21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26-30</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>Boys 40-48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55-57</td>
</tr>
</tbody>
</table>

**Type of School**

(1) Public, (2) Private. Enter appropriate code here.

**Year school first opened (enter month and year only)**

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>75</td>
</tr>
<tr>
<td>76</td>
<td>77</td>
</tr>
</tbody>
</table>

**Status of School**

(1) Boarding (2) Day (3) Day and Boarding
## ENROLMENT by Form, Stream, Gender, Nationality and Repeaters (as at 31st March, 1993)

<table>
<thead>
<tr>
<th>Race Type</th>
<th>Class/Std.</th>
<th>Stream</th>
<th>Boys</th>
<th>Non-Kenyans</th>
<th>Girls</th>
<th>Non-Kenyans</th>
<th>Total Enrolment (including repeaters)</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-18</td>
<td>02</td>
<td>1</td>
<td>19-20</td>
<td>21-23</td>
<td>24-26</td>
<td>27-29</td>
<td>30-32</td>
<td>33-35</td>
<td>38-39</td>
<td>40-41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>42-43</td>
<td>44-46</td>
<td>47-49</td>
<td>50-52</td>
<td>53-55</td>
<td>56-58</td>
<td>59-60</td>
<td>61-62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>66-68</td>
<td>67-69</td>
<td>70-72</td>
<td>73-75</td>
<td>76-78</td>
<td>79-81</td>
<td>82-83</td>
<td>84-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>88-89</td>
<td>90-92</td>
<td>93-95</td>
<td>96-99</td>
<td>99-101</td>
<td>102-104</td>
<td>105-106</td>
<td>107-108</td>
</tr>
<tr>
<td>03</td>
<td>5</td>
<td>1</td>
<td>19-20</td>
<td>21-23</td>
<td>24-26</td>
<td>27-29</td>
<td>30-32</td>
<td>33-35</td>
<td>38-39</td>
<td>40-41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>42-43</td>
<td>44-46</td>
<td>47-49</td>
<td>50-52</td>
<td>53-55</td>
<td>56-58</td>
<td>59-60</td>
<td>61-62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>66-68</td>
<td>67-69</td>
<td>70-72</td>
<td>73-75</td>
<td>76-78</td>
<td>79-81</td>
<td>82-83</td>
<td>84-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>88-89</td>
<td>90-92</td>
<td>93-95</td>
<td>96-99</td>
<td>99-101</td>
<td>102-104</td>
<td>105-106</td>
<td>107-108</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Data on ENROLMENT by Class, Gender and Age (as at 31st March, 1993)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>6 Years and below</th>
<th>7 Years</th>
<th>8 Years</th>
<th>9 Years</th>
<th>10 Years</th>
<th>11 Years</th>
<th>12 Years</th>
<th>13 Years</th>
<th>14 Years</th>
<th>15 Years</th>
<th>16 Years</th>
<th>17 Years</th>
<th>18 Years</th>
<th>19 Years and above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-18</td>
<td>16-21</td>
<td>12-27</td>
<td>8-32</td>
<td>4-37</td>
<td>1-42</td>
<td>7-48</td>
<td>5-53</td>
<td>3-60</td>
<td>1-65</td>
<td>8-70</td>
<td>6-75</td>
<td>4-80</td>
<td>2-85</td>
<td>0-90</td>
<td>1-95</td>
</tr>
<tr>
<td>04</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
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<td>06</td>
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<tr>
<td>07</td>
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<tr>
<td>09</td>
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<td>10</td>
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</tr>
<tr>
<td>12</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Data on Special Education

(i) Is your school a special school?
- Yes
- No

(ii) Does your School have special units?
- Yes
- No

(iii) What type of disability/disabilities do you cater for?
- Physical handicap
- Visual handicap
- Mental retardation
- Hearing impaired
- Speech problems
- Multi-handicapped
- Others

Data on School Milk and Feeding Programme (as at 31st March, 1993)

(i) School Milk Programme

<table>
<thead>
<tr>
<th>Number of Pupils</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-24</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>31-33</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>40-42</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>49-51</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>58-60</td>
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<td>1</td>
</tr>
</tbody>
</table>

RECEIVING: U.H.T Milk

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>YES</td>
</tr>
<tr>
<td>2</td>
<td>NO</td>
</tr>
</tbody>
</table>
(i) School Feeding Programme

(a) Is your School under this Programme? .......... Yes

(b) If yes, state the number of pupils fed by gender

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>71</td>
<td>74</td>
</tr>
<tr>
<td>69</td>
<td>72</td>
<td>75</td>
</tr>
<tr>
<td>70</td>
<td>73</td>
<td>76</td>
</tr>
</tbody>
</table>

(ii) Data on Teachers and Regular Non-Teaching and Subordinate Staff (as at 31st March, 1993)

(i) Number of Teachers and Regular Non-Teaching and Subordinate Staff by Employer, Nationality and Gender.

<table>
<thead>
<tr>
<th>R E C T Y P E</th>
<th>Nationality</th>
<th>TSC</th>
<th>School BOGs or Parents Association</th>
<th>Other organizations e.g. Church</th>
<th>Total</th>
<th>Govt/City or Municipality</th>
<th>Others (e.g. School Committee)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Kanyans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>18</td>
<td>Total</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
### Number of Teachers by Gender and Age

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Gender</th>
<th>Training</th>
<th>UNTRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Graduates</td>
<td>Diploma</td>
</tr>
<tr>
<td>17 Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Total</td>
<td></td>
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</tr>
</tbody>
</table>

### Number of Teachers by Age and Teaching Experience

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Gender</th>
<th>Age</th>
<th>Training</th>
<th>UNTRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Graduates</td>
<td>Diploma</td>
</tr>
<tr>
<td>17-18</td>
<td></td>
<td>20 Years and Below</td>
<td>21-25</td>
<td>26-30</td>
</tr>
<tr>
<td>17 Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (B) Number of Teachers by Age and Teaching Experience

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Gender</th>
<th>Age</th>
<th>Training</th>
<th>UNTRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Graduates</td>
<td>Diploma</td>
</tr>
<tr>
<td>17-18</td>
<td></td>
<td>20 Years and Below</td>
<td>21-25</td>
<td>26-30</td>
</tr>
<tr>
<td>17 Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Total</td>
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<td></td>
</tr>
</tbody>
</table>

### (C) Number of Teachers by Age and Teaching Experience

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Gender</th>
<th>Age</th>
<th>Training</th>
<th>UNTRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Graduates</td>
<td>Diploma</td>
</tr>
<tr>
<td>17-18</td>
<td></td>
<td>20 Years and Below</td>
<td>21-25</td>
<td>26-30</td>
</tr>
<tr>
<td>17 Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Total</td>
<td></td>
<td></td>
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</tbody>
</table>
### Data on Examination Results and admission to Secondary Schools

(0) Examination Results in 19 ................... Centre Number ...................

(Enter the number of pupils from the school who sat for KCPE in 19 ................... and were within each category by Subject and Gender).

