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POLICY RESEARCH INITIATIVE

Nepal • Somalia

Education Management Information Systems

Final Report

May 1989

IEES

Improving the Efficiency of Educational Systems

Florida State University
Howard University
Institute for International Research
State University of New York at Albany

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IMPROVING THE EFFICIENCY • OF • EDUCATIONAL SYSTEMS

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EDUCATION MANAGEMENT INFORMATION SYSTEMS

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EDUCATION MANAGEMENT INFORMATION SYSTEMS

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Improving the Efficiency of Educational Systems
POLICY RESEARCH INITIATIVE
EDUCATION MANAGEMENT INFORMATION SYSTEMS

INTRODUCTION

One of the most severe challenges facing education systems in the Third World is how to meet demands for higher quality education within increasingly severe economic and fiscal constraints (World Bank, 1988; Chapman and Windham, 1989; Fuller, 1989). An outgrowth of these trends has been new pressures for more efficient use of those resources that are available and, as part of that, better quantitative information about the education system to guide that resource allocation process. Hence, one of the highest priority issues in many international educational development projects is improving collection, analysis, and use of quantitative data in decision making.

While government officials, educators, and donor agency officials recognize that efficient information management is a necessary condition for continued development, the introduction of management information systems has not necessarily led to increased or more effective use of quantitative data in national level policy deliberations. A commonly cited problem on the part of the intended data users is that the data they receive are not sufficiently accurate, timely, or interpretable to be useful in policy debate. Indeed, host government officials often appear to hold a deep skepticism about the accuracy and usefulness of quantitative data. This skepticism, at times, has been dismissed by donor agencies as self-serving resistance to the greater accountability that improving data management might introduce. At the same time, there is growing evidence that such skepticism may be well founded. Low data quality and weak systems for translating data into relevant, useable information often have been more severe problems besetting national level education data systems than advocates have wanted to acknowledge.

It was from this set of concerns that the IEES Project sponsored a research initiative to examine issues in how improving information management at the central ministry level assists a government to improve the efficiency of education.

The IEES Project

The central purpose of the IEES Project is to assist participating countries to improve their capacity to conduct research and planning at the central ministry level that would contribute to improved educational efficiency. Education and human resource sector assessments in each country identified a common problem in education planning and management to be the lack of appropriate systems (and, in many countries, the technology) to collect, analyze, manage, interpret, and use quantitative information about the

educational process. Based on these assessments, a major thrust of IEES activity across all of the participating countries has been to improve the data management systems within the Ministry of Education through provision of hardware, training, and assistance with policy analysis.

Project and participating government personnel recognized that the information available from a computer-based Education Management Information System (EMIS) is no better than the quality of the data entered into that system. However, it was unclear to many education officials how much confidence they could place in the quality of the data available to them, what factors in the collection and analysis process constrained quality, or what could be done to improve data quality and use. There also was considerable uncertainty among government officials about how data presently were collected, what kind of data were most important to collect, and what policy and programatic interventions might support their introduction and use of an EMIS. Their concerns were echoed in the research literature which has documented the impacts and problems encountered in introducing EMIS in Third World countries (Chapman, 1989; Boothroyd and Chapman, 1988; Imboden, 1980; Brodman, 1985; Lewis, 1988). The EMIS research was initiated from a recognition that issues in data flow within participating countries had to be better understood by local government officials and educators if the EMIS systems being supported by the IEES Project were to have maximum impact on improving the efficiency of education systems in those countries.

The research was intended to identify constraints in information flow between schools and national policy makers. The specific purposes of the study were (1) to determine what types of education data educators believed they need, (2) to identify what types of education data currently were available to national level decision makers, (3) to document procedures through which education data are collected at the school and district levels and forwarded to the central Ministry of Education, and (4) to identify specific constraints and impediments in that collection and transfer process.

Another goal of the IEES Project work with the participating Ministries of Education was capacity building and institutional development. To this end, the research initiative emphasized locally conducted research, with advice and support from IEES Project staff. This strategy represented a trade-off. On one hand, having host country personnel direct the research within their country increased the likelihood that policy makers would attend to the research findings. On the other hand, the researchers were less likely to have background and experience in policy research of this type. Another trade-off, not fully anticipated at the beginning of the study, was that host country personnel with the skills to participate in this type of research tended to be highly placed within their own country and in constant demand from multiple sources.

This report will first describe the organization of the research initiative within the IEES Project. The results are presented for the research conducted in Nepal and Somalia are then presented. The concluding section presents a series of generalizations about education data flow in the participating countries and its implications for the development of EMIS. The original texts of the research reports are included as appendices.

Organization of the EMIS Research Initiative

During Phase I of IEES, the project sponsored three research initiatives on the topics of Teacher Incentive Systems, Strengthening Local Education Capacity, and Education Management Information Systems. Participation in a research initiative was limited to Ministries of Education in countries participating in the IEES Project. Each research initiative topic was limited to a maximum of three countries and each country was limited to participation in no more than two initiatives. While five countries indicated initial interest in the EMIS initiative, negotiations among country and project representatives resulted in the selection of Nepal, Somalia, and the Yemen Arab Republic. The Yemen research team subsequently dropped out of the EMIS research initiative toward the end of the second year. The Yemen EMIS Status

Review was completed and published in 1988. Both the Nepal and Somalia teams completed the entire research agenda.

The EMIS research initiative was directed by two Project Team Leaders (PTL), members of the IEES Project staff. The PTLs were responsible for organizing planning meetings, providing technical assistance to the country research teams in the design and conduct of the research, monitoring the progress of the research in each country, and monitoring expenditures associated with the research. The Ministry of Education in each country appointed a Country Team Leader (CTL) who, in turn, appointed a research team. The CTL was responsible for design of the local research, supervision of the local research team, financial management of the local research funds, and preparation of intermediate and final reports on the progress and findings of the study.

The IEES Project budgeted $50,000 per country per year to support the local research team. This amount was to cover both the salaries of the research team and the costs of data collection and reporting. The mechanisms for contracting with the local research teams varied by country, as discussed later. While CTLs were responsible for budgeting, distribution of funds, and financial reporting, they had to stay within the spending and reporting guidelines of the U.S. Agency for International Development. Given the complexity of these guidelines, the difficulty of cross-national contracting procedures, and the existing financial reporting systems in some of the participating countries, budget management represented a major capacity activity of the initiative. The PTLs were funded from a separate budget item within the IEES Project.

The Ministry of Education and Culture in Nepal designated a private consulting firm, New Era, to conduct the research on behalf of the Ministry, due to lack of capacity within the Ministry. New Era was a well established private firm and opted for an institutional subcontract with Florida State University (the prime contractor for IEES). The Ministry of Education and Culture in Somalia designated the Director of Planning to be the research CTL. He and his research team were compensated through personal service contracts.

The EMIS research initiative was initiated with a planning meeting held in Kathmandu, Nepal, in November 1986. During the seven day meeting, discussion centered on the goals of the research initiative, administrative procedures to be employed, and specific activities to be conducted as part of the research. CTLs were provided with a general framework for the design of the study and encouraged to adapt it to the special needs of their country. Each CTL developed an draft proposal for their country. CTLs subsequently shared their draft proposal with MOEC officials in their country, revised the draft based on the feedback they received, and identified members for their research team prior to the next planning meeting.

A second planning meeting was held with country team leaders during February 1987 in conjunction with a meeting of the IEES International Steering Committee meeting in Denpasar, Indonesia. At that time, country research proposals were finalized, administrative and financial procedures were reviewed, timelines were negotiated, and outlines for the final reports were provided. Much of the planning meeting was devoted to training in research design, instrument development, and financial management. CTLs were provided with resource materials which they could use in conducting the training of their own research teams. Funding for the country research teams began in March 1987.

During the course of the research, CTLs were assisted by IEES long-term Resident Technical Advisors (RTAs) working in their country. RTAs provided day-to-day technical assistance as needed and proved to be an important factor in the success of the research effort. In addition, PTLs made site visits to each country at least three times. The early visits were timed to provide the PTLs an opportunity to review data collection instruments, address administrative or procedural problems that had arisen, and assist the CTL in complying with budget reporting procedures. The later visits were timed to assist the country research teams in designing the data analysis and interpreting the findings.

The basic study was organized around four issues: (1) the identification of what types of information decision makers believed they needed, (2) the determination of what education data were already available, (3) where possible, an assessment of the quality of the data presently available, and (4) the identification of problems and constraints in the flow of data between the school and central Ministry levels. A flow chart of the proposed research activities is presented in Figure One.

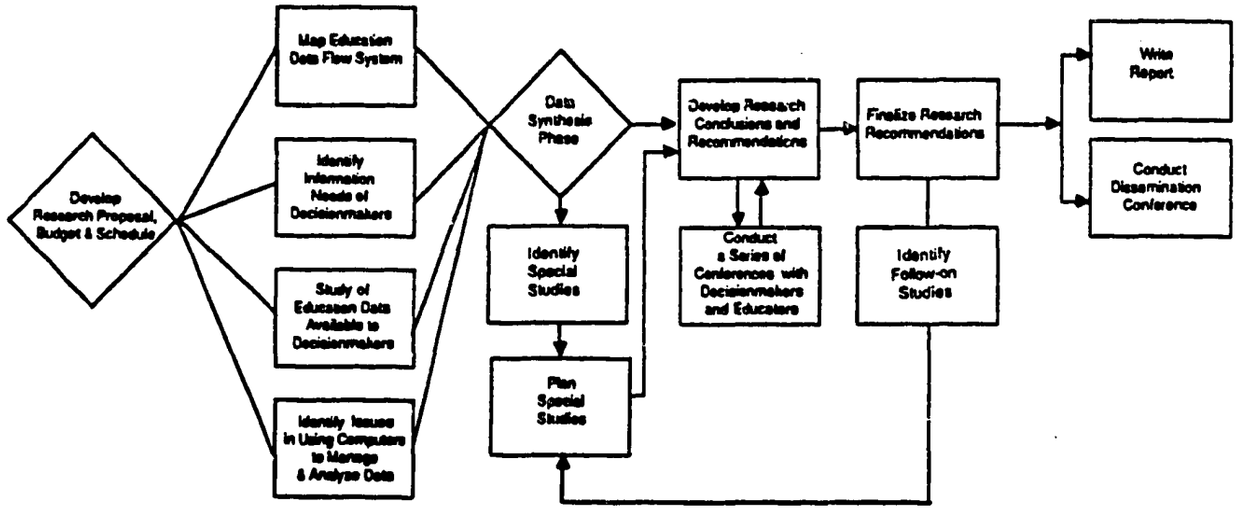

Figure One

Flow Chart of EMIS Research Activities

Planning for the research sought a balance between wanting somewhat comparable data collected in each country to facilitate cross-country comparisons and retaining the CTLs flexibility to adapt the research design and data collection instruments to address the needs and conditions of their countries. While a general research design, sample surveys and interview protocols, and a sample activity monitoring system were provided the CTLs, each team leader was encouraged to modify design and data collection instruments to fit needs identified by their Ministry. Research teams in all three countries exercised this option. Consequently, the specific research designs employed in Nepal and Somalia will be presented in those sections.

THE QUALITY AND USE OF EDUCATION DATA IN NEPAL

INTRODUCTION

In 1951, the Nepalese overthrew the Rana autocracy and returned power to the present monarchy. The return of power to the monarchy ended 104 years of self-imposed isolation and inaugurated a period of intense development efforts. In 1951, there were only 321 primary and 11 secondary schools in the country and less than two percent of the population was literate. By 1983, 7000 schools had been constructed and over 23 percent of the population had achieved literacy.

Such growth comes at a cost—one increasingly difficult for Nepal to bear. Nepal is one of the poorest countries in the world with an estimated per capita income of US$170 (1983). The country's natural resources have been severely strained by the population growth rate, which has averaged 2.66 percent per annum. At the present rate, the current population of 16 million (1981) will double within the next 23 years. Pressures for food and fuel have resulted in both less produce available for export, and rapid environmental degradation. At the same time, the decline in foreign exchange represents a serious constraint to governmental ability to provide the quantity and quality of social services demanded (IEES, 1986). Nepal now faces conflicting pressures to increase the availability and quality of education but to do so with a declining share of national resources.

Despite these constraints, Nepal recently has committed to a basic needs approach to development (Government of Nepal, 1988). This includes a decision to meet Asian standards for basic education throughout Nepal by the year 2000. One aspect of this commitment is that there should be universal access to primary education in a little over a decade, up from the present enrollment ratio of only 77 percent for primary students. The serious economic situation facing the country means there may not be sufficient funds to meet these goals (Government of Nepal, 1988).

As one part of its response to these pressures, the Ministry of Education and Culture (MOEC), in collaboration with the IEES Project, conducted a comprehensive assessment of the education and human resources sector during 1988. One purpose of the assessment was to identify constraints on educational efficiency and develop a set of recommendations for how available funds could be more efficiently used in pursuit of national education goals.

One conclusion of the Assessment was that strengthening of the planning and management capacity is needed throughout the sector if appropriate and realistic strategies to meet sector goals are to be developed and implemented (Government of Nepal, 1988). A recurring theme throughout the Assessment is the importance of improving the data bases available to decision makers that allows them to assess the current status of the sector, determine the available resources, and estimate the probable impacts of allocation decisions available to them. While the basic procedures for collecting and analyzing data already exist,

the Assessment concluded that there was a serious need for more reliable and current data and an improved capacity to perform timely analyses in order to support improved planning and decision making throughout the sector.

While the Assessment argued the need for better data, it did not identify current problems in data flow in enough detail to guide improvement activities. That level of identification is important, however. The design of interventions differs dramatically, depending on whether the key constraint is judged to be accuracy, timeliness, or availability (Chapman, 1989). Consequently, the MOEC choose to participate in the EMIS research initiative sponsored by IEES as a means of better understanding constraints to the collection, analysis, and use of national education data in Nepal.

The present study examined constraints on the collection, flow, and use of education data within the formal education system of Nepal. The study operated from a model that posits that improved data use in decision making is a function of three factors – (1) the availability of data (which includes the consideration of timeliness); (2) users confidence in the quality of the data available to them; and, (3) the adequacy of incentives to use those data. Specifically, this study investigated the extent to which national level officials in the education sector in Nepal tended to use quantitative data in their decision making, the extent they believed the data available to them was accurate, and the extent their judgment of data accuracy was correct. Secondly, it investigated the flow of data between the schools and the MOE in an effort to identify constraints and bottlenecks that impinge on data quality and usefulness in Nepal.

Data Flow - Problems and Strengths

To understand the issues that were examined in this study, it is necessary to understand the manner in which the data collection system evolved in Nepal. This section presents a brief description of the decisions that have resulted its present form.

Originally the Statistics Section was created to be the data collection unit within the MOEC. When teachers were incorporated into the Civil Service in the early 1980s, data on the cost implications (retirement liability, etc.) of the new law were urgently needed. When it was realized that the Statistics Section did not have the needed data, the School Administration Section was asked by the MOEC Secretary to collect it, largely because the leadership in that section at the time was recognized as particularly capable and was thought by the Secretary to be able to obtain the needed data quickly. This activity established the School Administration (SA) Section's role in the area of data collection and subsequent success with the Civil Service analysis gave the Section visibility and stature in this area.

When the National Cabinet instituted a national award system to recognize outstanding schools, the SA Section was assigned responsibility to collect and analyze the data that were to be used as the basis for school selection. A set of 50 criteria was identified as the basis for selecting the schools that would receive the award. Not only did the award convey honor for a school, but substantial cash awards were made to winning schools (sometimes in excess of $10,000). The visibility and competition involved with these awards meant that timely and accurate data were critical. To collect the data, the SA Section developed a 52-page school data form that essentially duplicated data collected by the Statistics Section, but was seen to serve a different purpose (e.g., the highly-visible national awards program).