<table>
<thead>
<tr>
<th>Rec. Type</th>
<th>Subject</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D+</th>
<th>D</th>
<th>D-</th>
<th>E</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-18</td>
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</tr>
<tr>
<td>23</td>
<td>English Language</td>
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<td></td>
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</tr>
<tr>
<td>24</td>
<td>Kiswahili Language</td>
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<td></td>
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</tr>
<tr>
<td>25</td>
<td>Mathematics</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>26</td>
<td>Science &amp; Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>27</td>
<td>Geo., CRE, His. &amp; Civic</td>
<td></td>
<td></td>
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<tr>
<td>28</td>
<td>Music, Art &amp; Craft</td>
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<td></td>
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<tr>
<td>29</td>
<td>H. Sc. &amp; B. Education</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Number of students from your school who sat KCPE in 19 and who were admitted in the listed Post-Primary Institutions or were not admitted in any institution by Gender.

<table>
<thead>
<tr>
<th>National Schools</th>
<th>Provincial Schools</th>
<th>Other Public Schools</th>
<th>Private Schools</th>
<th>Total</th>
<th>Repeating in your school or another school</th>
<th>Village Polytechnic</th>
<th>Self Employment</th>
<th>Direct Employment</th>
<th>Others (specify)</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
</table>

CAL FACILITIES and SCHOOL EQUIPMENT

<table>
<thead>
<tr>
<th>REC TYPE</th>
<th>33</th>
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<tbody>
<tr>
<td></td>
<td>17-18</td>
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</tbody>
</table>

Tract number

<table>
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<tr>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
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</thead>
</table>

Tract owner (s)

<table>
<thead>
<tr>
<th>26</th>
<th>27</th>
<th>28</th>
</tr>
</thead>
</table>

Acre/Hectares

| 30 | 31 | 32 |

| 33 | 34 | 35 |

| 36 | 37 | 38 |

| 39 | 40 | 41 |

Other (specify)

| 20 |

Annexed...Yes/No

| 1. Yes | 2. No |

<p>| 29 |</p>
<table>
<thead>
<tr>
<th>Rec Type</th>
<th>Number of</th>
<th>Completed</th>
<th>Under Construction</th>
<th>Planned (but not started)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms</td>
<td>19-20</td>
<td>21-22</td>
<td>23-24</td>
<td>25-26</td>
<td></td>
</tr>
<tr>
<td>Workshops</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Libraries</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Laboratories</td>
<td>35-36</td>
<td>37-38</td>
<td>39-40</td>
<td>41-42</td>
<td></td>
</tr>
<tr>
<td>Home Sc Rooms</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>46</td>
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</tr>
<tr>
<td>Teachers Hse</td>
<td>47-48</td>
<td>49-50</td>
<td>51-52</td>
<td>53-54</td>
<td></td>
</tr>
<tr>
<td>Dormitories</td>
<td>56-57</td>
<td>58-59</td>
<td>60-61</td>
<td>62-63</td>
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</tr>
<tr>
<td>Dinning Hall</td>
<td>64</td>
<td>65</td>
<td>66</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Kitchens</td>
<td>68-69</td>
<td>70-71</td>
<td>72-73</td>
<td>74-76</td>
<td></td>
</tr>
<tr>
<td>Offices/Adm</td>
<td>76-77</td>
<td>78-79</td>
<td>80-81</td>
<td>82-83</td>
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<tr>
<td>Art Rooms</td>
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<td>86-87</td>
<td>88-89</td>
<td>90-91</td>
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</tr>
<tr>
<td>Swimming Pools</td>
<td>92</td>
<td>93</td>
<td>94</td>
<td>95</td>
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</tr>
<tr>
<td>Stores</td>
<td>96-97</td>
<td>98-99</td>
<td>100-101</td>
<td>102-103</td>
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</tr>
<tr>
<td>Pit Latrines</td>
<td>104-105</td>
<td>106-107</td>
<td>108-109</td>
<td>110-111</td>
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<tr>
<td>W.C.'s</td>
<td>112-113</td>
<td>114-115</td>
<td>116-117</td>
<td>118-119</td>
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<tr>
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<td>121</td>
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<tr>
<td>REC. TYPE</td>
<td>Number</td>
<td>total Number</td>
<td>Currently available</td>
<td>Shortfall</td>
<td>Remarks</td>
</tr>
<tr>
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<td>--------------</td>
<td>---------------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>17-18</td>
<td>(a)</td>
<td>Classrooms:</td>
<td>19-21</td>
<td>22-24</td>
<td>25-27</td>
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<tr>
<td>35</td>
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<td>Desks.......</td>
<td>28-30</td>
<td>31-33</td>
<td>34-36</td>
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<td></td>
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<td>Chairs.......</td>
<td>37-39</td>
<td>40-42</td>
<td>43-45</td>
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<td>Tables.......</td>
<td>46-47</td>
<td>48-49</td>
<td>50-51</td>
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<tr>
<td></td>
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<td>Blackboards...</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Others (Specify)</td>
<td>52-53</td>
<td>54-55</td>
<td>55-57</td>
</tr>
<tr>
<td>17-18</td>
<td>(b)</td>
<td>Office</td>
<td>19-20</td>
<td>21-22</td>
<td>23-24</td>
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<tr>
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<td>27-28</td>
<td>29-30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chairs.......</td>
<td>31-32</td>
<td>33-34</td>
<td>35-36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cupboards/</td>
<td>37-38</td>
<td>39-40</td>
<td>41-42</td>
</tr>
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<td></td>
<td></td>
<td>Cabinet......</td>
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<tr>
<td></td>
<td></td>
<td>Typewriters</td>
<td>43</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duplicating</td>
<td>46</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Machine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others (Specify)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### School Equipment cont.

<table>
<thead>
<tr>
<th>REC. TYPE</th>
<th>Number</th>
<th>Total Number</th>
<th>Number Currently Available</th>
<th>Shortfall</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-18</td>
<td>(c) Staff Room:</td>
<td>19-20</td>
<td>21-22</td>
<td>23-24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tables</td>
<td>25-26</td>
<td>27-28</td>
<td>29-30</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Chairs</td>
<td>31-32</td>
<td>33-34</td>
<td>35-36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lockers</td>
<td>37-38</td>
<td>39-40</td>
<td>41-42</td>
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<tr>
<td></td>
<td>Pigeon holes</td>
<td>43-44</td>
<td>45-46</td>
<td>47-48</td>
<td></td>
</tr>
<tr>
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<td>Notice Boards</td>
<td>49-50</td>
<td>51-52</td>
<td>63-54</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others (Specify)</td>
<td>46-48</td>
<td>49-51</td>
<td>52-54</td>
<td></td>
</tr>
</tbody>
</table>

<p>| 17-18     | (b) Board Facilities | 19-21 | 22-24 | 25-27 |         |
|           | Beds | 28-30 | 31-33 | 34-36 |         |
| 36        | Mattresses | 37-39 | 40-42 | 43-45 |         |
|           | Dinn. Tables | 46-48 | 49-51 | 52-54 |         |
|           | Others (Specify) | 46-48 | 49-51 | 52-54 |         |</p>
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<th>Rec. Type</th>
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<td>17-18</td>
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**Water Supply**
- Piped 2. Stream
- Borehole 4. Others (specify)

**Idea of Lighting**
- Electricity 2. Solar
- Gas 4. Firewood

**Ideas of Cooking**
- Electricity 2. Gas
- Charcoal 4. Firewood
- Others (specify)

### Access to Health Facilities
1. **Within school compound**
   - Yes
   - No

2. **Distance to the nearest facility (if outside school compound)**

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<th>REC TYPE</th>
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<th>TUITION FEES</th>
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<th>EXERCISE BOOKS</th>
<th>CAUTION MONEY</th>
<th>P.T.A FUNDS</th>
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<th>TRANSPORT FEES</th>
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(i) Number of pupils enrolled who during the year (ending 31 March 1981)
Left school before completing standard 8

(ii) Give known reasons for pupils leaving school before completing standard 8.
(Only one reason should be given for any pupil).

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<th>Reason for leaving school</th>
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<td>Reasons not known</td>
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(iii) Number of children of school age in your area known not to have enrolled in school
(Give an estimate if precise numbers are not known)

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<tr>
<th>Reasons not known</th>
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(iv) Give known reasons why children have not enrolled in school (only one reason should be given for any pupil)

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<tr>
<th>Reason for non-enrolment</th>
<th>Boys</th>
<th>Girls</th>
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This is to certify that:

Prof Dr Mr Mrs Miss MAURICE FREDERICK OTUNGA

of (Address) 392 ELDORE...

has been permitted to conduct research in:

KERicho, Nandi, T/Nzoia, Nakuru
Busia, Kakamega, Bungoma, Vihiga
Nakuru E/Marakwet U/Gishu
Nairobi, Rift Valley, Western, Prov.

on the topic...

THE ANALYSIS OF THE...

EDUCATION MANAGEMENT INFORMATION...

SYSTEM AND ITS SUITABILITY FOR THE...

PRESENT NEEDS OF DECISION MAKING AND...

QUALITY CONTROL IN BASIC EDUCATION...

for a period ending...

November 1993.

Research permit No. AP/13/001/236.27
Date of issue: 129th January 1993
Fee received: KShs 100/
OFFICE OF THE PRESIDENT
PROVINCIAL ADMINISTRATION AND INTERNAL SECURITY - BOX 30510, NAIROBI

REF: 13/001/23C 2732

29th JANUARY 1993

The Secretary,
National council for Science and Technology
P. O. Box 30623
NAIROBI

RESEARCH AUTHORISATION

APPLICANT(S) MAURICE, FREDERICK, OTUNGA

The above named has been authorised to conduct research on

THE ANALYSIS OF THE EDUCATION MANAGEMENT INFORMATION SYSTEM AND ITS SUITABILITY FOR THE PRESENT NEEDS OF DECISION MAKING AND QUALITY CONTROL IN BASIC EDUCATION

As indicated on the application form, this research will be conducted in

KERicho, NANDI, UASIN, GISGu, TRANS, Nzoia, NAKuru, ELEGEYO, MARAKWET, BUSIA, KAKAMEGA, Bungoma, VIHIGA

For a period ending NOVEMBER, 1993

Under the Standing Research Clearance awarded to Kenyan Universities/Public Institutions.

I herewith enclose copies of his/her application for record purpose. He/She has also been notified that we will need a minimum of two copies of his/her research findings at the expiry of the project.

(S.K. IKUA)
FOR: PERMANENT SECRETARY/ADMINISTRATION

cc.

DISTRICT COMMISSIONER KERicho NANDI UASIN GISGu

TRANS Nzoia NAKuru AND ELEGEYO MARAKWET, BUSIA

KAKAMEGA, Bungoma, VIHIGA

MAURICE F. OTUNGA BOX 392 ELDORET
Appendix 11: Candidate's answers to the written questions supplied by the External Examiners in lieu of a viva voce examination.

Questions:

1. Why did you not begin by stating what the problem was you were addressing?

2. Why did you not give some more detailed political/administrative contextualisation for Kenya? What do you think it would be?

3. Why did you not discuss in detail the problems relating to educational planning; its importance and purpose; recent thinking in this area etc.? What do you think they might be?

4. What are some of the practical details that affect data collection in LCD's?

5. Why did much of your literature review end in 1977? Have you not seen anything more recent?

6. Will EMIS be easier in a decentralised system or not? If so, what particular problems would you envisage in the Kenyan context?

7. Why is EMIS regarded as such an important tool for educational planners and managers?
Q.1

WHY I DID NOT START BY STATING THE PROBLEM.

In general, problems arise from situations. The research problem may only be one of such problems. To state the background after the problem is logically, changing the order of occurrences. However, having written the background with enough factual details, the problem to be studied becomes well grounded and it can then be stated and subjected to further research processes.

Initial efforts at stating the problem should be through a gradual background which then crystalises into a statement of the problem. In thinking along this line I have two levels of backgrounds. There is the over view covering a broader area and a more focused one on the problem. While the backgrounds can open room for several possible research projects, the several recent reference citations which I have made on Kenya in the second background are intended to convince the reader about the rage and prevalence of the problem which filters through the entire background. Instead of stating the problem first, the most important problem should have filtered through the background. To state a situation (background) before a problem which it creates seems a logical thing to do.

A research study has, on its front sheet, a declaration of the research topic specially chosen to indicate what the study is about - the kind of problem under investigation. The reader is then already aware of the kind of problem to expect and stating the background first and letting the problem manifest in the background is a good arrangement.

As a research student, stating the background from which to extract a research problem has the advantage that it gives the adviser a chance to assess the situation and advice on the relative importance of the problem chosen for the study. This would not be easy if the background was tailored to the stated problem. Although, obviously, the background presented will be significantly affected by what the researcher deems to be an important problem.
Q. 2

WHY I DID NOT GIVE SOME MORE DETAILED POLITICAL/ADMINISTRATIVE CONTEXTUALISATION

According to the objective of the study, I consider the details which I have provided in the various parts of the report to be adequate. For example, the overview of the educational policies and development provides details which are also supplemented by figure 1 of the administrative structure of the Ministry and Appendix 8 which is a map of all the administrative provinces of the country including the project area.

Besides, in methodology, more details are in section 4.2 paragraphs 1-5, section 4.2.1, paragraphs 1,4. Also some have been mentioned in the field experiences. The section covering case studies on Rural Information in Kenya (Section 2.5.2) gives some related political/administrative aspects that have influenced information centres in the districts. All these give an adequate political/administrative contextualisation which best fits the objective of the study.

Two other considerations were made. First the political and administrative factors have a wide ranging influence on all the services in a country - and EMIS is just one of those services - it would be difficult to provide additional detail beyond what appears in the parts mentioned above without trying to at least pre-empt the study.

For example, objective 5 of the study is to propose a suitable organisation structure for EMIS. Such a proposal would take into account the political and administrative background of a country without which the structure would not function effectively at all. The proposal would be after the study.

Secondly, some of the responses on the questionnaires sought knowledge of the factors of the administrative structure that caused the particular problems experienced by the respondents. From the findings several of the respondents have hinted on the political/administrative background of Kenya. For example, in the findings of section 5.4, figure 9 gives the organisation structure of the planning unit of the Ministry and the comments that follow explain the structure. Section 6.1, which is the discussion cites some political/administrative factors that affect EMIS.

Many of the responses from the inspectors which appear in 5.2 mention the Ministry's structure that affects information flows.
WHY I DID NOT DISCUSS IN DETAIL PROBLEMS RELATED TO PLANNING, IMPORTANCE, PURPOSE AND RECENT THINKING

The aim of this study was to present findings on EMIS to improve capacities for data processing, storage, analysis and supply (p.17). The specific objective was to assess the relevance of Educational data to the needs of (Educational management) (p.19).