Hence there developed two parallel data collection systems in the Ministry. As the two systems were perceived to serve completely different purposes, no effort was made to merge or link these data sets. Moreover, since the Statistics Section and the School Administration Section reported to different Joint Secretaries, each contributed to defining and enhancing the range of responsibility ("turf") of separate Divisions of the Ministry. Finally, it should be noted that collaboration was not a valued characteristic at the level of the Section leadership, each of whom derived a large part of the status and authority of each

Section derived from the magnitude and range of data collection activities underway in each Section. Collaboration would thus have reduced individual prestige.

Up to a point, the two Sections followed a similar procedures in relying on DEOs to distribute and then collect the data forms among the schools. However, there were subtle differences in procedure that are important in understanding school reaction to these dual collection efforts.

Statistics Section Survey. The Statistics Section survey, which is four pages in length, generally is sent to the 75 DEOs in about the fourth month of the school year (April). It is sent by post, which takes between three weeks and three months to arrive at the District Offices. DEOs distribute the forms to the school by sending the form out with the headmaster or a teacher from that school when they visit the District Office. The frequency of these visits vary considerably. In rural regions of Nepal, many schools are a three to six-days walk (each way) from the District Office. Consequently, once the form arrives in the District Office, it may take from one day to three months for the forms to be distributed to and returned from the schools. The schools actually complete the form during the last half of the school year, not the first.

The MOEC, however, in order to facilitate their analyses, requires that all completed forms be returned by August/September. This requirement means that DEOs must report data, in fact, to the MOEC before all the data has been reported to them by the schools. While DEOs usually try to wait until at least 75 percent of the school reports are in, eventually they are required to submit their District data summary.

The actual reporting process is that DEOs first develop a data summary for their district based on the school data available to them at the time, and then try to estimate the data for those schools which have not yet returned the school form. This results in summaries based on a substantial amount of estimate. These summaries are forwarded to the Statistics Section office in Kathmandu. However, all subsequent analysis in the Statistics Section are based on the District summary data. These summary data are entered into a microcomputer located in the Statistics Section and analysis is conducted by Section staff. National level summaries are usually available to the Joint Secretary by October of the following year.

In the meantime, late school forms continue to come into the District Office and district staff continue to revise and correct their district summaries. This results in increased accuracy of the district level data sets and a progressive divergence of district data from national data for that district, since the Statistics Section continues to work with the earlier numbers submitted by the DEO.

School Administration Section Forms. The School Administration Section also sends forms to DEOs for distribution to the schools within that District, and the process begins on approximately the same schedule—with forms going out in about April. As a general rule, the SA Section uses the postal system to get forms to DEOs but, because they have more resources than the Statistics Section, the SA Section can be more flexible. SA staff sometimes send a telegram to DEOs in larger or more remote districts, who, in turn, send a district office representative to Kathmandu to pick up the forms, return them to the district, and start distribution to the school immediately (though the school distribution still relies on a school representative picking up the form during a visit to the district office). This procedure occasionally (but not generally) results in SA forms reaching schools before the Statistics Section forms.

The demands placed on school personnel in completing the SA forms are substantially greater than those imposed by the Statistics Section form. The SA form is 52 pages and elicits far more detailed breakdowns of data as well as types of financial information and facilities data not requested by the Statistics Section. Hence, even though the SA form is received at about the same time, it takes longer to complete and generally is returned to the district office later.

At the District Office, these forms are reviewed by the DEO who is paid 10 Rps. per school form for editing and checking the form—a checking process not built into the Statistics Section procedure. Nonethe-

less, the checking concentrates on identifying missing or illegible data, since the DEO has little basis for actually auditing the figures reported.

Data on the SA form are not summarized at the District level, but the completed form is sent first to the REO and then forwarded to the SA Section in Kathmandu. Once received in Kathmandu, the SA section sends the individual school forms to the National Computer Center (NCC), a semiautonomous government agency that conducts computer analyses for many government agencies. Given the workload and competing priorities at the NCC, it typically takes 12 to 18 months to get these forms computerized, conduct a preliminary analysis, and make the results available to the School Administration Section.

This schedule means that the analysis of the SA forms is not available by the time schools must be selected for national awards, the ostensible reason for collecting the SA data in the first place. In order to keep the awards program on schedule, REOs usually review SA school forms and formulate their nominations for awards based on that examination, plus their own knowledge of the schools. The 52-page form provides far more data in far greater detail than can be incorporated in any comprehensive way in the personal judgment process of the REO. Consequently, while data from the SA form may be used at the central MOEC level, it is not used in support of the decisions it was designed to address.

Monthly/Yearly Reports. In addition to the two MOEC forms each school is asked to complete, DEOs may collect data for use at the district level. These data collection efforts are at the discretion of individual DEOs. Actual practice and types of data collected vary considerably by District. However, these forms often collect student enrollment by grade and gender, and teacher supply by gender and subject area. This means that some schools are asked to provide the enrollment, student flow, and teacher data a total of three or more times in a year—in some districts, far more often. Schools generally comply with these District data requests because DEOs control the salary budget for the schools in their district. DEOs release salary money to the schools based on the number of teachers employed during the month. Since there is considerable teacher mobility, even during the school year, the district data forms are seen as an important financial control. A school must complete the District form in order for its teachers to be paid.

Flow of Data Once Forms Are Completed. Data collected on district-generated forms are used only at the district level. Data on the two Section forms are eventually forwarded to the central MOEC office in Kathmandu. Since schools fill out the three types of data collection forms at different times, data on the three forms may vary. Government officials generally recognize that, among those three data sets, the district data tends to be better than national level data for that district, since the national data set has a substantial component of estimated school data to compensate for missing school forms. (This is particularly true of large districts, many of which experience more difficulty than smaller districts in getting forms returned.) The district data is adjusted as those forms or other relevant school data are eventually received.

While the SA data are collected in more detail and ostensibly goes though a more careful editing/checking process before it is sent in, the Statistics Section data is more widely used within the MOEC because it is available more quickly. Since the Statistics Section conducts its own computer analysis, staff can more quickly respond to special requests for particular break-outs of data. Further, the School Administration Section, having collected their data in support of the awards program, does not have a clearly defined responsibility to disseminate their data for other uses. Hence, there is no organized pattern for how School Administration Section data are utilized, especially since it is not used (at the MOEC level) for it original purpose. This is not to imply that these data are not used. The School Administration Section receives and responds to requests for information from the Joint Secretary, the Secretary, the Minister, and the Palace. However, these are ad hoc requests and no formal system for making School Administration Section data generally available to other Ministry offices is in effect. The implications for policy change of these dual (but different) systems are discussed in Section III, following the description of the research effect below.

DESCRIPTION OF RESEARCH

The Quality and Use of Data in Nepal

The research study in Nepal consisted of four parts. Part one was a study of national level decision makers in the education sector to determine the types of data they believed they needed. Part two examined the extent that education data were already available to MOEC decisionmakers. Part three examined the accuracy of education data at different levels of the education system. Part four examined issues and problems in data flow throughout the system.

Based on a review of prior research on data use in developing countries, it was hypothesized, first, that more education data are available in Nepal than are analyzed and, second, that more data are analyzed and already available in a published form than policy makers are generally aware of—or make use of. It was hypothesized further that a major reason for the non-use of quantitative data is that decision makers lack confidence in the accuracy and trustworthiness of the data available to them. Given their knowledge of their own country, and the evidence of low data quality in other developing countries, it was also hypothesized that these decision makers would be correct and that national level data would be found to be substantially inaccurate.

Procedure

Data Decision Makers Believe They Need. During June to November, 1987, 45 officials involved in national level policy formulation and program implementation in Nepal were interviewed to determine the extent objective data were available to them, the extent they used quantitative data in their work, the importance they assigned to such data, their confidence in the quality of those data, and their suggestions for how data quality and use could be improved. One component of the interview collected respondents' judgments about the types of quantitative data they believed they need.

Data Already Available to Decision Makers. A second substudy was conducted to determine what quantitative data already were available to decision makers. This substudy involved a content analysis of all documents published between 1979 and 1987 containing education data (N = 48).

Accuracy of Educational Data. The accuracy of education data was investigated by (a) comparing student enrollment data as recorded at the school level (N = 46 schools) with enrollment data for those schools as recorded at the district level, and (b) comparing the number of students, teachers, and schools recorded in selected districts (N = 6) with the corresponding data for those districts as recorded in the Regional Education Office and in the central MOEC office. These comparisons allowed an estimate of the error (if any) introduced at each level of the education system.

Following these analyses, one follow-up study was conducted to determine the extent that arithmetic error in tabulating data at the school or district level might contribute to discrepancies in reported enrollments was conducted.

Constraints in Data Flow. The substudy to investigate the problems and constraints associated with the flow of data through the education system was conducted as an interview study of school headmasters (N = 90) and district, regional, and central MOEC officials (N = 45).

To conduct the headmaster interviews, research teams conducted site visits to 90 schools across five districts, selected through a stratified cluster sampling procedure. In the schools, they conducted interviews with the headmaster and, in selected schools, recorded the number of students by grade level reported in school records for 1986 and 1987. In addition, they conducted site visits to the District Education Office in each of those five district and to the Regional Education Offices serving those districts. At the District Of-

fice, they interviewed the DEO and recorded (a) district data on student enrollment by grade level for the schools they had previously visited, and (b) the number of students, teachers and schools for the entire district as reported in district level records. At the regional level they interviewed the REO and recorded the number of students, teachers and schools for the particular districts involved in the study.

Sample

Data Decision Makers Believe They Need. The study of data needs of decision makers and their perceptions of data quality included a total of 45 national level decision makers working in the education sector in Kathmandu. The sample included all central MOEC officials at and above the rank of Undersecretary. This group included four Section Officers who were serving as Acting Undersecretaries. In addition, the study included all five REOs and the DEOs from the fifteen Districts that formed the basis of the school sample (described later). Finally, the sample included one professor from Tribhuvan University who had been working with MOEC data at the University.

Data Already Available to Decision Makers. A total of 48 documents reporting on or containing education data about Nepal were identified by the study team. These documents were identified through a review of six document sources: The National Education Commission Library, the Agricultural Project Research Center Library (APROSC), Tribhuvan University Library, UNICEF, Integrated Development Systems (IDS), and New Era. APROSC, IDS, and New Era are the three largest private research companies in Nepal and are active in conducting research in education and human resources development. In the judgment of the study team, the documents identified represent the population of documents which (a) report education data on Nepal, and (b) are available in Kathmandu.

Data Accuracy. The 46 schools included in the study of data accuracy represent approximately half of the schools selected for the headmaster interviews. Since the data accuracy study was initiated only after it was evident that the headmaster interview study was operating successfully, the schools included in the accuracy study were the second half of schools visited in each region.

Data Flow. The study of data flow involved interviews with headmasters in 90 schools and interviews with 45 district, regional, and national level education officials. The school sample was selected using a multi-stage sampling process. Schools in each of the five governmental regions of Nepal were categorized into three geographical accessibility groupings. *Remote* referred to generally inaccessible schools, *hill* denoted relatively accessible schools, and *tarai* designated the most easily accessible schools. Within this 5 x 3 matrix (5 regions x 3 accessibility levels), schools were further categorized into six school types—primary (grades 1-5), lower secondary (grades 6-7), secondary (grades 8-10), proposed primary, proposed lower secondary, and proposed secondary. Proposed schools are those which have formally applied to the MOEC to offer more grade levels and which have received permission to offer those additional grades on a provisional basis while their application for permanent status is being reviewed. For example, a proposed lower secondary school is an approved primary school which also is offering instruction for grades 6-7 on a temporary basis, pending permanent MOEC approval to operate as a lower secondary school.

Within each of the 15 district/accessibility categories, one school was selected within each of the six school types, for a total of ninety schools. Final selection of a school within each school type was made by a committee composed of the staff of the Manpower and Statistics Section of the MOEC, the Country Research Team Leader for this study, and the Resident Technical Advisor representing the IEES Project in Nepal. In selecting a school from within each school type, the research team sought to ensure distribution across one additional dimension—better school structures versus poor school structures. Once schools

were arrayed on these criteria, the school offering the greatest physical accessibility was selected. This was necessary to ensure that the site visit team could reach the school within the time frame of the study.

The district and regional MOE officials interviewed were from those regions and districts within the sampling frame described above. For purposes of analysis, the district and regional education officers were included with national level decision makers. The distribution of respondents by their professional position is reported in Table 1.

TABLE 1

Characteristics of School Level Respondents

Position of Respondent:	number	percent
Headmaster	80	88.9
Teacher	5	5.6
Accountant	5	5.6
School Level Represented:	**number**	**percent**
Secondary	16	17.8
Lower Secondary	10	11.1
Primary	25	27.8
Proposed Secondary	20	22.2
Proposed Lower Secondary	10	11.1
Proposed Primary	9	10.0

Instrumentation

Study of National Level Education Decision Makers. The interview protocol used with MOEC decision makers collected respondents judgments about the timeliness, accuracy, and usefulness of current national level education data, reasons for possible loss of accuracy, an suggestions for how data accuracy could be improved (see Appendix A). Each interview took approximately three hours to conduct. A core set of structured interview items was developed from a review of the literature on data use in developing countries (Chapman and Messec, 1985) and were selected to be consistent with parallel studies being conducted in four other countries as part of a larger research initiative.[1] As part of this larger research effort, these items had been reviewed for appropriateness of content and clarity by a five person research team, composed of researchers from four countries. These items were supplemented with a series of open-ended interview items developed by the Nepali research team, all of whom were experienced social science researchers.

The protocol used in the content analysis of documents also was developed from a review of literature on data use (Chapman and Messec, 1985). In particular, it drew from the specification of data needed in the conduct of an Education and Human Resources Sector Assessment to support policy formulation and analysis (Cieutat, 1983; Pigozzi and Cieutat, 1988).

The protocol for comparing the accuracy of data at different levels of the education system was patterned after the data collection form used by the Nepal MOEC. Within each school, the site visit team

recorded student enrollment by grade for 1986 and 1987. At the district level, the site visit teams recorded the corresponding data for the schools in the sample. Additionally, they recorded the total number of schools, teachers, and schools reported for 1986-1987, though they obtained those data going back as far as 1984 in some districts. At the regional level, they recorded the number of schools, teachers, and schools for the corresponding years for the districts in the study.

Analyses

Data within each substudy were first analyzed and interpreted separately. Then, results from across the four substudies were compared and interpreted together. Close-ended interview items were coded, entered into a microcomputer, and summarized using SPSS PC+. Open ended interview items were coded using standard content analysis procedures (Babbie, 1989) and frequency tables were developed using SPSS PC+. For the study of education information available to decision makers, each of the 48 documents was reviewed by two members of the research team who completed a coding protocol for each document. These protocols were coded and a frequency analysis was developed using a microcomputer.

The consistency in student enrollment by grade level as reported in school and district office records was compared using the spreadsheet analysis available in the *Plan Perfect* software program. Similarly, the consistency between district and regional data on schools, teachers and students was computed using *Plan Perfect*.

RESULTS

Data Decision Makers Believe They Need

National level decision makers believe they need objective, quantifiable data about the education system when making educational decisions and assign considerable priority to getting it. Indeed, respondents reported that they assign more importance to statistical data than to conversations they have with headmasters, teachers, other MOEC personnel, or friends (Table 2). Formal statistical analyses are paralleled only by the credibility and importance respondents assigned to their own experience as a basis for decision making.

When asked to rate the importance of various types of data in decision making, respondents assigned considerable importance to all types of education data included on the survey, with the greatest importance attached to data on enrollment and teacher supply (Table 3). While four out of five respondents claim actually to use enrollment data and three out of every four claim to use data on teacher supply, only 50 to 60 percent report they actually use data on education cost, the availability of educational materials, or data on school facilities (Table 4).

These findings suggest that respondents' enthusiasm for data as a basis of decision making is not matched by their actual use of data. There appear to be substantial differences between what they say they need and what they use. One reason for this could be that the data they want is not available to them. This issue was addressed in the second component of the study.