There was specific focus on EMIS for (Management) and EMIS for (Educational Quality). That explains the special mention made in this thesis about management types (3-3, 3.3.1) and educational quality (3-4, 3.4.1). Admittedly, these are very vast areas in Education and I only mentioned a few specific facts that could help the objectives of this study.

I have discussed in some details planning problems (5.4.2) associated with poor input. Again for reasons of the objectives of this study, I could not have specifically discussed in greater detail problems relating to educational planning without introducing more objectives to the study. However, to me, Planning and Management are so interrelated that identifying and discussing problems of management has not been without considerable effect to planning problems.

There is no agreement to the boundaries of Educational Planning. It depends on how a country defines it (Beeby, 1969). This study was focused on EMIS for Educational Quality and in an education system, no one knows enough about problems of educational quality to predict/forecast accurately when a particular level of excellence will be reached or how much it will cost..... major adjustments of the plan must be made by the manager..... or he is expected to make recommendations for amendments in the plan and so the manager comes back to the main planning stream. Policies determine ways and means but they (policies) are also determined by they ways and means chosen to implement them (ibid).

That emphasizes the great importance of management in planning: it can determine policy and hence planning or it can make direct contribution to planning. Thus enhancements in Management information should have considerable enhancement to the planner's information. In Kenya the manager is also a significant information producer for the planner (5.2, 5.3).
This point is further strengthened by the fact that planning is now not the work of a technocrat with his number games. A planner needs many partners some of whom are away from civil service - parents, the community, NGO's, teachers, pupils etc. All these are managers of Education. Inescapably, therefore, a planner has either joined the ranks of the manager or vice versa. Their problems are more or less the same.

The advantage for the manager is that his functions, unlike the pure planner, spread over all the educational service. Therefore, in his partnership with the pure planner he brings with him a wealth of Educational information and experience about planning problem.

As this thesis shows in the findings, a considerable number of planning problems occur in the implementation stages. Therefore discussing the problems of the manager is not ignoring the problems of the planner at all, rather it is also a way of discussing planning problems.

Regarding discussing the importance and purpose of planning and recent thinking, it was not possible to do so without changing the objectives or introducing others.
Central planning which started in the socialist countries in the 1940s later led to Manpower Planning approaches. This was then adopted with modification by OECD countries and some countries in the Developing and Industrial world. Further modification led to educational planning in the 1960s.

From the 60s to now educational planning has changed considerably both in practice and in the assumptions about educational development. While this is so, the purpose of planning still remains to help in understanding educational quality in its context and to advise on the appropriate strategies for implementing change (Hallak, J., 1992).

Quantitative methods have virtually been replaced in an effort to gain a better understanding of educational processes and to influence their outcome. The economic contexts of the 70s and the 80s has precipitated a crisis in educational planning. The problem is no longer meeting manpower needs but coping with unemployment when there is shortage of skills.

The unstable economic and political or social situation and the modernization impact of technology have brought about great uncertainties and reduction in the available resources for implementing educational plans. Some people have argued that educational planning is meaningless since too many factors are beyond the control of planners; but others have argued that is all the more reason for planning: to ensure that the limited resources are properly allocated.

If we consider that educational planning started in the 1960s, then recent thinking could be from 9 years ago. In recent times there have been some international meetings bringing together many educational planners across the world to discuss various themes.

For example, in 1988, an International Workshop was held focusing on the mobilization of resources for financing educational programmes. The main ideas expressed were that planning should lead to greater institutional autonomy and identify better implementation strategies with appropriate incentives.

In 1989, another International Workshop was held aimed at changing educational planning to adapt to the social and economic changes. This was long after the educational planners realized the falling quality in education. The workshop discussed the need to relate resources, processes and outcomes. Research and other sources of qualitative information were considered absolutely necessary. It was realized that the planning required to be based on informed decision-making using accurate and timely information about the system of resources, processes and their outcome. The need for EMIS was thus introduced. Both workshops were held at the UNESCO International Institute for Educational Planning (IIEP).
In 1990 there was International Congress on educational planning held in Mexico City to examine the role of educational planning in achieving Basic Education For All (BEFA). It was noted that educational planning should be widened in scope to involve non-formal educational forms. Again the need for an effective EMIS was underscored. Continuous evaluation was recommended together with research as important sources of qualitative information. Planning was recommended to take to strategic piloting in order to cope with the uncertainties in education systems. Planning was also recommended to decentralise for greater participation by all the relevant social actors to improve the new concept of strategic piloting and management capacities.

In more recent times Planners are concerned that despite considerable improvement in the quality of information for decision-making, there is little evidence of change in practice at the institutional level especially in developing countries. They think that planning should now seek more knowledge about human factors and non-monetary incentives that are required to encourage good practice and data use (Chapman (1993)); Windham (1993); Kemmerser (1992); Schiefeldbain (1992); Ross (1990); Postlethwaite (1990); Hallak (1993); at all.

The emerging ideas in educational planning are that:

- planning should take to strategic piloting
- educational planning should move towards decentralisation
- since educational planning can not match economic changes it would be better for education systems to be planned for human development to enhance adaptation
- planning should be flexible with flexible educational programmes
- planning should focus on improving the quality of delivery modes
- planning should be backed by a good EMIS with adequate qualitative information from evaluation, research, etc for qualitative planning.
Planning has emerged in response to change. Change introduces uncertainties as it renders common knowledge ineffective. Change is always enveloped in difficulties and unless properly directed it may not even be the desired one. This is even more difficult in modern times where changes occur very rapidly and hence the uncertainty very high with often unacceptable results.

Planning then arose to guide the implementation of the desired changes. Planning now has not only to guide the desired changes but also the unanticipated ones that occur due to modernisation. The nature of the changes determine the type and purpose of planning in any given country. The methods of planning (quantitative, qualitative, interactive, participatory, strategic, etc) are determined by the purpose and type of planning. These methods in turn affect the importance of planning.

In modern times where changes are rapid and difficult to predict and guide, the purpose and importance of planning has become vexed with some people arguing that planning has no purpose. Planning depends on the policies/objectives which a society pursues and more recently, on a host of other factors related to the value systems of a society. The purpose of planning for any society is dynamic and can only be seen in terms of a particular context at a point in time.

Educational planning differs from other types of planning because it is about pupils/Teachers and the Educational personnel who are already carrying out activities. The interactive nature of Education not only makes educational planning different but also susceptible to a host of influences some of which are only particular to a given society. Educational planning is, therefore, complex.

Educational planning is a conscious effort to maintain smooth progress or alter the development of Education. Generally, the purpose of Educational planning is:

- to help create an environment for effective performance of individuals working together in a system or groups.
- to interpret policies and select objectives.
- to propose course of action for the objectives.
- to forecast and help bridge the gap between the present and the future.
- to provide a framework for choosing priorities and alternatives and allocating optimum or satisfactory use of resources.
- to democratise Education.
- to provide skilled manpower.
- to gather and process information for decision making.
- to analyze the resources available, analyze the needs and develop programmes and activities to satisfy those needs.
- to diagnose the state of the Education structure, behaviour and skills.
IMPORTANCE OF EDUCATIONAL PLANNING

Educational planning facilitates the management of innovations in education systems. Unless we plan, we leave things to chance. If a system has to be effective then actors in the system must know what they are expected to accomplish. From the plan, the management gets to know the objectives to pursue in the course of implementing the plan which unifies the action of various actors.

By setting the objectives, it reveals both in qualitative and quantitative terms what is to be accomplished when and how. It helps in the identification of workable and satisfactory alternatives to accomplish the objectives.

A plan is important because it provides procedures, rules and programmes. It puts actions on a deliberated course. By interpreting policies, a plan narrows down the focus of activities and limits waste of resources incurred through speculative activities on change. It makes managers and implementers aware of problems, constraints, opportunities and needs for the system and hence alleviates operational problems.

Depending in the approach the planning process will be performed by a broad range of participants and this also unifies the purpose and encourages mutual co-operation between the various actors who participate in the formulation of the plan. It encourages co-operation among the actors and partnerships necessary for the mobilization of resources.

Planning is an instrument for gathering and processing information to be used for decision-making.

In a situation of change, a plan becomes important because it enables a guided change through its analyses of the issues. It enables systematic approach and limits chaotic developments. Planning helps in making rational decisions. It examines the and proposes changes and advises on their feasibility. It then evaluates the impact of the planned programmes for the change. It thus strengthens the states' managerial capacity.

It exposes problems and purposes method of improvement. Educational planning has a role in the forecasting of manpower needs and in the investment allocation of Human Capital.

The analyses made in the diagnosis of an educational plan provide information about the internal and external efficiency of the education system which eventually influence policy, objectives and programmes in the effort to enhance the system. Analyzing internal efficiency exposes wastage and enhances use of resources. The plan also offers a means of analyzing external efficiency and helps to improve the quality of an educational system.
An educational plan facilitates negotiations, and communication between donors, those with resources and the managers of the educational system. It alleviates operational problems through an exploration and elaboration of implementation strategies and incentives. It facilitates the management and mobilization for additional resources.

By providing knowledge of the structural nature of the influencing factors, long-term effects of educational development, enabling reconceptualisation of the role of educational planning, synchronization of priorities among different planners with varying interests and establishing a link between departments of the ministry, other ministries, agencies and organizations, community and individuals, educational planning becomes a very important test for educational development.

It is through the planning diagnosis and analysis that knowledge about the present and the past educational situations are understood and corrective measures for process (learning, teaching supervision) are mooted.

Since planning precedes the management and implementation functions, it is important because it can cause a transformation of the management structure and enhance management organization structure.

Through the information received from the diagnosis measures to increase participation or educational access, enhance physical environment and hence learning opportunities are realized. This information also leads to ways of enhancing management effectiveness and methods of motivating teachers, enhance teacher training.

The plan is important because it can explain and rationalize action and decisions. It is therefore an important tool for those in power who wish to rationalize their actions.

For politicians, educational planning has been used as a control mechanism as well as a policy tool. In both cases it has been used to rationalize/legitimate political decisions. It has been used to force/garnersupport to justify strategies and actions aimed at strengthening political positions. As a technique, it has been used to direct the role of education as required by power groups in society.
PROBLEMS OF EDUCATIONAL PLANNING

Educational planning has failed to develop a flexible pool of Human Resources and a system of Education that can quickly adapt to an evolving economic environment.

Educational planning faces a crisis of credibility. Many countries face the problem of scarce resources and austerity measures have been adopted to curb the escalating cost of education.

For most of the developing countries, there has been exponential population growth, persistent disparities at regional and gender levels. The population factor has led to more expansions in the education system. Demand for education has reduced, in other cases it continues to pose planning crises especially when demand is driven by inconceivable forces.

The global economic crisis has deepened the problem of unemployment. There is rampant unemployment of the educated which has dampened the enthusiasm for education as being a key accelerator of national growth and development and as a factor promoting social mobility, equity and regional equality. People question the wisdom of devoting scarce public funds on meaningless educational programs. It points to the scope of the problem that educational planning faces now.
Educational planning has also an inherent problem. The interactive nature of education makes its planning distinctly different from most forms of planning and therefore few lessons can be borrowed. It means that plans for most people cannot be above their heads since people for whom educational plans are made have different stakes in education based on their varying interests. This complicates planning.

On the other hand increasingly more partners are drawn in the process of educational planning. Austerity demands that partners also contribute financial resources in the implementation of the plans. Inevitably there is devolution of authority from the centre and the decentralisation of the educational planning. The plans then become subject to many varying and conflicting forces as well as irregular supply of resources.

Politicians have been abandoning educational plans to use political rational in making decisions. Alternatively they have imposed on planning techniques not for better education of those who need it. Educational developments especially in developing countries have been funded by international donors who need a global view of educational development at the qualitative information. This type of planning has not had a positive impact to processes in Educational problems. Yet by providing resources for implementing/planning changes international lending institutions continue to influence Educational planning in developing countries (Psacharopoulous/Woodhall, 1985). Planning functions have tended to be boxed in departments of the ministry resulting in little linkage with other related ministries and departments.

Other problems to educational planning are that; planners are unable to determine what information they need hence unable to help decision-making. Training is inadequate for planning and information producers.
Educational planning has failed to develop a flexible pool of Human Resources and a system of Education that can quickly adapt to an evolving economic environment.

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PRACTICAL DETAILS AFFECTING DATA COLLECTION IN LDC'S

IDENTIFICATION AND MOBILISATION OF RESOURCES

In most Least Education Developed Countries (LDC's) the Education systems are changing faster than information processing and collection for decision making.

This rapid change is rampant in the systems of LDC's, because of some factors beyond the control of the planners, managers and information producers in the education systems. But part of this is because the mechanism for anticipating problems has not developed with the quality of demand made on the systems (p.68, p.160).

Many problems for which data is needed tend to be urgent which encourages decision making approaches that defy formalized procedures. In particular, data collection even for serious decisions, is usually informal and secret with all the faults of an activity that is clandestine: not open to analysis, criticism and correction. Then it makes little sense to mobilise resources for data collection.

Solving problems in such a crisis often means that one fails to do enough consultation especially with related departments. Any little available time or resources is likely to be devoted on a frenzied search for apparently 'fresh' data. This is a recipe for duplicate, incomplete and inappropriate data collection efforts.

Three factors which are beyond the control of the managers and the planners may be reckoned with regarding the mobilisation of resources for data collection. First, most Education systems in LDC's operate in fragile political environments. Those in charge of political systems tend to be overzealous in detecting what, in their interest, is unconventional data. Politicians, having resources and the uncanny appreciation for the power of data, they can accordingly allocate resources for their interests, which may well limit resources for data collection of educational value (p.71).

Secondly, resources can be provided by International Donor Agencies. No doubt, thanks to that frequent interest in the education of the people in LDC's, some useful data has been collected. However, that has been a Bi- or Multi-lateral interest in education and not unilateral as a particular LDC may wish regarding the focus, methods, analyses or any other related aspect of such data collection (p.37, 67).

Thirdly, education in those countries competes with basic necessities. In such a situation people tend to devote resources on activities that have immediate and tangible results. The efficiency of education in achieving this goal has suffered a serious set back with the test of time. In those LDC's where the
benefits of educational expansion have run out, it is hard to mobilise any, let alone more, resources for data collection. Consequently, data collection tends to be the same or worse.

Sometimes the resources that are available are usually targeted on a specific interest at the expense of a global educational cause. Lack of resources has meant limited modern technology facilities to assist in storage and heavy computational and material demands on data collection. This has influenced the design of data instruments as well as the accuracy and the efficiency of data collection. 