Data Already Available to Decision Makers

Student enrollment and teacher supply data for primary and secondary education are the data most frequently reported in the published documents available to education decision makers in Nepal (Table 5). When teacher qualifications or other personal characteristics are reported, they tend to be available only

TABLE 2

Extent to Which Education Officials Rate Selected Sources of Information as Important When They Are Making an Educational Decision

Source of Information	Mean*	Standard Deviation	N
personal experience	1.49	72	39
conversations with headmasters	2.11	86	38
conversations with teachers	2.32	93	38
conversations with MOEC personnel	2.15	90	39
conversations with personal friends	2.94	91	39
conversations with other people you respect	2.84	99	39
reading previous statistical analyses	1.43	64	40
formal statistical analysis	1.47	64	40
other**	77	73	13

* = response scale: 1 = extremely 2 = very 3 = somewhat 4 = not at all

** = other responses included "policies of neighboring counties" and talking with other Ministries.

TABLE 3

Importance Assigned by Education Officials to Following Types of Numeric Data (N = 41)

Type of data	Mean*	Standard Deviation
student enrollment	1.17	38
number of teachers	1.24	43
teacher background and qualifications	1.44	63
education costs	1.44	63
availability of textbooks	1.39	70

* = response scale: 1 = extremely 2 = very 3 = somewhat 4 = not at all

TABLE 4

Types of Data Respondents Report They Use

Type of Data	Number indicating their office uses such data	Percent	Number indicating they rely on such data	Percent
Student enrollment	36	80	39	87
Teacher supply	34	76	29	64
Educational cost	24	53	18	40
School facilities	26	58	20	44
Educational materials	24	53	16	36
Data on other educational issues	8	18	8	18
Access to education/school location	23	51	17	38

for primary and secondary school teachers or reported in aggregate for the whole system. Relatively little data of any type are reported for vocational/technical or nonformal/adult education. Similarly, only two documents in the last ten years reported teacher qualifications by subject area.

While descriptive data on student enrollments and teacher supply were available in about half the documents reviewed, data on availability of textbooks, projected teacher demand, and facilities use were presented only rarely. Aggregate national cost data of various types were available in 22 of the documents; however, cost data by region, district, or school were rarely reported. Cost data disaggregated by type of cost were reported in only two documents over ten years.

About 40 percent of the documents reviewed were sponsored by external donor agencies and conducted either by private consultant groups or by Nepal government agencies. Another 40 percent were sponsored directly by Nepal government agencies. The remainder were sponsored by private groups, either hoping to sell the resulting product as a commercial venture or use the results for their own cause (such as the local newspaper).

Most of the documents reviewed were free of charge to those who knew they were available, had access to the sponsor, and who requested a copy before the supply was exhausted. While free distribution enhances initial availability of the document, it often means also that production is constrained by cost and the number of copies produced is limited. Once initial distribution has occurred, additional copies are extremely hard to find.

The content analysis involved only published documents. Government officials presumably have access to educational data collected by the MOEC that is never published in reports. Over 75 percent of the MOEC education officials above the level of the school report that their office used student enrollment and teacher supply data. About half of these claim to use data on educational costs, school facilities, and the availability of educational materials—despite the fact that these data were not widely available in the published documents that were reviewed. This suggests either that these officials get their data from unpublished sources or that they seriously overestimate their use of such data.

TABLE 5

Content Analysis of Education Documents in Nepal

Number of documents reporting selected education data
by types of data reported and level of education.
(N = 48 documents)

	Student Enrollment	Teacher Supply	Teacher Qualifications	Other Teacher Characteristics
Overall	14	15	10	10
by level	12	10	6	4
primary	35	25	11	12
secondary	29	21	7	10
vocational/technical	9	5	0	0
nonformal/adult	9	0	0	0
by grade	19	4	2	0
by subject area	15	7	2	1
lower secondary	24	17	7	9
higher education	20	6	1	1

Number of documents reporting selected education data
by type of data reported

Type of Data	Number of documents	Type of Data	Number of documents
Availability of textbooks		Educational costs	
overall	0	aggregate	13
by grade	4	by district	1
		by region	1
Projected teacher demand		by school	4
overall	0	by type of costs	2
by grade	2	nationally	22
by subject area	0	other	3
by geographical area	0		
Facilities use		How Document Was Distributed	
classrooms	3	on request/free	36
furniture	2	for sale	7
		mailing list	5

TABLE 5 (continued)

Agency Preparing Document

Agency	Number of Documents
Action Aid/Nepal	1
Agricultural Project Research Center (APROSC)	1
Canadian Educational Development Association	1
Center for Educational Research and Instructional Development (CERID)	3
CERID/Tribhuvan University (TU)	9
CTSDC/Ministry of Education	1
Institute for Education/TU	1
International Monetary Fund (IMF)	1
Ministry of General Administration	1
Ministry of Education and Culture	6
National Planning Commission	4
National Research Associates	2
New Era	3
Private Consultant	10
Swiss Association for Technical Assistance	1
UNESCO	1
USAID	1
World Bank	1
TOTAL	48

Agency Sponsoring the Document

Agency	Number of Documents
ACEID	1
Action Aid/Nepal	1
Canadian Educational Development Association	2
Center for Educational Research and Instructional Development (CERID)	1
Central Statistics Bureau	4
CERID/TU	4
IDRC	
Institute for Education/TU	3
Integrated Development Consultants	1
International Monetary Fund (IMF)	1
Local Newspaper	1
Ministry of Education and Culture (MOEC)	8
Ministry of General Administration	1
National Research Associates	2
Research Institute for Asian and Nepali Studies	1
Swiss Association for Technical Assistance	1
TU/National Population Commission	1
U.S. Agency for International Development	1
UNESCO	7
UNICEF	3
World Bank	2
Not Indicated	2
TOTAL	48

TABLE 5 (Continued)

Education Documents Included in Content Analysis by Year of Publication

1978

Ram, A.G. (1978). *The Challenge of Educational Finance in Nepal*, Kathmandu: Center for Economic Development and Administration.

1979

Holmes, B. (1979). *International Guide to Educational Systems*, Paris: UNESCO.

Maskey, B.K., and Suwal, S.S. (1979). *Projections of Primary Teachers and Students During the Sixth Plan*, Institute of Education, Kathmandu: Tribhuvan University.

Nepal: Development Performance and Prospects. (1979). Kathmandu: The World Bank.

1980

Rana, S.J.B. (1980). *Status of Children in Nepal*, Kathmandu: Child Welfare Coordination Committee/Nepal and UNICEF/Nepal.

1981

Report on Educational Statistics in Nepal, 1981. (1981). Kathmandu: Ministry of Education and Culture.

Sharma, S.R. (1981). *Education and Employment Policies in Nepal*, Bangkok: UNESCO.

Stiller, L.F., Yadar, S.J., and Yadar, R.P. (1981). *Planning for People*, Kathmandu: Research Center for Nepal and Asian Studies.

The Organization of Education in Remote Rural Areas. (1981). Kathmandu: UNESCO.

U.S. Aid to Education in Nepal, A 20-Year Beginning. (1981). Kathmandu: United States Agency for International Development.

1982

Education Quarterly, Journal published by the Institute of Education, Tribhuvan University. Issues reviewed for this study: (January-March, 1982)., Vol. 27, number 1.

Education Statistics of Nepal, 1982. (1982). Kathmandu: Ministry of Education and Culture.

Impact of the Free Textbook Distribution Program on Primary School Enrollment in Nepal. (1982). Kathmandu: UNICEF.

Integrated Hill Development Project, Working Program and Budget, 1982/83. (1984). Kathmandu: Swiss Association for Technical Assistance (SATA).

Socioeconomic Benchmark Survey of the Babai Irrigation Project. (1982). Kathmandu: Government of Nepal, Department of Irrigation, Hydrology, and Meteorology, and The World Bank.

TABLE 5 (Continued)

1983

Agrawal, G.R. (1983). *Financing of Education for the Mountain and Hill Populations of Nepal*, Population Commission for Nepal, Kathmandu: Tribhuvan University.

Education and Development, 1983. (1983). Kathmandu: Tribhuvan University.

Education Statistics of Nepal, 1983. (1983). Kathmandu: Ministry of Education and Culture.

Primary Education in Nepal, Progress Toward Utilization. (1983). Kathmandu: Center for Educational Research, Innovation, and Development.

Quarterly Statistics Bulletin. (Vol. 5, No. 4, 1983). Central Statistics Bureau, Kathmandu: National Planning Commission.

1984

Education and Development, 1984. (1984). Kathmandu: Tribhuvan University.

Education Statistics of Nepal, 1984. (1984). Kathmandu: Ministry of Education and Culture.

Integrated Hill Development Project, Working Program and Budget, 1982/83. (1984). Kathmandu Swiss Association for Technical Assistance (SATA).

Quarterly Statistics Bulletin. (Vol. 6, No. 3, 1984). Central Statistics Bureau, Kathmandu: National Planning Commission.

Study of the Literacy Situation and the National Policy and Plan for Intensification of the Struggle Against Illiteracy. (1984). Kathmandu: UNESCO.

1985

Education and Development, 1985. (1985). Kathmandu: Tribhuvan University.

Education Statistics of Nepal, 1985. (1985). Kathmandu: Ministry of Education and Culture.

Instructional Improvement in Primary Schools. (1985). Kathmandu: Center for Educational Research, Innovation, and Development.

Integration of Women in Basic Needs Activities and Cooperative Development in Nepal. (1985). Occasional Paper Series, Kathmandu: Center for Economic Development Assistance.

Mallik, B.K., et al. (1985). *A Draft Report on A Survey of the Methods and Techniques of Education Planning and Program Formulation in Nepal*, Institute on Education, Kathmandu: Tribhuvan University.

Prashasan (1985). "Government Expenditures on Education in Nepal," *The Nepalese Journal of Public Administration*, 42, 2, 1985.

Quarterly Statistics Bulletin. (Vol. 7, No. 3, 1985). Central Statistics Bureau, Kathmandu: National Planning Commission.

Training of Primary Education Personnel: A Report of the National Advanced Level Workshop to Copy with the Problem of Dropouts and Repeaters in the Primary Schools of Nepal. (1985). APEID, Bangkok: UNESCO.

The net result is that published data has tended to describe current and past status of the education system, primarily with respect to numbers of students and teachers and with respect to the primary and secondary levels of schooling. However, substantial amounts of data relevant to describing the educational transactions that might be occurring in schools—such as the availability of textbooks or expenditures per student for supplies—were not available. Greater attention was given to profiling system expansion than to monitoring the components of effective instructional delivery, beyond the aggregate availability of teachers within the system.

Data Accuracy

Overall, respondents estimated that the national education data available to them had an 18 percent error rate. On average, they judged an acceptable error rate to be 13 percent (Table 6). Of particular interest, however, were the differences among respondents related to their years of experience in the Ministry and the professional position they held. Those officials with the greatest seniority in the education hierarchy judged that the current data contained substantially less error than those who entered the bureaucracy more recently (Table 6). Officials who had served with the education system for the longest time estimated a current error rate of only 13 percent; newcomers believed the current data might be in error by as much as 28 percent. At the same time, the most recent entrants appeared more tolerant of low data quality. Those with more than 15 years of experience thought ten percent an acceptable level of error in national data; those with less than 15 years experience would accept an average error rate closer to 18 percent.

TABLE 6

Amount of Error Education Officials Believe Presently Occurs in National Education Data, the Amount They Judge Would be Acceptable, Overall Rating of Data Quality by Professional Level, and Years of Educational Experience (reported as average percent of error)

(N = 45) Professional Level	Amount of error estimated to occur	Amount of error judged acceptable	Overall rating of data quality	N
Joint Secretary	9.0%	14.0%	2.92	5
Under Secretary	13.0%	22.5%	2.70	13
Section Officer	27.0%	35.8%	2.60	4
DEO/REO	11.9%	16.1%	2.73	20
Additional Secretary	5.0%	19.0%	3.00	2
University Professor	10.0%	0.0%	2.00	1
OVERALL	13.0%	19.3%	2.73	45

(N = 44) Years of experience	Amount of error estimated to occur	Amount of error judged acceptable	Overall rating of data quality	N
1-14 years	27.9%	18.3%	2.72	7
15-30 years	16.8%	9.6%	2.79	28
30-45 years	12.7%	11.0%	2.53	9
overall*	17.7%	11.3%	2.73	44

* = response scale: 1 = poor 2 = fair 3 = good 4 = excellent

Clearly, recent entrants and experienced personnel held quite different views about data quality. One possibility is that length of service is confounded with position (e.g., rank) within the Ministry. Further analysis suggested this was only partially the case.

When respondents' estimates of data error were compared across professional positions within the Ministry, those who worked most closely with the schools in the data collection process (DEOs and REOs) and those farthest away from day-to-day operations of the schools (Joint Secretaries) held the most positive estimates of the accuracy of national education data. The middle and upper-middle ranks of the central MOEC staff held the most pessimistic view of data quality, with section officers estimating that data could be in error by as much as 27 percent (Table 6).

In order to interpret these discrepancies among group perceptions, it is necessary to determine which group was more accurate in its judgment of data quality. Further discussion of Ministry officials' judgments of data quality, then, will await the results of the assessment of consistency between the data available in the schools and those reported to the MOEC.

Objective Assessment of Accuracy. Table 7 reports student enrollment by grade for 46 schools as recorded at the school and at the District levels. Enrollment data in the first set of columns were those recorded in the school register and verified during a site visit to the school by members of the study team. The second set of columns are enrollment data for those same schools as reported in the MOEC data forms on record at the District Office. While 15,285 students were reported on the school forms, 16,031 were reported on the District level records. This represents a difference of 746 students, or less than a 5% discrepancy in reported enrollment at the two levels. Further, no consistent pattern of over- or under-reporting was apparent within districts, suggesting the errors that were made were essentially random.

Table 8 presents the number of students, teachers, and schools for each of six Districts during selected years, first as reported on District summaries, second as reported on Regional Summaries for those districts, and third, as reported on central MOEC records for those districts. The rate of error between the aggregate number of teachers recorded at the school level and the number eventually recorded at the central MOEC level generally was less than 3% across the five years examined. The discrepancy in reported student enrollment ranged between 1-15 percent, but under- and over-reporting tended to cancel out the differences and bring the overall count at the MOEC level to within three percent of the number recorded in the schools. These findings suggest that, at the aggregate level, national enrollment and teacher supply data are considerably more accurate than MOEC officials believe them to be.

The greatest discrepancies between the district, regional, and central MOEC data concerned the number of schools that currently operate within each region. While the aggregate school count appears to have improved since 1985, over the last three years large discrepancies are still observed at lower levels of aggregation. For example, the number of schools MOE data shown to be in Kapiivastu district differs with the number recorded at the district level by about 35 percent for each of three years running. In general, MOEC data tend to under-report the number of schools in a district relative to the district count. This pattern, however, can be attributed to the manner in which data are collected and forwarded to the MOEC, as described earlier.

The amount and pattern of error observed in the data supports two observations. First, the aggregate counts of students and teachers tend to be far more accurate than MOEC officials believe them to be. Second, the error between district-wide, region-wide, and MOEC reports of enrollment and teachers supply tended to be essentially random. While district-by-district discrepancies with MOEC data tend to be larger, in some cases approaching 25-30 percent, large discrepancies between district and MOEC data tend to be isolated to particular districts and to particular years. This means that interventions to improve data quality can be focused in selected districts—they do not have to be a blanket effort. Overall, these findings

TABLE 7

Comparisons of School Enrollment Between Recorded in School Reported in MOEC's Data Collection Forms

Name of School	Recorded in School Register													Reported in MOEC's Data Collection Forms												DIFF IN PRIM	% OF ERROR	MAG-NITD. OF ERROR	DIFF IN SEC	% OF ERROR	MAG-NITD. OF ERROR	DIFF IN OVER-ALL	% OF ERROR	MAG-NITD. OF ERROR
	I	II	III	IV	V	TTL	VI	VII	VIII	IX	X	TTL	G.TTL	I	II	III	IV	V	TTL	VI	VII	VIII	IX	X	TTL	G.TTL								
A. JHAPA																																		
1. Nava Durga Primary	54	60	33	23	16	186	-	-	-	-	-	0	186	53	60	34	26	16	189	-	-	-	-	-	0	189	-3	-1.61	102	0	ERR	ERR	-3	-1.61	102
2. Mahendra Primary	65	23	30	28	20	166	-	-	-	-	-	0	166	91	46	35	22	25	219	-	-	-	-	-	0	219	-53	-31.93	132	0	ERR	ERR	-53	-31.93	132
3. Bidhur Lower Secondary	35	29	26	17	17	124	14	11	-	-	-	25	149	36	30	27	17	18	128	14	11	-	-	-	25	153	-4	-3.23	103	0	0.00	100	-4	-2.68	103
4. Janta Lower Secondary	95	85	76	74	61	391	65	61	-	-	-	126	517	122	90	77	83	60	432	66	64	-	-	-	130	562	-41	-10.49	110	-4	-3.17	103	-45	-8.70	109
B. DHANKUTA																																		
1. Siddhaya Primary	71	19	12	9	7	118	-	-	-	-	-	0	118	71	19	12	9	7	118	-	-	-	-	-	0	118	0	0.00	100	0	ERR	ERR	0	0.00	100
2. A. N. Primary School	90	36	16	14	20	176	-	-	-	-	-	0	176	90	36	16	12	20	174	-	-	-	-	-	0	174	2	1.14	99	0	ERR	ERR	2	1.14	99
3. Bhaqwati Primary	30	10	10	8	7	65	-	-	-	-	-	0	65	31	11	10	8	7	67	-	-	-	-	-	0	67	-2	-3.08	103	0	ERR	ERR	-2	-3.08	103
4. Gramin Janta L. Secondary	70	30	13	13	13	139	16	25	-	-	-	41	180	59	30	11	13	14	127	15	17	-	-	-	32	159	12	8.63	91	9	21.95	78	21	11.67	88
5. Chainchuli Secondary	56	22	18	19	28	143	51	58	55	65	62	291	434	39	25	21	22	25	132	51	42	59	73	74	299	431	11	7.69	92	-8	-2.75	103	3	0.69	99
C. PARSA																																		
1. Nepal Rastriya L. Sec.	44	32	24	19	12	131	7	12	-	-	-	19	150	44	32	24	19	12	131	7	12	-	-	-	19	150	0	0.00	100	0	0.00	100	0	0.00	100
2. Nepal Rastriya Secondary	18	26	16	13	21	94	56	37	34	37	-	164	258	35	32	30	25	37	159	53	37	47	40	-	177	336	-65	-69.15	169	-13	-7.93	108	-78	-30.23	130
3. Bal Bioya Mandir L. Sec.	111	74	74	65	62	386	67	51	-	-	-	118	504	89	74	75	58	79	375	53	43	-	-	-	96	471	11	2.85	97	22	18.64	81	33	6.55	93
4. Tri-Juddha Secondary	35	50	60	62	79	286	121	129	185	123	125	683	969	45	49	56	70	90	310	120	115	140	126	112	613	923	-24	-8.59	108	70	10.25	90	46	4.75	95
D. KATHMANDU																																		
1. Jaciti Primary School	72	26	24	14	10	146	-	-	-	-	-	0	146	85	19	18	14	11	147	-	-	-	-	-	0	147	-1	-0.68	101	0	ERR	ERR	-1	-0.68	101
2. Baisoou Lower Secondary	248	93	59	67	59	526	26	21	-	-	-	47	573	254	93	59	66	59	531	26	21	-	-	-	47	578	-5	-0.95	101	0	0.00	100	-5	-0.87	101
3. Ranya Secondary School	74	69	82	118	143	486	140	145	200	178	179	842	1328	74	69	82	125	142	492	140	130	193	193	185	861	1353	-6	-1.23	101	-19	-2.26	102	-25	-1.88	102
4. Bal Sucnar Secondary	36	10	12	14	16	88	27	12	27	31	-	97	185	39	30	30	30	16	145	29	15	30	32	-	106	251	-57	-64.77	165	-9	-9.28	109	-66	-35.68	136
E. SINDHOPALCHOK																																		
1. Bhaneswori Primary	17	12	11	-	-	40	-	-	-	-	-	0	40	17	12	11	-	-	40	-	-	-	-	-	0	40	0	0.00	100	0	ERR	ERR	0	0.00	100
2. Canema Devi Primary	112	48	36	31	21	248	-	-	-	-	-	0	248	125	40	29	29	27	250	-	-	-	-	-	0	250	-2	-0.81	101	0	ERR	ERR	-2	-0.81	101
3. Seti Devi Lower Sec.	92	38	19	25	20	194	17	24	-	-	-	41	235	99	44	17	27	19	206	25	25	-	-	-	50	256	-12	-6.19	106	-9	-21.95	122	-21	-8.94	109
4. Sarswati Secondary	NA	38	19	18	27	102	21	19	11	6	NA	57	159	70	40	35	30	25	200	30	20	19	18	16	103	303	-98	-96.08	196	-46	-80.70	181	-144	-90.57	191
F. GORKHA																																		
1. Nava Jyoti L. Secondary	79	32	38	21	11	181	19	21	-	-	-	40	221	79	32	38	21	11	181	19	21	-	-	-	40	221	0	0.00	100	0	0.00	100	0	0.00	100
2. Amar jyoti Janta Sec.	156	69	48	76	56	405	90	61	102	120	68	441	846	156	69	48	76	56	405	90	61	102	120	68	441	846	0	0.00	100	0	0.00	100	0	0.00	100

TABLE 7 (Continued)

Comparisons of School Enrollment Between Recorded in School Reported in MOEC's Data Collection Forms

Name of School	Recorded in School Register													Reported in MOEC's Data Collection Forms												DIFF IN PRIMR	% OF ERROR	MAG-NITD. OF ERROR	DIFF IN SEC	% OF ERROR	MAG-NITD. OF ERROR	DIFF IN OVER-ALL	% OF ERROR	MAG-NITD. OF ERROR
	I	II	III	IV	V	TTL	VI	VII	VIII	IX	X	TTL	G.TTL	I	II	III	IV	V	TTL	VI	VII	VIII	IX	X	TTL	G.TTL								
G. RASKI																																		
1. Yuba Jyoti Primary	34	15	23	13	14	99	-	-	-	-	-	0	99	41	15	23	13	14	106	-	-	-	-	-	0	106	-7	-7.07	107	0	ERR	ERR	-7	-7.07	107
2. Ambadevi Smriti Pri.	16	9	12	10	10	57	-	-	-	-	-	0	57	30	15	14	14	11	84	-	-	-	-	-	0	84	-27	-47.37	147	0	ERR	ERR	-27	-47.37	147
3. Amar Siddha L. Sec.	98	58	46	36	33	271	38	15	-	-	-	53	324	99	58	46	36	36	275	38	39	-	-	-	77	352	-4	-1.48	101	-24	-45.28	145	-28	-8.64	108
4. Bindhabasini Secondary	103	52	56	58	60	329	62	72	145	118	102	499	828	108	140	110	80	79	517	110	78	173	150	173	684	1201	-188	-57.14	157	-185	-37.07	137	-373	-45.05	145
5. Mt. Annapurna Sec.	96	121	124	97	99	537	95	69	73	32	-	269	806	88	84	117	110	94	493	101	63	72	32	-	268	761	44	8.19	92	1	0.37	100	45	5.58	94
H. KAPILVASTU																																		
1. Ram Janaki Primary	36	32	25	21	-	114	-	-	-	-	-	0	114	36	32	25	21	-	114	-	-	-	-	-	0	114	0	0.00	100	0	ERR	ERR	0	0.00	100
2. Tauilihawa Primary	86	35	29	20	17	187	-	-	-	-	-	0	187	90	35	28	20	16	189	-	-	-	-	-	0	189	-2	-1.07	101	0	ERR	ERR	-2	-1.07	101
3. Gautam Buddha L. Sec.	64	49	43	27	29	212	20	14	-	-	-	34	246	64	49	43	27	29	212	20	14	-	-	-	34	246	0	0.00	100	0	0.00	100	0	0.00	100
4. Ram Gotha Secondary	90	43	28	39	43	243	147	109	129	98	107	590	833	90	43	28	39	43	243	147	109	129	98	107	590	833	0	0.00	100	0	0.00	100	0	0.00	100
5. Nepal Adarsha Sec.	96	58	65	72	58	349	56	49	47	50	37	239	588	96	58	65	72	58	349	56	49	47	50	37	239	588	0	0.00	100	0	0.00	100	0	0.00	100
I. DANG																																		
1. Bharatpur Primary	144	96	71	58	45	414	-	-	-	-	-	0	414	144	96	71	58	45	414	-	-	-	-	-	0	414	0	0.00	100	0	ERR	ERR	0	0.00	100
2. Merigoid Boarding	31	24	29	23	24	131	20	9	-	-	-	29	160	31	24	29	23	24	131	20	9	-	-	-	29	160	0	0.00	100	0	0.00	100	0	0.00	100
3. Padmodaya Secondary	-	-	-	-	-	0	107	114	243	270	300	1034	1034	-	-	-	-	-	0	107	114	243	270	300	1034	1034	0	ERR	ERR	0	0.00	100	0	0.00	100
J. SALLYAN																																		
1. Sharada Primary	58	28	12	29	18	145	-	-	-	-	-	0	145	49	14	24	14	13	114	-	-	-	-	-	0	114	31	21.38	79	0	ERR	ERR	31	21.38	79
2. Tribhuvan Primary	97	56	33	20	21	227	-	-	-	-	-	0	227	94	39	21	22	30	206	-	-	-	-	-	0	206	21	9.25	91	0	ERR	ERR	21	9.25	91
3. Sharada Lower Sec.	25	14	25	18	10	92	38	33	-	-	-	71	163	25	14	24	18	10	91	38	33	-	-	-	71	162	1	1.09	99	0	0.00	100	1	0.61	99
K. JUMLA																																		
1. Malika Primary	40	13	16	20	9	98	-	-	-	-	-	0	98	35	16	18	22	9	100	-	-	-	-	-	0	100	-2	-2.04	102	0	ERR	ERR	-2	-2.04	102
2. Ratna Chandeswori L. Sec.	36	10	7	8	10	71	8	9	5	-	-	22	93	36	10	7	8	10	71	8	8	5	-	-	21	92	0	0.00	100	1	4.55	95	1	1.08	99
3. Chandannath Secondary	59	43	25	28	44	199	56	89	107	81	90	423	622	59	43	25	28	48	203	56	89	109	97	90	441	644	-4	-2.01	102	-18	-4.26	104	-22	-3.54	104
L. DOTI																																		
1. Padma Public Secondary	-	-	-	16	32	48	55	44	86	81	80	346	394	-	-	-	24	28	52	66	76	95	89	56	382	434	-4	-8.33	108	-36	-10.40	110	-40	-10.15	110

TABLE 8

Consistency of Data Across District, Regional, and Central MOE Levels

District Year	Reported by DEO			Reported by REO			Reported be MOEC		
	No. of Schools	No. of Teachers	No. of Students	No. of Schools	No. of Teachers	No. of Students	No. of Schools	No. of Teachers	No. of Students
Parsha									
2043	232	1032	32954	230	1037	32485	230	1037	32485
2044	237	1051	33766	233	1056	33766	230	1033	33766
Kathmandu									
2042	322	2665	130183	501	2655	120183	399	2628	119109
2043				524	3794	120153	524	3794	120153
2044	493	2398	128753	540	4472	88840	406	2324	88810
Shindu-paichowk									
2042				264	896	29911	255	880	27727
2043	227	929	23293	227	929	23303	227	929	23303
2044	202	950	27745	285	967	27848	264	970	26324
Kaski									
2040	376	1570	53142	375	1702	58037	372	1570	52684
2041	377	1700	53931	380	1804	59561	378	1701	53930
2042	291	1824	73272	393	1816	73272	395	1819	58502
2043	362	1825	76650	401	1957	56060	401	1957	56060
2044	365	1926	76741				396	1823	76741
Kapii-vastu									
2041	146	796	28487	198	592	37467	196	727	37165
2042	146	796	37544	202	712	37944	197	796	39023
2043	151	920	37994	208	934	36259	208	934	36259
Jamla									
2043	117	412	7823	177	412	7030	117	412	7030
TOTAL									
2040	376	1570	53142	375	1702	58037	372	1570	52684
2041	523	2496	82418	578	2396	97028	574	2428	91095
2042	759	5285	240999	1360	6079	261310	1246	6123	244361
2043	1089	5118	178714	1767	9063	275290	1707	9063	275290
2044	1297	6325	267005	1058	6495	150454	1296	6150	225641

TABLE 8 (Continued)

District Year	Number of Schools: Diff in DEO/REO	Diff in REO/MOEC	Diff in DEO/MOEC	Number of Teachers: Diff in DEO/REO	Diff in REO/MOEC	Diff in DEO/MOEC	Number of Students: Diff in DEO/REO	Diff in REO/MOEC	Diff in DEO/MOEC	Percent Error Between DEO/MOEC: % error School	%error Teacher	% error Student
Parsha												
2043	2	0	2	-5	0	-5	469	0	496	0.86%	-0.48%	1.42%
2044	4	3	7	-5	23	18	0	0	0	2.95%	1.71%	0.00%
Kathmandu												
2042	-179	102	-77	10	27	37	10000	1074	11074	-23.91%	1.39%	8.51%
2043		0			0	NA	NA	0	NA			
2044	-47	134	87	-2074	2148	74	39913	30	39943	17.65%	3.09%	31.02%
Shindu-paichowk												
2042		9			16			2184				
2043	0	0	0	0	0	0	-10	0	-10	0.00%	0.00%	-0.04%
2044	-83	21	-62	-17	-3	-20	-103	1524	1421	-30.69%	-2.11%	5.12%
Kaski												
2040	1	3	4	-132	132	0	-4895	5353	458	1.06%	0.00%	0.86%
2041	-3	2	-1	-104	103	-1	-5630	5631	1	-0.27%	-0.06%	0.00%
2042	-102	-2	-104	8	-3	5	0	14770	14770	-35.74%	0.27%	20.16%
2043	-39	0	-39	-132	0	-132	20590	0	20590	-10.77%	-7.23%	26.86%
2044			-31			103			0	-8.49%	5.35%	0.00%
Kapii-vastu												
2041	-52	2	-50	204	-135	69	-8980	302	-8678	-34.25%	8.67%	-30.46%
2042	-56	5	-51	84	-84	0	-400	-1079	-1479	-34.93%	0.00%	-3.94%
2043	-57	0	-57	-14	0	-14	1735	0	1735	-37.75%	-1.52%	4.57%
Jamla												
2043	-60	60	0	0	0	0	793	0	793	0.00%	0.00%	10.14%
TOTAL												
2040	1	3	4	-132	132	0	-4895	5353	458	1.06%	0.00%	0.86%
2041	-55	4	-51	100	-32	68	-14610	5933	-8677	-9.75%	2.72%	-10.53%
2042	-337	114	-232	102	-44	42	9600	16949	24365	-30.57%	0.79%	10.11%
2043	-154	60	-94	-151	0			0		-8.63%	0.00%	0.00%
2044	-126	158	1	-2096	2168	175	39810	1554	41364	0.08%	2.77%	15.49%

suggest that analyses which employ aggregate national level enrollment and teacher supply data may be a more trustworthy basis for planning than analyses that employ district breakdowns. National education data appear to be a better basis for education planning than is recognized by decision makers in the education sector.

Data Flow

National level decision makers judge accuracy and timeliness to be the two most serious problems with the national data available to them (Table 9). They assigned the greatest blame for inaccurate data on the headmasters for not keeping accurate records and not reporting accurately the data they did have. In general, MOEC officials did not believe arithmetic mistakes in tabulating data or in errors in transferring data from district to national levels posed much threat to data quality. The problem, they believed, was in the school.

TABLE 9

Education Officials' Choice of the Most Serious Problem with the Education Data That Are Available

Rank	Problem	Number Choosing Problem
1	accuracy of data	25
2	timeliness of data	13
3	need data that are not available	7
4	lack of clarity about what data are to be collected	5
5	the data need more analysis	3

Indeed, MOEC officials tended to blame headmasters for the lack of timeliness as well as for inaccuracies. Many government officials seemed to believe that the lack of cooperation on the part of school personnel in completing the school survey forms in a timely manners was the primary reason that data was not available in Kathmandu when it was needed – often overlooking the delays imposed by MOEC procedures themselves.