Data use

Data use affects data collection in a variety of ways which include: rate, type, method etc. It may also affect the resources available if those demanding data are likely to be the ones with resources for the next data collection. It has already been noted that there is a tendency to avoid using data from formal procedures even with improvements in data collection and data quality. This reluctance by users perhaps illustrates the personal importance attached to the problems whose solutions are sought. This is a problem which clogs EMIS in LDC's. As mentioned, this is a problem which also illustrates the divergence of interests among the major actors in data collection and data use. There is need to understand what data should be collected for what analyses on the part of information users and producers. Data use also affects the form of dissemination which affects activities at the data source. There is poor flow of data in the systems of LDC's which causes data to get lost and discourages further collection of data.

Preparation for data collection

Needles to say that preparation depends on the type of resources available. However, preparation tends to be afflicted by three basic conflicts of interest. The donor of the resources, the manager of the resources and the implementors of the data collection programmes (the technical experts) all have different interests.

While the interest of the donor is explicit from the start, the manager at the ministry always has a problem. He is keenly aware of his data limitations but often unable to decide clearly which data he needs. By taking advantage of the resources of any data collection project he sneaks in unauthorized data requests at the same time as the project data instrument. This shifts the focus of the main project as it also stretches the resources and lowers the quality of the data collected. The most likely resources to be affected adversely are the invisible ones: human energy and concentration and time.

A sustaining influence on data collection is the design of data instrument. Local technical experts due to lack of training tend
to involve foreign experts in designing data instruments. Arguably, able as such foreign experts may be, they are not sometimes conversant with some cultural practices that can affect the intended responses. On those instruments, some questions and approaches may be unacceptable.

The intended time and commitment on the respondents may not be available. Falsification can occur where it is hoped to gain an advantage. A good knowledge of the units of the population is necessary. In LDC's beset with shortages, the favour of receiving response to data requests is increasingly being tied on a stipulated advantage to the respondent. Some locations may be insecure. Census suffer from inaccuracy in collection of data and non-response due to one or many of these factors.

Sometimes, due to poor training or lack of motivation, the instrument designed is not compatible with the coverage—too much detail for many respondents or too little detail for few respondents. Therefore, there is too much data for effective analysis or too little data for any meaningful analysis.

The inelasticity in the available resources itself relegates data collection exercises and discourages innovation. But this is also due to planners who have a problem deciding which data should be collected. The failure to recognize the changing educational factors can also be predicated on the planners lack of innovation. Thus the same data is collected year in year out, while the inherent redundancy and irrelevance go unheeded.

**MANAGEMENT OF DATA COLLECTION**

From the findings of this study and taking Kenya as an example of what happens in the Least Developed Countries, the factors influencing data collection under management comprise: poor terms of service and inadequate policies; poor linkage between related agencies, inadequate technological and personnel support, and inadequate communication infrastructure. Some of these factors are closely linked or one may be the cause of the other(s).

It requires well trained and motivated education planners and managers to keep themselves busy throughout the year trying to anticipate and solve problems, avoid or hold off some of them. Most LDC's do not have that quality of human resource. Therefore, limited in this innovative quality as the managers and planners in LDC's tend to be, they preside over reactive rather than proactive education systems. Hence they make untimely requests for data which are not well defined. This creates a crisis. LDC's are beset with paradoxes. For example the information system is recognized as a powerful weapon for those who may wish to change a system or seen as a vehicle for politicians who want to get support but information personnel are relegated and demoralized.
Again while there are apparently inadequate resources which can be devoted on developing data collection, the ministries in the LDC’s have several departments spending resources collecting the same data from the same sources.

Yet again while it would be easier to induct field officers to collect information regularly and encourage them to use most of that information locally, the ministries in LDC’s tend to send central officers in the field. Yet most of that data when aggregated loses important qualities that could have been useful. All this is poor management of data collection.

There is lack of appropriate information policies that would lead to the identification of objectives, establishment of linkage and synergy between related agencies and harmonization of data collection effort. The terms of service and morale among information personnel poor. In Kenya this has encouraged falsification of data.

Low motivation penetrates gradually the entire system. A demoralized officer will demoralize others. Low motivation creates laxity and generates self-interest. That may explain why Ministry departments in LDC’s tend to be clogged up with half complete jobs of data collection. And why the process of data collection tends to be left to junior officers who may not even be responsible enough to understand the importance of educational issues that may be under investigation. There has been a tendency for junior officers to modify data collection procedures inconsistent to those planned thereby affecting the accuracy of the data collected.

The management of data collection in the field is affected by poor communication infrastructure between the regions and the sample units. The supervision of data collection, verification, correction of discrepancy are hard to achieve. This problem tends to be compounded by weak political systems which modify census/sample units frequently even in the course of data collection. This is further compounded by insecurity due to internal strife and inappropriate dates and datelines.

In most LDC’s computerisation is rarely beyond the central units. This, with poor staffing and limited financial resources for procuring materials makes data collection and management difficult. In some cases the computers installed are of poor quality and unable to cope with tasks at hand. This problem is also worsened by inappropriate dates and datelines.

For Kenya, classification is at 5.4 and 5.5.
WHY MUCH OF THE LITERATURE ENDED IN 1977

This literature review was about efforts in many countries with comparable concerns in EMIS. Considering that this research report was written several months before the end of 1993, this literature review, when analysed shows the serious effort I made towards the achievement of the purpose of the study. Part of the literature is for the same year that this report was written.

The review on Kenya dates from 1970 to 1992 (p. 44-50) much of which is in the 90's. Then the background to the problem is biased for the 90's to show the prevalence and the range of the problem for the study(1-2). It has citations up to 5/6/93. Studies by Mambo(1990) and Streatfield(1992) were the latest on EMIS in Kenya.

The review on the studies in Africa dates from 1977 to 1989. Two of the studies are for countries neighbouring Kenya (Tanzania '82, Somalia '89). The entire literature review for countries in Africa includes: four studies carried out in the 70's; three in the 80's and five in the 90's.

A break-down of the entire literature review (Chapter 2 and 3) has about 90 reference citations of which 27 (a third) are up to 1979 and the rest are for the periods of 1980's and 1990's with at least 15 for 1990's.

As to whether I have seen anything more recent, I would only reiterate that I have, as can be seen in reference list of this thesis which has readings of 1990s. These include: Bathory(1990), Bude(1992), Chapman(1993), Ekholm(1990), Hallak(1993), Kemmerer(1992), Levin(1993), Måhléck(1992), Sommerset(1990), Windham(1995).
EMIS IN DECENTRALIZED SYSTEMS;
PROBLEMS ENVISAGED IN KENYA

The question could be interpreted in a variety of ways: easier to use, design, manage or establish in a decentralized system. Figure 10 and figure 11 in the thesis report are proposals for the design and management of the EMIS in a decentralized system. The anticipated problems in Kenya's specific case will be mentioned later.

From the literature review of this study an EMIS must be based on the functions of management (p. 57, fig. 3). A good standard of EMIS yields quality information for enhancing decision making. This forms the criterion for judging the effectiveness of EMIS design and management.

In the changing climate of educational planning, the necessary information for effective planning cannot be a routine product of statistical units of a Ministry. The effectiveness of EMIS depends on how it reduces the abstraction between the decision maker and the educational reality and also on how it facilitates the learning process. EMIS must meet the contemporary concerns of fostering a responsive educational system with a higher external efficiency.