Headmasters held a more positive view of their effort, seeing the problem as one caused by poor instructions on how to complete the data requests and the variable timing of the requests. Nonetheless, they recognized that they have problems.

About 90 percent of the headmasters interviewed believe their school records were accurate or very accurate. However, what inaccuracies the headmasters did believe occurred, they attributed to the total absence of school records related to those data. They also cited the time consuming nature of completing the forms and the lack of staff needed to service the requests.

About half the headmasters experience difficulty filling out the school form; half do not understand what information is being requested. When they do not understand the directions, some seek clarification from the DEO or ask someone else in the school who may have had previous experience with the forms, but about half complete the form by taking their best guess as to what is being requested. Most headmasters claim to check the forms before submitting them, and most report finding errors. The errors detected in

this way relate to recording the data incorrectly on the form—particularly confusing columns and rows, mistakes in recording student enrollment by age, or in arithmetic errors in totaling columns and rows. All headmasters report having to respond to redundant requests for data—duplicate requests sometimes arrive at the same time (14%), but more often arrive one to three months apart (53%). Most headmasters believe more help from the DEO and better directions from the MOEC would improve the efficiency of the data flow, and believe that training in how to complete the forms and help in developing a system for maintaining school records would help improve data accuracy.

DISCUSSION OF FINDINGS

Conclusion #1: *The present system of data collection yields multiple, competing data sets that often provide discrepant information. The presence of multiple data sets undermines decision makers' confidence in quantitative data and forces them to revert other means to resolve differences of opinion on empirical matters.*

The present system results in three data sets, each providing somewhat different data on key variables within each district—the School Administration Section data, the Statistics Section data, and District data. The net result of duplicate data sets, each of questionable accuracy, each at variance with the others, and with no established patterns of disclosure, results in considerable discretion on the part of upper level decision makers as to which data they will use or whether they will use data at all. Hence, instead of improving accountability, the availability of multiple data sets, which differ widely in availability to examination, reduces accountability as disagreements among decision makers can be attributed to the use of difference data sets, none of which have a clear superiority. Hence, reference to data as a means of adjudicating differences in policy formulation may only result in deepening or accentuating differences. Resolution of differences must then be on other grounds.

Having multiple data sets has the secondary effect of undermining decision makers confidence in data, since there are multiple estimates of many aspects of the education system. At the same time, the multiple data requests at the school level undermine headmasters' respect for the data collection process. Headmasters question the competence of a system that is unable to coordinate seemingly redundant requests.

The development of redundant and eventually competing data systems is not the result of planned strategy, but the cumulative impact of incremental changes, each of which was an adaptive response to a particular need at the time. The SA section assumed data collection responsibilities in an effort to service new government policies. The SA section was designated to do this, in part, because the policies addressed school administration, but more importantly, because the policies were important and at the time the SA section was a better run and more reliable unit. They could be trusted to do the job. Function followed personal ability of the staff. However, once the function was assigned it assumed both a life of its own and its own inertia. Hence, the system evolved through incremental adoption rather than planned change.

Regardless of why it evolved into its present pattern, why is it allowed to continue in such an inefficient fashion? Three reasons appear to account for a pattern of data use that appears to be inefficient. First, at the level of the Section, individuals' status is tied to the functions of their section, regardless of duplication across sections. Secondly, top level decision making still operates heavily from political criteria. Having multiple and discrepant data sets devalues data as a basis of decision making and subtly reinforces the need for individual judgment as the means of deciding even empirical questions.

Third, some of the requests for data collections that are redundant come from powerful groups and individuals outside the MOEC. Education officials most aware of the problems of expense and data quality posed by the present system do not have the power or political inclination to ignore or counter directives from these higher authorities.

Conclusion #2: *Most data needed by decision makers in the education sector are already collected. However, the collection process requests such massive amounts of data at such detailed levels of specificity, that the analytic and interpretive demands on making use of the data overwhelm the system. The net result is that data are not available to decision makers at the time they are needed or in a form in which they can be easily accessed and used.*

Comprehensiveness in data collection has been at the cost of usefulness. The failure to establish clear priorities in data collection or analysis has resulted in a clogged system—in which analysis of the School Administration Section data can be delayed two years from the time of collection. One risk in such a situation is that decision makers misdiagnose the problem and interpret the lack of usable data as a need to collect yet more raw data from the school, compounding the problem by further swamping the data system. The problem becomes self-perpetuating.

One obvious solution, the establishment of clearer priorities for what data are to be collected and analyzed, presumes a coordination and linkage among units within the MOEC that do not yet exist. On one level this can be accomplished by administrative reorganization—for example, consolidating the units responsible for collecting and analyzing national data. However, that may offer only a partial solution, to the extent that seemingly inefficient patterns of data flow are held in place by incentive systems that operate at the level of individuals.

Conclusion #3: *Decision makers and educators frequently are not aware of the data that are available.*

One reason is that much of the data collected has not been fully analyzed and is not in a usable form. However, an equally important reason is that the MOEC does not have a systematic procedure for distributing data that Section officials need. Incentives for sharing and dissemination of data are weak. The stronger incentives are for rationing information to reinforce the stature and prestige of the providing unit. The strategy backfires because data is a perishable commodity. Its value often deteriorates with age. This deterioration, in turn, fuels pressures for further data collection, to have a fresh commodity to ration.

Conclusion #4: *Basic education data at the national level is more accurate than MOEC officials believe it to be. As such, it may provide a more useful basis for policy discussion than national level decision makers recognize.*

There is considerable consistency between data collected at school level and data for those schools at the district, regional, and national levels. There appear to be some problems in headmasters' ability to accurately record basic school data. However, to the extent that school records are accurate, the consistency between school and MOEC data denotes accuracy in the MOEC data.

The general finding, then, is that Nepal has more accurate education data than had been anticipated. Overreporting does exist, but it is not as serious a problem as expected. It is generally not a problem at school level—errors are small and essentially random. Overreporting, where it does occur, tends to be in the transmission of data from the DEO to the MOEC. Even there, the discrepancies tend to be isolated to particular years and particular districts. In districts where discrepancies occur, differences between DEO and MOEC enrollment reports generally do not reflect willful overreporting, but an adaptive response to structural problems, such as the MOEC needing data before DEOs receive it from the schools. To compensate, DEOs provide estimates for the MOEC, which necessarily tend to vary from the actual numbers. One consequence of this system is that district data sets tend to be more accurate than the data available at the Ministry level. This finding would support current efforts of some government agencies and donor groups to decentralize increased amounts of policy formulation and decision making to the district level—particularly decisions that depend on quantitative data.

Incidence of seemingly willful over-reporting appear to be isolated to specific districts. In this respect, such over-reporting is more easily fixed, as those districts can be identified and interventions appropriately targeted.

Conclusion #5: *Further efforts to improve the quality of national education data should be targeted at school level procedures for recording and archiving data.*

Ministry officials tended to blame school level personnel for perceived problems in timeliness and accuracy of national education data. However, concerns about timeliness are better explained as problems in cross-section cooperation and linkage at the Ministry level. And, errors occurring in the transmission of basic education data from the schools to the central Ministry was low. Nonetheless, final summaries are no better than the accuracy of the underlying data provided by the schools. Headmasters themselves expressed concern about the adequacy of their record keeping procedures and computational skills. Work at the school level to improve data gathering, recording, archiving procedures may by the next most useful target for activities to improve data quality. Nonetheless, these activities should await improved procedures at the Ministry level for data use.

RECOMMENDATIONS

Findings from this study provide the basis for four recommendations. *First,* responsibility for data collection and analysis activities of the MOEC should be consolidated in one Section of the Ministry. This consolidation would reduce costs and reduce demands on the schools by eliminating redundant data collections. The reduction in multiple, discrepant data sets would help build user confidence in national level data.

Second, this process of consolidation should involve a reassessment of how and to what extent different types of data are used. The Ministry should only collect those data that can be analyzed and used within a reasonable time frame; data consistently not used should not be collected. Again, this review is expected to reduce the amount and duplication of data presently collected. This will reduce and simplify the demands placed on the schools.

Third, data collection, analysis, and utilization activities of the MOEC need to be better linked to the data collection activities of other Ministries and groups. Much of the data that MOEC decision makers still want are more correctly the domain of other agencies to collect. Improved collaboration with other agencies can help integrate education decision making into larger policy framework of the country, as different Ministries operate form the same data bases. At the same time, the MOEC should do more to publicize and share the national education data available from the MOEC. Implementation of this recommendation will require careful reflection and analysis of the incentives for (and costs of) sharing data across agencies. Procedures for sharing data will work only to the extent that individuals involved in each agency believe the sharing works to the common benefit of both agencies.

Finally, this analysis suggests that national level education data in Nepal are available in greater quantity and at a higher quality level than is generally recognized. The inadequate or non-use of data in national level decision making appears to be more an issue of weak incentives for use. Changing organizational structures to speed up collection and processing will not, by themselves, improve data use unless adequate personal incentives to encourage data use already are in place.

SUMMARY

This study examined constraints on data collection and flow within the formal education system of Nepal. The study operated from a model that posits that improved data use in decision making is a function of three factors – (1) the availability of data; (2) users confidence in the quality of the data available to

them; and, (3) the adequacy of incentives to use those data. Findings indicated that more data were available than were analyzed or used and that basic education data at the national level was more accurate than Ministry officials realized. Nonetheless, data use tended to be low. It is suggested that this is because incentives for using quantitative data in national planning and policy formulation making are not well developed. Only through more careful attention to the incentive systems that operate at the individual level can efforts to implement national level education data systems be successful.

IMPACT OF RESEARCH STUDIES

As with all IEES activities, an important distinction is made between accomplishment and impact. IEES-sponsored policy research in Nepal has accomplished its goals of research capacity development and study of data quality, availability, and use. The impact of these studies will be both in specific practices and procedures to improve system effectiveness and, more significantly, in contributing to the process of organizational change leading to data-based decisionmaking within the MOEC in order to improve the efficiency of the educational system.

In terms of the first impact area, the description of redundant data collection systems and the effect of these of these on data quality and use has already resulted in MOEC examination of ways to rationalize these efforts. It is expected that the MOEC will now move to consolidate data collection and also establish procedures to link with the data collection and analysis systems of other ministries as recommended by the research report.

The second area of research impact is more difficult to specify as it is both longer term in nature and dependent upon many other factors operating within both the MOEC and other government agencies. The nature of such long-term change in the process of decisionmaking is incremental and accretive. What can be claimed at this time is that the IEES-sponsored two-year study by Nepali researchers has raised both the knowledge of and the debate about education data and its use in policy making. MOEC decisionmakers, taking part in the ministry workshop based on these research findings, were startled to find that national level education data were available in greater quantity and of higher quality than they had believed. These workshops, and the meetings of the Research Advisory Committee, have provided opportunities for decisionmakers across MOEC departments to discuss how information is used and what opportunities exist for better use of existing information. The dissemination of this report throughout the MOEC and to other government agencies has significant potential for contributing to the process of organizational change which is required for data-based policy making in Nepal.

Endnotes

[1] The larger study of data use in developing countries was funded by the U.S. Agency for International Development and conducted under the auspices of the IEES Project. For further information, see Windham, 1985; Chapman, 1989; Chapman and Messec, 1985; Messec, 1985; Gaal and Burchfield, 1988; and Dhungana and Butterworth, 1988.

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EDUCATION DATA QUALITY IN SOMALIA

INTRODUCTION

Located on the eastern Horn of Africa, Somalia has a population currently estimated at 6.1 million people. Roughly sixty percent of the population are nomadic or semi-nomadic pastoralists. Although Somalis are a homogeneous ethnic group, the country was not united as a single state until independence in 1960, at which time the former Italian colony and trust territory in the South and the former British protectorate in the North were joined. While the Somali language has long existed in an oral form, a written language has existed only since 1972, when a Latin script was chosen.

Somalia has been caught in the squeeze of the 1980s that has characterized many sub-Saharan countries. Dramatic enrollment increases during the 1970s led to rapid expansion of the education system. Quality sank as teachers were hired faster than they could be trained or than instructional materials in the Somali language could be produced. To respond to the need for teachers, teacher training requirements were dropped or not enforced. In response to the demand for teachers, teacher training was shortened from three years to two years, only to be returned to three years when graduates of the shortened program proved ineffective—but not before a cohort of less qualified teachers had been released into the schools. Primary education was shortened from eight years to six years to reduce costs, then increased again to eight years when students were unable to cover the required material in the shorter time. This experiment resulted in a cohort of less well prepared students who moved through the system.

During this time, the government struggled with the conflicting pressures posed by a declining national economic situation, increasing competition for the funds that were available, and a high inflation rate on one side with a growing social demand to expand educational access on the other—a pressure that politically could not be ignored. However, its ability to manage these pressures was seriously constrained by the lack of management capacity within the Ministry.

To service the administrative needs of a rapidly expanding education system, personnel who lacked appropriate training or experience were promoted to administrative and managerial positions. This resulted in a very weak administrative and managerial structure at all levels of the education system (Government of Somalia, 1984).

In the early 1980s, several events coincided that helped focus the potential consequences of continued educational expansion. First, during the 1970s government had followed a policy of guaranteeing public sector employment to secondary school graduates, initiated originally as an incentive to encourage students to stay in school. As enrollments grew, this guaranteed employment became a safety net, as the private sector was unable to absorb graduates at the rate they were being produced. By 1983-84, the number of students

expected to graduate (13,973) exceeded the entire number of students who graduated in the preceding four years, 1979-1983 (12,543). It was judged that if the percent of graduates receiving government employment remained the same, the government work force at the lower ranks would nearly double in one year—exacerbating an existing problem in underemployment and further straining the national budget.

Secondly, a major assessment of the education and human resources sector, conducted in 1983, found a reversal in the enrollment patterns at the primary school level, thought to be due largely to parent reaction to the low quality of instruction (Government of Somalia, 1984; 1986). The Assessment estimated that enrollments might drop as much as 25 percent by the early 1990s. This enrollment drop was presented as an opportunity to improve educational quality and efficiency, but only if the Ministry could exercise more effective planning and control over the resources flow within the education system. This required more information about the education system than was then available.

The Assessment found that inadequate planning and management and weak or non-existent coordination across subsectors was a major impediment to development of the sector. Planning and management were seriously constrained by lack of accurate, comprehensive, or timely data on the size or function of the system. A procedure was in place whereby school personnel were asked to complete a form each year reporting basic enrollment, teacher supply, and facilities use. However, the MOE had no computer capacity; the Department of Statistics in the MOE had to tabulate national data summaries by hand. Time delays in discovering missing data and transportation problems in reaching the schools reduced the ability of the Ministry to conduct follow-up inquiries when discrepancies in reporting were found. The hand computation resulted in delays of up to two years in publication of the Annual Statistical Yearbook and seriously constrained the computation of more complex projections that might have been useful in planning.

Following the Assessment, the Ministry undertook a major initiative to upgrade the collection and use of quantitative data in national level planning. With donor assistance, the Planning Department of the Ministry was provided with two microcomputers, training for Somali staff, and a long-term technical advisor to assist that department.

While these interventions improved the timeliness and sophistication of the data analysis conducted by the Ministry, officials realized they were constrained by unreliable data flow from the schools and their suspicions that the quality of the data collected at the school level was low. These suspicions were fueled by headmaster complaints that they were being asked for data they did not have or, worse, that they did not understand what was being requested by the form.

THE COLLECTION, ANALYSIS, AND USE OF EDUCATION DATA IN SOMALIA

Primary responsibility for data collection within the Ministry of Education and Culture is vested with the Statistical Division of the Planning Department which is responsible for preparation of the Statistical Yearbook issued each year by the Ministry. However, school level data also are collected by the Departments of Primary Education, Secondary Education, and Personnel. Other departments such as Adult Education, Women's Education, and Nonformal Education collect data that are more narrowly focused in scope and pertain more directly to their own area of interest. These data collection efforts are described below.