My interpretation of the question is: whether it is easier for EMIS to cope with this planning requirement in a decentralized system. What is important for EMIS in terms of enhancing decision making is to ask: in which of the systems would it be easier for EMIS:

- to enable prompt action,
- to reduce the degree of abstraction in fitting resources to need,
- to clarify lines of accountability,
- to enable a better understanding of educational processes,
- to process adequate qualitative information?

These questions will be seen in terms of the overall cost-effectiveness of EMIS (p. 58, para. 2).

The lines of accountability tend to get lost in the massive bureaucracy of centralized systems. If decisions are centralized then information trudges through many administrative points and suffers distortion before it is given a decision. It takes time for decisions to be taken and EMIS runs the risk of providing untimely and inaccurate information. Since modern systems are experiencing very rapid changes, this can be very costly and detrimental.

Education systems now require more and better information on processes (p. 80). This qualitative information is not only unquantifiable and difficult to store centrally but also often too specialized for general application in the entire system. Within each country, specialized local educational problems are becoming rampant and EMIS must attend to them.
Generally there are difficulties in using EMIS in a central system which may manifest in a high rate of decision making failures, delayed transmission of information, decision and implementation, tendency to adhere to rules and procedures. The latter discourages innovation and initiative.

It is also marked by a great distance between the decision maker and the one accountable to the public - the front line implementor. The imbalance between accountability for decisions and decision making authority is a source of a system's ineffectiveness as it discourages morale, retards development and reduces needs for improvement. EMIS is not spared of this problem.

The procurement of new technology could counter the centralization problems as more data could be stored on hard disc and used by central planners and decision makers. But for developing nations, where education competes with other basic necessities, that may not be easy to achieve and even to use.

Windham (1993); Chapman, Boothroyd,(1988); Champan(1990), have suggested that agreement needs to be reached between planning approaches and the location of educational authority before a of decentralizing data use. Clearly, whether in a decentralized system or not, EMIS depends on the practice inherent in the planning and management.

The manner of decision making in a decentralised system will affect the operation of the EMIS. The issue is not just where the decision is made but also to whom the decision maker is accountable. If the decentralisation involves devolution of authority and decision making then the local decision maker will be forced to look for local information for his decisions. In this pursuit the local information will be enhanced both in use and production.

WILL EMIS BE EASIER? (to manage, use, achieve effectiveness?)

Assuming that EMIS has been designed for use at local level for decision making, it does not follow mechanically that it will lead to effective data use. It requires according to Windham, (1993) deliberate planning for such a decentralized data use. He states further that: a decentralized data use is not a fixed process with clearly specified outcome, each country will need to adopt to its context, resources, priorities. It means that lessons can not easily be learned and applied to situations in other countries. More important, it means that this question is best answered in a country’s context.

Using EMIS in a decentralised system may require several things to be established. Management is likely to pose resistance from its bureaucratic inertia fearing loss of privilege. There is need for an administrative structure in which local personnel are encouraged
to use data appropriately. There is need for the establishing new education indicators for use at the local level (p.88 para.2,3).

The promotion of local data use requires that local administrators demand that arguments be supported by data and that the administrators themselves can ask appropriate questions and make correct judgements about data presentation and interpretation.

For the local administrators to be able to take decisions using local data it may require a change in the system's administrative culture - a radical shift from directive/reactive, prescriptive/adherence procedures. Two basic types of training are envisaged: one, on the new decision structure and the role in it; the other, on skills related to the new assignments.

The sheer proportion of resources necessary to train many actors that would emerge from decentralized data use would impose a constraint on EMIS. The supporting infrastructure may involve constructing roads, putting up telecommunication lines, establishing linkages for purposes of information synergy and processing facilities, staff houses, etc.

Decentralising data use requires affordable data collection methods tailored to local decision making and that takes time to reach the required standard since the local experts may not be local enough to design effective methods. It requires realistic, sustainable and replicable methods for consistency and comparability of trend to be educationally effective.

This very long list of requirements makes EMIS appear harder in a decentralised system. However, the trend in education is that financial resources are from the central authority are getting scarce, there is a growing need for involving partners at a local level and there is gradual transfer of authority and decision making from the centre to the local level. Besides, varied and special interest is beginning to bear on the system of education and general educational programmes are beginning to lose support of the general public. With this, systems must decentralise and EMIS will do the same irrespective of whether there will be problems or not.

Now as aforesaid, the question of being easier can only be answered in terms of the effectiveness of EMIS which in terms of relevance, time processing information for properly targeted users, etc. In view of the aforesaid trend in education and in terms of effectiveness, EMIS is, therefore, easier in a decentralised system. It, however, requires considerably more establishment cost and human resources than in a central system.

Use of EMIS for desired effect has always been an on going problem for the planner and decision maker, now complicated by rapid changes and growing external inefficiency in education system. A
decentralized system, though initially needing more resources to establish will be easier because it will provide better information for planning and decision making.

For the countries in the North, perhaps the issue of prohibitive establishment cost may not arise and the problems of a centralised system may be overcome by modern technology.

PARTICULAR PROBLEMS ENVISIONED IN THE KENyan CONTEXT.

In Kenya, particular problems in the operation of EMIS if the system decentralises completely can be envisaged in the context of Kenya's District Focus Strategy For Rural Development (DFSRD) which Kenya has been pursuing since early 80's.

In the strategy a District Information and Documentation centre (DIDC) was to be established and expected to be a resource and reference centre for development information on districts (section 2.5.2). The DIDCs have been established by the ministry of planning and National Development in only some districts. The problems experienced at the districts by the DIDCs signify what may be in store for EMIS. Most of the problems are similar to those expressed above. The common one being poor information linkages among agencies, lack of facilities including communication infrastructure and weak management in terms of delegation, decision making and deployment (p.126, 167 section:5.4.2,5.5,).

In the DFSRD local interest is supposed to find expression through the District Development Committee (DDC) which comprises district Heads of Goverment agencies and local members of Parliament. The DDC is chaired by the District Commissioner (DC). With a membership heavily represented by the goverment it is clear that the DDC is a Goverment voice. The low murmur of the dissenting voices of local politicians from opposition areas of the country can not weather to strong storm of Goverment voice.

The advent of multi-party has exacerbated the margin between local interest and Goverment programs especially in opposition areas which cover more than 3/4 of the educational service in the country. In opposition areas, the DFSRD is indeed a strategy for maintaining opposing needs of the local people and the goverment. That could apply for decentralising EMIS.

The District Education Officer (D.E.O) who controls educational activities in the district is a member of the DDC but the approval of his priorities by DDC will depend on his negotiation skill; but, the Kenyan community does not generally appreciate the value of data and has a tendency for non-numerate decision making modes (p. 164 para.2). That is complicated by, as mentioned in the findings, the fact that the DEO is usually less experienced educationally than most of the officers he controls.
With this trend one can envisage a situation where EMIS will be forced to abandon serving educational needs of all who have a stake in education to serving the government. Where a government has increasingly relied on local funding as in Kenya, EMIS may be paralysed between a battle of interests.

On the other hand, if the government alters its policies to meet local interests generally, then regionalism will thrive under the DFSRD. EMIS will have fragmented development stages depending on the local/regional interest. A national project would be subject to the passion of such diverse interest that it would not survive their destructive force.