Statistical Division

The Statistical Division is responsible for the design of the main school level survey on which data are collected annually. While there is a different form used in each education level (e.g., primary, secondary, vocational/technical), the forms at each level have remained relatively constant from year to year to ensure comparability of data over time. At all the levels, the forms collect student enrollment by age, gender, and

grade; the number of teachers and administrators by gender, qualification level, and experience; and the number of classes, classrooms, and amount of support space (e.g., administrative offices, storerooms, toilets). The number of teachers by subject is collected only at the secondary level. The forms at all levels ask for data on repeaters and drop-outs, however, schools seldom provide it. These statistics are estimated later in the data analysis through cohort comparisons from year to year. The primary and secondary school forms also collect average scores for students taking the primary and secondary leavers examinations, respectively.

Until 1988, Statistical Division data forms were sent to schools in November. This distribution was accomplished by mailing the forms to Regional Education Officers (REOs) or giving them to school personnel who passed through the Ministry of Education. REOs distributed the forms to the District Education Officers (DEOs) either by visiting the districts or by handing them out as district personnel come through the regional office. District personnel delivered the forms to schools, or, more often, gave them to school personnel when they came to the district office to pick up teacher salaries for their schools. Since these visits were intermittent and, in some cases, occurred only once in three months, actual completion of the forms in the school was not scheduled until January. In early January one day was designated as data collection day across all schools. By having all schools complete the forms within the same time frame, it reduced double counting of students transferring among schools in the middle of the year—a significant problem in a society that is still primarily nomadic. At the end of this time, completed forms are returned to the Ministry by reversing the distribution process. School personnel send forms to the DEO who sends them on to the REO and eventually the MOE.

In 1988 the school year was moved forward by two months, to start in September. To align with that change, from 1988 on, data collection will be scheduled for mid-November.

The MOE provides each school with a class register and a general school register. These are forms that school personnel can use to keep track of enrollment, attendance, student performance and selected students characteristics. Presumably, if teachers complete the registers correctly, the headmaster will have the data needed to complete the annual requests for data from the Ministry. Each school receives three copies of the annual statistical survey. Upon completion, one copy is retained at the school, one at the Regional Office, and one sent to the Statistics Division of the MOE. Consequently, DEOs do not have ready access to either the data from the schools or the data summaries from the MOE.

REOs are supposed to check the accuracy and completeness of the data before forwarding the school forms to the MOE. In practice this seldom happens. Only 40 percent of the REOs involved in the present study said they did check forms and even if they check the forms, their contribution generally is limited to assuring the internal consistency of the data within the form, since they have no way of assuring that the school data are themselves accurate.

In theory, REOs are expected to develop a region-wide summary of key indicators—such as enrollment, teachers supply, facilities use. In practice, this seldom or never happens,for reasons discussed later. In either case, the MOEC Statistical Division codes the data directly from the school forms submitted by the REOs. Until 1985, hand calculators were used for all national level data analyses. Since then, data have been coded and entered into a Wang microcomputer and analyzed using DBase and Lotus programs.

Each year a draft summary of the analysis is distributed to department heads within the Ministry of Education as soon as it is available. This allows for the data to get into circulation and use even before it is available in a published form. Eventually, it is published as the Annual Statistical Report of the MOE.

In the early 1980s, the time between data collection and final publication of the Statistical Yearbook averaged about two years. With the introduction of the microcomputer, the lag time has been reduced to as

little as two months between data collection and analysis, though some delay is still encountered in publishing the Yearbook due to competing demands on the limited capacity of the government printing press.

Department of Personnel

The MOEC Department of Personnel annually conducts a separate data collection in which REOs are asked to complete a questionnaire on which they must list all teachers, administrative staff, and support personnel by salary grade. These data are the basis for recurrent budget allocations to the schools, so there is considerable cooperation on the part of school personnel in providing the data. REOs collect the necessary information by working thorough the DEOs who, in turn, get the data directly from the schools. Within the school, the form needing completion is short (two or three pages) and relatively simple to complete.

These personnel lists do not necessarily match the number of teachers and administrators that a school reports on the Statistics Division Survey since the Personnel Department survey includes those people on leave, sick, or unassigned. The Statistics Division Survey collects information only on those actually teaching or administering in a given year.

Departments of Primary and Secondary Education

Separate data collections are conducted annually by the Department of Primary Education and the Department of Secondary Education. Each department collects data on teacher supply, teacher demographics, and headmaster evaluation of teacher performance. The questionnaires also collect student promotion examination results and student grades by subject and by teacher. The teacher evaluation data ostensibly are used in the selection of teachers to become headmasters. The student examination and course performance data are used to assist students transferring across schools. The family of a student who is moving to another district can write to the Ministry of Education requesting that the student's school performance data be forwarded to the new school. While the student performance data appear to assist students mobility across schools, these data are not systematically analyzed as a means of providing qualitative data on student performance or achievement.

In addition to these school level data, the Departments of Primary and Secondary Education collects REO evaluations of DEO performance and MOE evaluations of REO performance. Again, these data are used primarily in personnel promotion decisions.

Other MOE Departments

Other departments of the MOE collect data in support of more specialized interests. For example, the Department of Adult Education, Women's Education, and Nonformal Education engage in school level data collection, though they may target only schools in which they have reason to believe some activity within their domain of interest is occurring. These data collection efforts tend to concentrate on curriculum and enrollments in their special interest programs, management issues, and teacher performance relating to those programs.

The net effect of these data collection activities is that headmasters get multiple requests to provide data. The requests, however, do tend to vary in the specific data being sought. While headmasters express some concern over redundancy, it does not appear to be a major problem. Nonetheless, there are few incentives for headmasters to provide the requested data and few sanctions if they do not. Over the last three years, the MOEC, with IEES/CIPL funding, has been holding a series of workshops to train headmasters in how to complete the data forms. Part of this training has involved telling headmasters more about why the data are sought and how the resulting analyses are used. Officials in the Statistics Division report an ap-

preciable increase in headmaster cooperation and a corresponding drop in errors in completing the data forms among those who have attended the training. The MOEC also has trained REOs in now to check school forms and how to conduct initial calculations on the data they collect at the regional level. As part of the workshop, participants were given hand calculators to keep and use in their work. Again, MOEC officials believe this has made a difference in the quality of the data coming in to the Ministry.

While improving the accuracy and timeliness of national education data has received considerable attention within the Statistics Division of the Ministry over the last five years, documenting increased data use is difficult. For the most part, the provision of computers and training in data collection and analysis have resulted in the more rapid provision of results that have traditionally been reported by the MOE rather than in the provision of new types of analyses. The annual Statistical Yearbook continues to be the primary formal reporting mechanism of national level education data and continues in essentially the same format as it has previously. The one exception is that more ratios (e.g., student:teacher; student:class; teachers:school) are reported. While no trend statistics are yet reported in the Statistical Yearbook, the Statistics Division has started computing trend and projection data for other uses, some of which appeared in the education section of the National Five-Year Development Plan.

The continued format of the Statistical Yearbook is not to imply that the new data are not used or that the increased speed with which the data are now available are insignificant accomplishments. The increased speed in analysis has meant that draft summaries of each year's data are available to policy makers earlier. This directly addresses the problem of timeliness—previously identified as a major inhibitor in decision makers' use of quantitative data. Timely data are a precondition of increased data use, especially in countries marked by rapidly changing economic conditions.

MOEC Statistical Division personnel believe that data use within the Ministry is increasing. They report that they regularly respond to ad hoc requests for data from the Minister of Education; the National Examination Board used the data to prepare for administration of the national school leavers examinations; and donor requests for data are common. The ability to provide data that can be used by donors to justify their continued investment in Somali education is especially important, given the country's heavy dependence on external donor assistance. Moreover, some local industries request and use the educational data. For example, a local textile company uses the data to project the need for school uniforms.

A STUDY OF DATA FLOW AND USE IN SOMALIA

The present study of education data flow in Somalia involved three major components. The first was a study of national level decision makers to determine the types of education data they believed they need and their satisfaction with the quality of the data currently available to them. The second component involved a content analysis of education documents to determine what types of data were already available to decision makers, its source and quality. The third component was a study of headmasters', DEOs', REOs', and central MOE officials' perceptions of the constraints and problems in data flow between the schools and the MOE.

Procedure

Data Decision Makers Believe They Need. During June 1987, 14 MOEC officials involved in national level policy formulation and implementation completed the (Somali language) "Survey of MOEC Education Decision Makers" which collected information on the extent quantitative data were available to them, the extent they used quantitative data in their work, their beliefs about the quality of those data, and their suggestions for how data quality could be improved.

Data Already Available to Decision Makers. During the fall, 1987, a content analysis was conducted of all documents published between 1965-1985 which reported education data about Somalia and which could be located in Mogadishu at the time of the study. This analysis was conducted to determine what quantitative data were already available to decision makers, the source of those data, and the consistency of presumably comparable data across documents.

Data Flow. Between May and December 1988, structured interviews were conducted with 80 headmasters to identify problems they experienced in collecting data within the school and the problems they encounter in providing school data to the Ministry. At the same time, structured interviews were conducted with selected district and regional education officers to determine the problems they encountered in collecting school level data, in communicating those data to the MOE, and in using data in management and decision making at their respective levels of the education system.

Sample

Data Decision Makers Believe They Need. Surveys were sent to all senior officials in the MOE at or above the level of department head (N = 21), with the exception of the Minister of Education, who was not included in the study. Of these, completed questionnaires were received from 14 officials, representing 65 percent of the departments and offices within the Ministry of Education. In two cases deputy directors completed the questionnaire on behalf of a department director.

Content Analysis of Education Documents. A search for published material containing education data between 1965 and 1985 yielded 31 documents. Of these 13 (39%) were published over an 18-year period (1965-1983), while the remaining 19 (61%) were all published in 1984 and 1985. While these 31 documents represent only a sample of a larger body of education reports and studies written during this time, difficulties in storage and archiving written materials have resulted in these being the only documents presently available in Somalia. Consequently, the sample represents a comprehensive set of the published data currently available to Somali decision makers.

Study of Data Flow. The 80 school administrators interviewed for this study were primary school headmasters of schools in eight regions. Due to difficulties experienced by the research team implementing a random sampling procedure (which included securing transportation to the schools), headmaster selection followed a convenience sampling procedure in which three criteria were employed. Only primary school headmasters were selected. Within that sample, schools were selected to ensure representation of headmasters from urban, rural, and nomadic areas. Finally, they were selected to ensure that schools were geographically accessible to the interview team, generally understood to mean within one day's travel from the regional education office.

Characteristics of the headmasters participating in the study are reported in Table 1. Ten percent supervised schools in nomadic areas, the rest were about equally divided between urban and rural settings. Nearly all were male and most (90%) had a teacher training diploma, which frequently meant they had only one or two years of education more than the more advanced students in their school.

Eight District Education Officers and five Regional Education Officers completing the Survey of REOs/DEOs. They were drawn from the same eight regions used in the headmaster study and were selected because of their proximity to the schools being visited.

Instrumentation

The Survey of MOEC Decision Makers collected respondents' judgments about the timeliness, accuracy, and usefulness of current national level education data, reasons for possible loss of accuracy, and

TABLE 1

Characteristics of Respondents to the Headmaster's Questionnaire

	Number	Percent
Geographical Location		
Urban	37	42.6
Rural	35	43.7
Nomad	8	10.0
Total	80	100.0
Gender		
Male	79	98.8
Female	1	1.2
Total	80	100.0
Educational Background		
University Degree	2	2.50
Teacher Training Diploma	72	90.00
Secondary	5	6.25
Primary	1	1.25
No Certificate	0	0.00
Total	80	100.00

suggestions for how data accuracy could be improved (see Appendix A). A core set of items was developed from a review of the literature on data use in developing countries (Chapman and Messec, 1985) and were selected to be consistent with parallel studies being conducted in four other countries as part of a larger research initiative. As part of this larger research effort, these items had been reviewed for appropriateness of content and clarity by a five person research team, composed of researchers from four countries. These items were supplemented with a series of open-ended items developed by the local research team.

The protocol used in the content analysis of documents was developed from a review of literature on data use (Chapman and Messec, 1985). In particular, it drew from the specification of data needed in the conduct of an Education and Human Resources Sector Assessment to support policy formulation and analysis (Cieutat, 1983; Pigozzi and Cieutat, 1988).

The interview protocol used with headmasters was adopted with substantial modifications from a sample protocol developed by Chapman and Messec (1985) which, in turn, was developed from a review of literature on data use in developing countries. The items retained by the local research team collected headmasters' reports of when they received requests for data from the MOE and their identification of issues they encountered in collecting, recording, and reporting those data at the school level. The research team dropped items which elicited headmasters' judgments about data quality and usefulness on the grounds that headmasters did not have sufficient information on those matters to have an informed opinion. These modifications are discussed further in a later chapter.

Results

Data Needs of Decision Makers. MOEC officials attached considerable importance to having numeric data with the greatest importance assigned to student enrollment and teacher supply data (Table 2). Regardless of previous individual background or experience with quantitative data, there appeared to be high expectations about the efficacy of such data in decision making. Of the five types of data rated, least importance was given to information on teacher background and qualifications. One possible reason is that, given the low level of teacher preparation in Somalia, status information on teacher qualification might prove embarrassing. Timeliness and accuracy were judged the most serious problems by both MOE officials and headmasters. Nonetheless, there was a high level of concern about problems in interpreting the data—concern that the results were not clear, the user did not understand how the data were analyzed or did not know how to interpret the results of the analysis.

MOEC officials estimated that national enrollment data had an error rate of about 17 percent. Headmasters, presumably much closer to the school level data collection procedures, estimated a substantially higher error rate, at about 23 percent. Both groups regarded a ten percent as a more acceptable level of error in national enrollment data—even though the policy implications of that much error can be substantial.

TABLE 2

Importance for School Management Assigned by Headmasters to Selected Types of Information

Category	Very Important	Somewhat Important	Not Important
Enrollment	67	6	4
Number of teachers	67	7	3
Number of classes	67	6	4
Teacher Absenteeism	61	9	7
Student Absenteeism	63	5	9
Number of Repeaters	55	11	9
Examination Results	71	4	2
Physical condition of schools	57	15	4
Supplies and equipment availability	60	10	4

Despite the importance they assign to quantitative data, MOEC officials do not believe the data presently available to them is a particularly trustworthy or accurate basis for decision making. That does not appear to daunt their hopefulness about what better data might do for them. MOEC officials believe improving the quality of education data is extremely important, even given other competing priorities within the Ministry.

While no objective evidence is available in Somalia on the amount or source of inaccuracies in national level education data, MOEC official see the major problem to be at the school level—that headmasters do

not keep accurate records and do not report accurately the data they do have. MOE officials thought it less likely that problems of data quality stemmed from errors in transferring the data between school, districts, and regional levels. They thought it even less likely that inaccuracy in national data was due to arithmetic errors in adding the numbers that are reported. Evidence will be presented latter in this study supporting their perceptions in both areas.

Data Available to Decision Makers. Published data describing the current status of the education system in Somalia traditionally has been scarce. The lack of printing and storage capacity are part of the reason. Probably more to the point is that Somali has been a written language only since 1972 (Messec, 1989). Hence, for the 22 year period examined, only 31 documents could be found. For the 18 years, 1965-1983, only 12 documents were available. Then, in just the next four years (1984-1987), 19 documents were published. A major factor in this sudden move to documentation was the contribution of one USAID-funded project (IEES), which alone accounted for 7 of the 19 documents.

To the extent that published documents reported statistical information, those reports tended to concentrate on aggregate student enrollment—less than half of the documents reported enrollment separately by primary and secondary levels (Table 3). Only one in three documents provides teacher supply data, and then only in aggregate terms. Teacher qualifications by grade, subject area, or geographical area was seldom, if ever, reported. And, only three documents in the last 22 years provided projections of teacher demand or reported cost data by either type of expenditure or by geographical area.

TABLE 3

Number of Studies Available by Category of Information

	Student Enrollment	Teacher Supply	Teacher Qualification
Area of analysis:			
Overall	19	11	6
Primary	14	8	2
Secondary	14	8	3
Vocational/Technical	19	6	0
Nonformal	7	2	0
Level of aggregation:			
Grade	5	1	0
Subject Area	2	0	1
Geographic Area	5	4	1
Age	2	1	0
Sex	7	1	0

N = 30
Numbers are not additive, since some studies fall into more than one category

Of the 31 documents, seven were sponsored by agencies of the Somali Government. With one notable exception, publications sponsored by the MOE have provided frequency data describing the status of the education system but have not provided trend or projection data. Donor sponsored and assisted studies

tended to emphasize the identification of historic trends and projections of those trends to anticipate future demand for teachers, facilities, and materials. The one exception is the most recent *National Five-Year Development Plan*, in which the MOE provided enrollment projections through the year 2000.

This pattern of different emphasis in government and donor documents, in combination with the pattern of data use described by MOE officials, contributes to an irony in educational planning in Somalia. MOE reports tend to present descriptive data about the education system while donor studies tend to concentrate on the analyses and reporting of education trends and projections. In the educational planning process, MOE personnel tend to rely on data from the *Annual Statistical Yearbook* published by the Ministry while donors tend to rely on their own analyses. Ministry personnel seldom consult donor produced studies of the education system. As a consequence of these patterns, there appear to be *two* self-contained systems of education data analysis—one created and used by the MOE, the other created and used by donors.

One possible reason for this pattern of use is that donor studies tend to be in English. Many MOEC officials have limited ability to read English, a problem compounded when the concepts being discussed (such as enrollment projections) are complex. Translating the documents into Somali would probably not alleviate the problem. Since a written form of Somali was so recently introduced (1972), many Somalis still have only a limited ability to read Somali. Equally important, many key technical concepts as yet have no clear translation into Somali (Messec, 1989). For example, only in 1987 was a Somali-English dictionary of economic terms developed. The translation of documents into Somali, while possibly an important thing to do, might not alter the current pattern of document use.

One reservation sometimes expressed about using quantitative data regards the extent that data presumably describing the same thing are consistent across sources. Inconsistency undercuts users' confidence in the data. Large inconsistencies put the would-be user in political jeopardy, as the use of such data can be challenged by opponents who can then produce competing, even conflicting estimates of the same events.

To address this reservation, one part of the content analysis of education documents involved a comparison of selected education statistics as reported across documents. Specifically, reports of primary and secondary enrollments for selected years, student retention, teacher supply, teacher:student ratio, and selected other indicators were compared across documents to determine the extent of consistency across reports. Results, summarized in Table 4, show considerable variation in reported numbers from document to document. In some cases, the discrepancies are minor and hold no particular implications for planning. For example, the *World Bank Action Plan* and the *EHR Sector Assessment* vary by only five students in their estimates of primary school enrollment in 1980/81 and by ten students in 1981/1982. Some discrepancies, however, pose a serious dilemma for planners. For example, estimates of the proportion of female teachers in Somalia range between 29 and 48 percent, a difference substantial enough to have meaningfully different policy implications.

Study of Headmasters. Nearly all headmasters report having completed the Annual Statistical Survey, though only three out of four completed a Yearly Teacher Report for their school (Table 5). While the Statistical Survey forms were received somewhat earlier than the Teacher Report forms in the schools, the time of year data requests were received in the schools varies widely for both surveys (Table 6). Receipt of the Statistical Survey ranges over three months with over a third of the schools receiving the survey after the common date established by the MOE for completion of the form. This poses some threat to data quality as time of year in which the form is completed may meaningfully affect a school's enrollment, particularly in a highly nomadic society (Chapman and Boothroyd, 1988).

TABLE 4

Comparison of Student Enrollment and Teacher Supply Statistics from Selected Education Documents (Somalia)

Data being compared	Source	Number Reported
1980/81 Primary School Enrollment		
	Strategy for Employment and Training Generation for Primary School Leavers (1980)	418,935
	World Bank Action Plan in Education	271,709
	MOE Statistical Yearbook, 1984/85	271,704
	EHR Sector Assessment, 1984	271,704
1982/83 Primary School Enrollment		
	MOE Statistical Yearbook, 1983/84	218,726
	Ten Years of Women's Education in Somalia	218,726
	World Bank Action Plan in Education	218,716
	EHR Sector Assessment, 1984 (projections)	242,963
	IEES Country Work Plan, 1987/88	207,172
1983/84 Primary School Enrollment		
	Progress and Prospects, CDC, 1982-1986 (1986)	213,747
	MOE Statistical Yearbook, 1983/84	220,780
	Ten Years of Women's Education in Somalia	215,749
	EHR Sector Assessment, 1984	236,181

Output of Technical Secondary School Leavers

	1981	1983	1984
GTZ, Summary of Findings and Recommendations of the Report on assessment and Development of Technical and Vocational Training in the SDR (1986)	411	982	1552
EHR Sector Assessment, 1984	349	483	796

Secondary School Enrollments

	1982/83	1983/84	1984/85	1985/86
MOE Statistical Yearbook, 1984/85	64,999	64,289	52,348	--
EHR Sector Assessment, 1984	49,891	51,469	40,696	--
Five-Year National Development Plan, 1987	--	--	44,618	39,785
SDR, Annual Development Plan, 1986 (targets)	--	--	--	65,000

TABLE 4 (Continued)

SDR, Annual Development Plan, 1987				
(planned)	--	--	--	60,000
(actual)	--	--	--	50,000

Number of Primary School Teachers and Percent Female, 1982-83

	Total Teachers	Number of Females	% Female
Ten Years of Women's Education in Somalia (1982/83 data)	10,065	2,959	29.0%
IEES Country Work Plan, 1987/88 (1982/83 data)	10,084	4,891	48.0%
EHR Sector Assessment, 1984 (1981/82 data)	8,371	2,528	30.2%
UNESCO, A Program for Women and Children in Somalia, 1984-1987 (1984) (1981/82 data)			
overall			33.0%
urban elementary			46.5%
rural elementary			29.0%
urban intermediate			13.0%
rural intermediate			7.0%

Estimates of Retention

UNESCO, A Program for Women and Children in Somalia, 1984-1987 (1984) (1981/82 data)	"About 35% of those who entered class I completed primary education (grade 8) in 1981-82"
EHR Sector Assessment, 1984 (based on 1980/81 to 1981/82 school years)	"About 42% of those entering class I enter grade 8" "About 30.4% of those entering class I pass the PSLE in 1981-82"

Teacher/Student Ratios

MOE Statistical yearbook, 1983/84	elementary	1:27.0
	intermediate	1:19.0
	secondary	1:21.0
EHR Sector Assessment, 1984 (based on 1980/81 data)	elementary	1:34.7
	intermediate	1:32.3
	secondary	1:24.0

Projected 1985-86 Primary Enrollments

	1985 enrollments	1986 enrollments
SDR, Annual Development Plan, 1987		
1986 target	437,227 (t)	--
1986 actual	191,031 (a)	15,074 (a)
Five-Year National Development Plan, 1987	211,504 (p)	14,899 (p)

TABLE 4 (Continued)

SDR, Annual Development Plan, 1986 (planned targets)	260,000 (t)	15,000 (t)
EHR Sector Assessment, 1984	275,698 (p)	16,789 (p)
Projected 1985-86 Secondary Enrollments	**1986 enrollments**	**1986 graduates**
SDR, Annual Development Plan, 1987		
1986 target	60,000 (t)	--
1986 actual	50,000 (a)	13,877 (a)
Five-Year National Development Plan, 1987	39,785 (p)	12,200 (p)
SDR, Annual Development Plan, 1986 (planned targets)	65,000 (t)	16,000 (t)
EHR Sector Assessment, 1984	35,710 (p)	9,152 (p)

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TABLE 5

Percent of Sample Reporting They Had Completed Each Type of MOE Survey

Type of Questionnaire	Number	Percent of Total Respondents
Annual Statistical Survey	79	98.75
Yearly Teacher Report	57	71.25
Other	3	3.75

TABLE 6

Month in Which Headmaster Received Statistical Survey 1987/88

Month	Oct	Nov	Dec	Jan	Feb	Mar	TOTAL
Annual Statistical Survey	1	8	17	27	23	3	78
Yearly Teacher Report	–	2	3	8	3	10	26

While distribution of the Annual Survey is intended to follow a system of progressive decentralization (from MOE to REO to DEO to Headmaster), headmasters report that actual distribution follows a far less systematic pattern (Table 7). About half of the headmasters receive the Statistical Survey from their DEO, a quarter receive the survey from their REO, and the remainder received theirs from a school inspector, or directly from a central Ministry office during a visit to Mogadishu. On one hand, this pattern reflects an adaptive response to the difficulties of poor communications and transportation. The trade-off is that DEOs have no clear idea of which schools have received a form and which one have not. Schools are easily overlooked. There is no way to know which schools may not have received the form, at least until forms are returned and non-responding schools can be identified. By then, however, it generally too late in the year to capture the missing data.

In nearly all schools the headmaster is the person who completes the questionnaire, but nearly half do so without the benefit of any formal instruction or training in how to complete this task. What training has occurred has come from the MOE inspectorate who, by and large, are outside of the formal form distribution and collection process (Table 8).

Most headmasters (76%) report that teacher's class registers are the most useful information source in completing the Annual Statistical Survey. However, about 20-25 percent also consult the general school register, make a special count of the students, and/or refer to the information provided on the previous year's questionnaire (Table 9).

TABLE 7

Source From Which Headmasters Report Receiving the Annual Statistical Survey

Source	Number	Percent
REO	23	28.75
DEO	42	52.50
Directly from MOE Planning Unit	6	7.50
Regional Inspectorate	8	10.00
No Response	1	1.25
TOTAL	80	100.00

TABLE 8

Training Received by Those Completing Annual Statistical Survey

Item	Number	Percent
Person completing survey		
Headmaster	78	97.0
Teacher		
Other	1	1.2
Has the person received training in how to complete the questionnaire?		
Yes	42	52.0
No	37	46.0
By whom was the training conducted?		
REO	5	6.2
DEO	3	3.7
Headmaster	1	1.2
MOE Inspectorate	26	32.0
MOE Planning Dept.	7	8.7

TABLE 9

Sources of Information Used by Headmasters in Completing the Annual Statistical Survey

Source	Number	Percent
Teacher register	19	23.0
Class register	61	76.0
General School Register	23	28.0
Observation or counting of students	24	30.0
Asking parents	5	6.2
Information from last year's questionnaire	19	23.0
Previous examination results	5	6.2
Others	15	18.0

Nonetheless, headmasters encounter a series of problems in completing the forms. Over a third of the respondents do not understand what data is being requested in some of the items, another ten percent report that the requested information is not available (Table 10). Of particular difficulty has been the item eliciting the number of repeaters by grade. About 10-15 percent of the headmasters either do not understand the question, do not have the information, or do not know how to calculate the requested data from the information they do have (Table 11).

TABLE 10

Problems Headmasters Report Experiencing in Completing the Annual Statistical Survey

Problem	Number	Percent
Information is not available	8	10.0
Do not understand the question	29	36.0
Questions do not apply to the situation	4	5.0
Questionnaire is too long	3	3.7
Other	8	10.0

N = 80, however, numbers do not total to 100% because response categories are not mutually exclusive; respondents could indicate more than one problem.

TABLE 11

Problems Headmasters Report in Completing Items
Requesting Information About Grade Repeaters

Problem	Number	Percent
Do not understand the question	16	20.0
Do not have the information	12	15.0
Do not think the information is important	2	2.5
Use automatic promotion	8	10.0
Do not have repeaters	10	12.5
Too difficult to calculate	11	13.8
Others	14	17.5

Little help in responding to these issues is available. Communication is poor. There is little, if any, regular contact with other headmasters or with representatives of the MOE. Only 18 percent of the respondents reported even receiving advice from a DEO or REO on how to complete the data request. Nor do they have tools that might make assist them in compiling the data. Only seven of the 80 headmasters interviewed had access to a calculator or adding machine (Table 12).

TABLE 12

Equipment Available to Assist Headmasters with Data Analysis

Equipment	Number	Percent
Calculator	5	6.25
Adding Machine	2	2.50
Others	12	15.00
None	51	73.75

Exacerbating the problem, about half the headmaster's reported that they do not check the accuracy of the data they provide, or do so for only some of the data before sending it in (Table 13).

TABLE 13

Extent to Which Headmasters Checked Accuracy of Surveys Before Sending Them In

Equipment	Number	Percent
All	32	40.0
Some	12	15.0
None	35	43.0

CONCLUSIONS

At The School Level. The headmaster data suggest several constraints on data collection at the school level. Not all of what are intended as comprehensive national surveys get to all the schools—only 75 percent of the headmasters received the yearly teacher report form. One result is that the presumably comparable data from those different surveys would not correspond due the substantial amount of missing data between surveys.

The receipt of those forms that do arrive is spread over more than three months. This undercuts data quality, since enrollment and teacher data within a school can vary considerable depending on time of year and, in a largely nomadic society, population movements. Complicating the problem further is that distribution of the forms is not entirely systematic, as any reasonable opportunity or mechanism to get forms to a school is used. DEOs, as a result, have no way of knowing which schools are without the appropriate request for data.

Ultimately, these factors contribute to discrepancies across different MOE reports that can fuel controversy about the real conditions at the school level and undercut users confidence in using these types of data in policy formulation and debate—ostensibly the purpose for which the data were collected in the first place.

Many headmasters find some of the items confusing and are not sure what data is being requested or how to analyze them. Sometimes this can be traced to a lack of the relevant data in the school. More often, it appears to be due to data requests that are unclear or which require computations that the headmaster does not know how to perform. Efforts to simplify or clarify the items might improve the quality of the data collected. Extending the headmaster training already underway would yield additional improvement in the data, although at a considerably higher cost than incurred by merely improving the questionnaire.

A yet greater challenge facing the Ministry is to create incentives for school personnel to complete the questionnaire fully and carefully once it reaches the school. Headmasters report data because they are told to. It costs them time and energy, yet they see nothing of benefit in return. At the same time, there appear to be no consequences for failing to return a completed form.

In some countries, resource flow to the schools is tied to information contained in the survey, so that forms have to be completed before supplies, salary, or some other commodity are released to the school. In other countries, headmasters receive a small fee for completing the form. These systems may not work as well in countries like Somalia, in which communications between the MOEC and the schools is so weak. The logistics of rewarding the headmasters would be a problem.

However, developing monetary incentives to encourage the return of completed questionnaires, while possibly resulting in better national level data, does not necessarily increase the headmasters understanding of (or interest in) the potential uses of the information they collect for improving the efficiency of instructional activities within their own school. It is unlikely that data collection will be improved meaningfully until data providers see some value or consequence based on the data they provide. At present, this does not occur.

Headmasters seldom, if ever, see the statistical summaries of the data they help provide. The data do not help them run their schools, and how the data help MOEC officials run the education sector is largely invisible to them. They have very little idea of who in government uses the data or what decisions are informed by the information. More attention to sharing the results with the schools (even if school people have no immediate use for the data) may help improve data quality and timeliness, as headmasters can see the product of their work.

Sharing the results of MOE analysis with headmasters, however, offers only a partial solution. Given headmasters training, it is unlikely they would be able to make much sense of tabular data as presently reported in the Annual Statistical Yearbook. An alternative strategy would be to provide a short written statement describing major trends and developments in the education sector based on the annual data. Such a statement could be sent to each headmaster to help involve them in the issues faced by the larger education system and to let them know the data they provide are used. While this strategy might have some incentive value, the real pay-off will come as headmasters find ways to use the data that they collect to improve the efficiency of the operation of their own school. This will require that headmasters be able to meaningfully influence the inputs and processes that characterize their school, and that they have the training necessary to exercise that influence in ways that yield a better education for students.