The Government’s policy on accounting for public resources has not encouraged pooling of resources among Ministries. Consequently, each accounting officer in a Ministry is concerned with his/her jurisdiction only. This has tended to cause antagonistic departments in the entire hierarchy of Ministries. If this is not changed to suit the desired mutual benefits of decentralisation, then EMIS in decentralised system in Kenya could face a problem of poor information flow and lack of resources.

Three other aspects of policies could affect EMIS. First, there is lack of information policy which raises the problems of harphazard formulation of working procedures. It also means that information officers continue to be demoralised as they can not ensure compliance with requests for information. Thus EMIS has no legal backing.

Secondly, some policies are contradictory and encourage falsification of information. The policy of more resources for more numbers has led to those who desire more resources to inflate figures. A teacher who seeks promotion may hide internal wastage by not declaring drop-outs or repeaters. In a denentralised system, it could be easier for EMIS to verify the facts, but not until good working conditions and appropriate incentives have been implemented for all those involved in information production and processing (p. 161).

Thirdly, the selection policies of quater system which were meant to encourage equality have, in effect, encouraged inequality and regionalism while discouraging genuine educational efforts for the perfection of quality and efficient use of resources. This is particularly against the aim of EMIS in a decentralised system aimed at improving educational quality - a current concern of planners.

As was mentioned in the problem statement for this study, the Arid and Semi Arid Lands (ASALS) are afflicted by migration, low and even decreasing participation and poor communication infrastructure. Like some other areas in Kenya they are hardship areas in which it is difficult to render educational services. The
priority in these areas is basic non-educational needs and implementing EMIS would be difficult.

The administrative structure, as mentioned in the methodology, has been changing rapidly. For example, in the last three years, some districts have been divided three times. In the background to the problem it was mentioned that the functions of the ministry of education have been dispersed in several ministries - in some cases reassembled. This indecision and uncertainty creates confusion in the lines of accountability and in the allocation or mobilisation of resources. That confusion is expected to degenerate into worse squabbles at the lower levels of authority in the districts with few resources. Equally, EMIS in a decentralised system will be affected.

Kenya now with growing voice of local interest needs a strong body to co-ordinate the activities of EMIS into a national network for lessons to be learned across localities; but examples provided by many national commissions and institutes reveal that the top executives tend to perpetrate personal interests. Thus if EMIS must live up to a ‘national status’ then it may need active intervention from a national authority for its smooth running. This may need enactment of specific laws for at least a legal backing.

In recent times, Kenya has been hit by politically motivated tribal clashes. Some districts are risky. This point was also mentioned in my field experiences. I was lucky not to have suffered from it while carrying out this study. The implication of tribal clashes is that a locality may not have the correct Human Resources to man EMIS in the field.

The official attitude towards the information intended to improve educational quality has been generally negative. That is why the 8.4.4. education programme still remains in its original form despite the many objections that have been raised based on objective educational information and sheer common sense.

For example, although it is true that all secondary schools cannot afford to have science teachers and laboratories, and there is abundant information to that effect, the 8.4.4. programme insists that a candidate must pass science to be awarded a form four certificate. In all primary schools every candidate is supposed to be examined in subjects based on laboratory and workshop experiences although very few schools have these facilities. This information is also available but it is disregarded.

Thus the accuracy of information which may be achieved by decentralising EMIS services may be of no major advantage for decision making and EMIS may be hit by lack of initiative among its personnel.
EMIS AS AN IMPORTANT TOOL FOR EDUCATIONAL PLANNERS AND MANAGERS

The importance of EMIS as a tool is in the information it provides to enhance decision making, assuming that the general understanding is in terms of how much EMIS promotes Human Development through planned educational programmes. The importance of information depends on the challenge it helps to overcome and the uncertainty it removes. This for educational planning and management education systems is best illustrated by the deviation that often exists between the needs of society which the system purports to satisfy and the real needs of society and between the policies and their implementation.

Information is of crucial importance to planners and managers and some reasons should serve to emphasize the importance of EMIS as well hence as a tool. First, to planners and managers, information is important for several reasons.

Planners and Managers need information which: provides data for securing and allocating resources, constrains 'bad' decisions, detects inefficient resource use, helps in resource mobilisation (Chapman, Mahlick, 1993) and detects appropriate incentives (Kemmerer, 1990, Thiagarajan, 1988). These require data for describing status, identifying trends and developing projections.

Considerable data is needed as a Planner/Manager scans the environment for opportunities, examines alternatives, quantifies and classifies expectation. Analysing past data and current expectations requires considerable computational work and storage.

The thesis report mentions the function of a manager. This like the planner depends on the policies and objectives of the system. Management transforms inputs through the positive actions of planning, organising, staffing, leading and controlling to produce outputs (KOONTZ, et al, 1986).

The manager designs an environment in which the individuals in a group can accomplish the planned programmes and contribute towards the achievement of planned objectives that requires a good understanding of factors involved which are of economic, social, political, ethical and technological nature (ibid) hence complete and timely information.

Decision making is the focus of EMIS as it is a commitment of human and material resources to plan proposals. It is an intensive activity which demands a great deal of information which varies in scope, type of issues and horizon depending on where it occurs in three management levels (fig.3, fig.6, p.82).

The process of decision-making comprises identifying new conditions
that call for new actions, surveying both the internal and external environment and developing and analysing possible courses of action (Chau, T., 1990). In real life decisions are about finding a solution for a problem which may not be clear. Thus the need for complete and systematic information needs no emphasis.

EMIS provides information to planners and managers which is used for the decision making process. That process takes place constantly in the entire education system.

Secondly, the education enterprise interacts with many spheres of life. Education is the concern of many people in a country who have also invested heavily in it. Not only should education take into account these interests but also ensure that the planned programmes are close to those interests. A large of information is needed to plan, evaluate, monitor and manage planned programmes.

Thirdly, educational programmes are formative. They are an integral part of human Development. If misplaced they cause irreparable loss and damage to those for whom they are intended to develop. To prevent this especially to the young in society, planners and managers should be meticulous in what they do. This requires timely and active information generation.

Fourthly, economic and technological factors have introduced very rapid changes and uncertainty in education systems. New information must be generated every time to aid planners and managers.

**WHY IS EMIS SUCH AN IMPORTANT TOOL?**

As a tool its importance is in the use it is put to, its design, and its output. If EMIS has established data sets, data bases and data codes, then it can accommodate multi-level data requirements. That enables the planner or the manager who uses it to benefit from a linkage between data collected by different agencies which enhances the chance of EMIS to serve several analytical needs for both the planner and the manager.

The roles of an education planner and manager have become complex as they no longer function on established norms and accomplishment of routine tasks. In such circumstances EMIS is needed to enable planning and management to grow with the complexity of the contemporary tasks of educational quality. The multi-level accommodation of EMIS is suitable for these new complex demands for educational quality.

EMIS is particularly suitable to planners and Managers because of its data base systems which are systematic and amenable to rapid updating and use. The kind of information planners and Managers need conforms to a database ( ). With this facility, one expects them to make consistent decisions based on almost complete
Bertrand, O., (1992) Planning human resources: Methods, experiences and practices. UNESCO-IIEP
Chau, Ta Ngoc (1990) Basic unit on information systems.
Lourie, S., (1990) Strategic piloting of Basic Education. UNESCO-IIEP.

NB. Some on these list are already in the reference list of the thesis.