Even if headmaster skills and motivation are addressed, Somalia faces a continuing problem of communications between the Ministry and the schools. As the country faces worsening financial conditions, it is unlikely that better transportation with which district or regional education officers can get to the schools will be available. The present system of distributing survey forms by any and all means available represents an adaptive response to the poor communications, but creates its own set of problems. No mechanism exists for identifying which schools have not received forms or which schools have not reported data. Given the high rate of school openings and closings, it is difficult for data analysts, unable to travel outside the capital city, to determine if schools missing in the national data summary represent a headmaster's failure to report data or a school closing.

At The District And Regional Levels. District Education Officers are ciphers in the process of data collection and use. They are intended to play an important role as a communications link between the Ministry and the schools—although that role is largely constrained by the lack of transportation and the ability to communicate with either the Ministry or the schools. DEOs are not expected to summarize data at the district level, appropriate since virtually no educational decisions are made at the district level. Nor do they receive copies of the annual MOE statistical survey. Printing costs make distribution to DEOs prohibitive. Consequently, they are not in a strong position to communicate national findings to the headmasters whom they do visit. This means that the MOE administrative layer closest to the schools has no administrative function and little knowledge base for helping school personnel use quantitative data in school operations or in interpreting the practical implications of national level data for school practice.

Regional Education Officers presumably have more influence (than DEOs or headmasters) over the inputs to schooling in their regions. This influence is constrained by the overall low level of resources available to the schools from the central government. Nonetheless, REOs can make teacher hiring and assignment decisions and resource distribution determinations. Ideally, these decisions can be informed by the data the REO receives from the school and from national data summaries. In practice, little informing occurs. REOs report that they do not understand the data or the implications of those data for school practice. They are forced, then, to ground their work with the schools in other bases than systematic quantitative data.

At The National Level. Efforts over the last five years to improve the data system, particularly the introduction of microcomputers, have resulted in more rapid analysis and improved availability of descriptive data about the system. This directly addresses a primary concern of many Ministry officials that quantitative data has not been available in a timely manner. As timeliness improves, however, greater attention will focus on two other concerns—accuracy and use.

Accuracy. The primary issues of accuracy relate, first, to whether the headmaster correctly gathers and reports school level data on the annual form and, second, whether these forms are received from all the

schools. Findings from this study suggest headmasters have substantial problems in providing the data now being requested and that schools are not consistently represented in the national summaries.

Once the data are received in the MOEC, there is considerable confidence expressed in the ability of the Statistics Department to analyze the data accurately. Evidence from this study supports the claim that data entry and arithmetic errors generally are not serious threats to overall data quality.

There are frequent discrepancies across documents in reports of what are purported to be the same educational statistics. This is due to the multiple data streams created by so many different departments of the Ministry collecting data from the schools with virtually no cross check to make sure the different data sets include the same schools.

Tying Improved Data To Improved Efficiency In Education. The improved ability to analyze data has not yet resulted in the reporting of new or different educational data. For the most part, the emphasis has been on more rapid reporting of the descriptive characteristics that have traditionally been reported by the MOE. The capacity to compute trends and projections is now available in the Ministry, but such analyses are undertaken only on an *ad hoc* basis in response to special requests. Since MOE personnel generally are unfamiliar with the interpretation or use of trend and projection data, little demand for such data exists, except from external donor groups (as discussed above). Nonetheless, the computerization of national education data satisfies one precondition for the eventual use of projections in educational planning.

Nearly all the preconditions of good data in Somalia use have now been met. The capacity to analyze data in ways that support improved efficiency is now in place. What now is needed is a coherent plan of action that links data to decision making. Data is a necessary but not a sufficient condition of improved educational efficiency.

Data Use. For the most part, data are not used in systematic activities to improve educational efficiency. One reason is the serious resource constraints facing the government. Given the lack of resources, there are relatively few meaningful resource allocation decisions to be made that would impact on overall system efficiency. Second, while the improved data could be used to support better teacher assignment and instructional material distribution systems, the regulations and internal structures necessary to support such assignments programs are not yet in place. Teachers are not easily uprooted and instructional materials are not yet available in amounts that require an elaborate distribution formula. Third, the loosely coupled nature of the Ministry organization itself works against systematic data use (Weick, 1976). Departments operate with considerable autonomy and little coordination or linkage. Collaboration across departments, even in how school level data are collected and used, is not necessarily seen to be in the best interest of Department leadership (Chapman, 1989).

These factors do not diminish the importance of improved information in improving the efficiency of an education system. Rather, they help keep the contribution in perspective – as a necessary but not sufficient condition of improved resource allocation.

At present, a primary use of the education management information system in Somalia is in securing donor funds. Increasingly, donor agencies are placing demands on recipient governments to justify the need for funds with arguments that draw heavily on quantitative analyses of the current and projected status of the target sector. The greater accessibility of the data and the capacity of the Statistics Division to conduct special analyses needed by donor groups to justify their investments in the education sector may result in an improved ability to capture external resources in the education system. While this is a high priority of the Ministry, its impact on efficiency depends on the care and planning that goes into the design and eventual implementation of the donor funded activities.

IMPACT OF RESEARCH ACTIVITIES

This IEES-sponsored study of information flow and use in Somalia was designed as policy-oriented research in keeping with IEES Project goals of improving the efficiency of educational systems. As with all IEES activities, an important distinction is made between accomplishments and impacts. The distinction is analogous to that between internal and external effectiveness. Project accomplishments are indicators that the project is achieving the results established as goals of its individual activities. Impacts are defined as the effect of project accomplishments on country policy and practices that determine the ultimate effect on HRD system and institutional efficiency. In Somalia, EMIS research activities have accomplished the primary goals of building MOEC research capacity and describing the present state of educational data availability and use. The impact of this two-year effort has already been demonstrated in several ways. The Research Advisory Committee meetings have provided a forum not only for discussing research issues, but also for moving towards the organizational structure within which data-based arguments can be made for MOEC policy changes. The National Dissemination Seminar, held to discuss the research findings, provided an even broader forum for discussing data use and availability.

As noted in the discussion above, little demand now exists among decisionmakers for trend and projection analyses; indeed, there is little understanding of the meaning of these analyses. As the EMIS research team now distributes their research report and undertakes the follow-up studies they have identified, the greatest impact of their research may be in the demand created for information beyond descriptive characteristics and the change toward an organizational structure which is able to implement the policy changes such information supports.

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REPORT ON
EDUCATION DATA MANAGEMENT
INFORMATION SYSTEMS

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ABBREVIATIONS

CBS	Central Bureau of Statistics
CTSDC	Curriculum, Textbook, and Supervision Development Centre
DEO	District Education Office
EMIS	Education Management Information Service
IEES	Improving Educational Efficiency System
M&S	Manpower and Statistics
MIS	Management Information System
MOEC	Ministry of Education and Culture
NCC	National Computer Centre
NESP	National Education System Plan
REO	Regional Education Office
SA	School Administration

1.0 INTRODUCTION

The world is experiencing an explosion of information. Telecommunication systems and computers make the transfer and manipulation of information increasingly fast, easy, and accessible to a variety of users. Increased access has heightened the use of information in planning and policy making. Information helps planners decide how best to reach targets or plan for the realistic growth of a system. Information allows policy makers make the best choice among a series of alternative approaches and anticipate the consequence of a policy decision.

Nepal is also participating in this information explosion. Certainly the education sector is experiencing an increasing need for information to use in planning for such programs as the universalization of primary education, the locations of new schools, the 10 plus 2 program, for the expansion of secondary educations, and the 150 hours teacher training program. Although basic policy has been set, information is critical for assuring that these programs are successful.

As demand for information grows, it is important to assure that there is a system for providing information in a timely, reliable way. Data have to be available when they are needed and in a form that is useful for the planning or decision making process. Only then can data be considered information. The purpose of this study is to describe in detail the present sources of data for the Ministry of Education and Culture (MOEC) and how data are collected and used. The ultimate objective of this study is to assure that the future information needs of the MOEC are met.

EDUCATION MANAGEMENT INFORMATION SYSTEMS

The explosion of information has created a new field—the organization and development of systems to manage information from the point of data collection through the transformation of data to information to the ultimate use of information by policy makers and planners. In education, such a system is called an Education Management Information System (EMIS). The purpose of such a system is to provide information for the management of the education process.

Nepal has an EMIS, but it is in the initial stages of development. This report will describe the current status of this system. To gain a sense of how the EMIS system in Nepal will need to develop, characteristics of an ideal EMIS are described in the following paragraphs.

1. An EMIS provides information not data. Data are numbers without useful meaning for planners and policy makers. Usually data are the raw figures collected from schools. These data need to be transformed into information, that is, into a form that can be used for planning and decision making.

2. An EMIS provides information that is relevant to the needs of decision makers.

3. An EMIS provides timely information. Information needs to be at the point of use when it is needed, not days or weeks later.
4. An EMIS provides accurate data by assuring that the data collection system has built in checks and incentives to assure that the data that are reported are correct.
5. An EMIS is comprehensive: it provides complete coverage of all levels of the educational system.
6. An EMIS is accessible to those with information needs. It assures that needed information is disseminated to users and that information can be provided as the need arises.

A comprehensive EMIS incorporates a number of different processes through which raw data are transformed into useful information. These processes are outlined below:

COLLECTION
↓
PROCESSING
↓
STORAGE
↓
ANALYSIS
↓
DISSEMINATION

Data collection begins at the point where data originate, usually at the school level. The quality of the data depends on the degree to which standardized records are carefully kept at the schools. The collection process brings the data to a central point where processing begins. Processing includes the review and checking of data, data organization, and also entry of the data into computers if computers are available. Data are stored in data bases where they are easily accessible for further reporting and analysis.

Data analysis is the process by which raw data are transformed into useful information by applying criteria and priorities established by decision makers. The needs of the policy and planning processes determine the final form the information will take. Finally, information is disseminated to policy makers, planners and other users.

A good EMIS should provide information valuable for:

- policy making,
- target setting,
- designing implementation strategies,
- planning,
- establishing standards,
- mobilizing and allocating resources,
- monitoring program and policy implementation,
- evaluating programs and policies, and
- assessing needs.

Computers have a major role to play in an EMIS. First, computers allow large quantities of data to be processed quickly and with a high degree of accuracy. When data are stored in computers they are accessible within moments and can be arranged and sorted to suit the needs of users and the next stages of data processing. With a computer, large amounts of raw data can be quickly analyzed using sophisticated ap-

proaches which can filter information and present it in a form specifically tailored to the needs of decision makers.

The availability of computers also enhances information flow. Computerized data can be easily duplicated, transferred to other computers, and printed out. In addition, computers in combination with mass communication systems allow for the rapid transfer of information to all corners of the earth.

A fully comprehensive EMIS is an elaborate and technically complex system. Frequent communication among all parts of the system is essential if the system is to meet the needs of decision makers. The above paragraphs have described aspects of an ideal system. Nepal is working to improve its EMIS. As more accurate and timely information becomes available, users will be able to base their policies and plans on increasingly better representations of what is actually happening in schools and districts. Better plans and policy decisions will result in the improved allocation of resources and in more successful programs.

2.0 PURPOSE OF THE STUDY

The main objectives of the study are as follows:

1. To identify data needs of the MOEC and other agencies involved in the education sector of Nepal.
2. To describe the process by which data are being collected, analyzed and disseminated.
3. To assess the quality, coverage and timeliness of data currently available to senior officials in the MOEC and other agencies.
4. To examine how currently available educational data are being used by senior officials, opinion makers, and others.
5. To identify existing data gaps and their effect on the decision making process.
6. To identify issues related to the use of Microcomputers in EMIS.
7. To make recommendations for improving the EMIS.

3.0 METHODOLOGY

3.1 SCOPE OF STUDY

This study concentrates on the formal school system: the primary, lower secondary, and secondary levels. This study examines the existing EMIS structure with a view to making suggestions for improving the quality and efficiency of EMIS within the MOEC and its related sections.

3.2 METHODS

In order to achieve the objectives mentioned above, a variety of methods were used to collect data. These included interviews with both structured and unstructured questions, document monitoring, and cross comparison of data reported from different sources.

Interviews were conducted with MOEC, Regional Education Office (REO), and District Education Office (DEO) staff as well as with headmasters. Education reporting in local newspapers was monitored and major documents in the education sector were reviewed for content. Reports of basic education data were collected from schools, regional, district, and central education offices. These were then compared for data consistency. Data tabulation forms submitted by districts were then compared for data consistency. Data tabulation forms submitted by districts were also checked for arithmetic errors.

3.3 DESIGN AND ADMINISTRATION OF DATA COLLECTION INSTRUMENTS

In order to collect data in a systematic way, various data collection instruments were developed. These instruments and their administration are described in detail below.

3.3.1 Questionnaires

Three different questionnaires were designed. The first questionnaire was designed for the personnel of the MOEC including District and Regional Education Officers. This consisted of questions related to perceptions of data accuracy, the use of data in decision making, and the flow of data from the source to the MOEC.

A second questionnaire was designed for educational data users outside the MOEC. This reviewed the type of educational data they use, their sources of data, frequency of use, and their perceptions about the accuracy of data which they are using.

A third questionnaire was designed for school headmasters and teachers. This requested information on the difficulty of completing the data collection forms. It recorded the types of records kept regularly by the school and the suggestions of the headmaster for improving the quality of the data.

English translations of the questionnaires are given in Appendix A.

Two persons, including the research coordinator, were involved in interviewing the MOEC personnel and District and Regional Education Officers in Kathmandu. Five groups, consisting of one senior research supervisor and one senior research assistant each, were sent to the five development regions to collect data. Five Regional Education Directors, 15 District Education Officers, and 90 school headmasters were interviewed in 15 districts of the Kingdom.

3.3.2 Documents Review

This component consisted of examination of reports published by both governmental and non-governmental organizations that were available to senior officials. To ensure that documents were analyzed

in a systematic and consistent fashion a document review form was used in conducting the analysis. The form recorded the topic and type of data reported as well as the funding source, agency/office who conducted the research, the way the documents were distributed, and the intended audience for document. A sample of the form is given in Appendix B. The form developed by the research team was completed for each document under review. Later these forms were tabulated and analyzed by the team.

Sixty-seven reports containing educational data were monitored. Libraries of the MOEC, New ERA, CERID, TU, CNAS, CEDA, APROSC, World Bank, and USAID were consulted for this purpose.

3.3.3 Data Comparison

In order to determine the accuracy of basic educational data, data reported to the MOEC were compared with data available at schools. The research team took a copy of the 1986 (2043) Manpower and Statistics (M&S) Section data collection form on file with the DEO to each of the sampled schools. The team first tried to verify if the school had ever completed the data collection form of the M&S Section of MOEC for 1986 (2043).

Without revealing the data collection form from the DEO, the research team asked the school to provide student enrollment data for 1986 (2043). When the school provided the requested data, the team compared these figures with those on the form.

Similarly, the research team collected district level data on student enrollment, the number of teachers, and the number of schools for a number of years from the DEOs, REOs, and the MOEC. The data received from these different sources were also compared.

3.3.4 Monitoring of Local Newspapers

Two daily newspapers, the *Gorkhapatra* and the *Rising Nepal*, and two leading weekly newspapers, *Desantar* and *Bimarsha*, were monitored for the publication of educational data between November 1987 and September 1988. The data published by these newspapers were tabulated on a form similar to that used for the documentation review.

3.4 SAMPLING

The study of data needs of senior officials of the MOEC and their perceptions of data quality included a total of 45 national level senior personnel working in the education sector. The sample included all central MOEC officials at and above the rank of Under Secretary. This group also included four section officers who were serving as acting under secretaries. In addition, the study included all five Regional Education Officers and District Education Officers from the 15 districts that formed the basis of the school sample (described later.) Finally, the group also included one professor from Tribhuvan University who had been working with MOEC data at the University.

In addition, four users outside the MOEC were interviewed. These were all representatives of donor agencies: World Bank, UNICEF, USEF, and USAID.

The school sample was selected using a multistage sampling process developed with the help of the M&S Section of the MOEC. Districts in each of the five developmental regions of Nepal were categorized into three geographical groupings: Mountain, Hill, and Terai leading to the selection of the following 15 districts.

Development Zones	Districts
Eastern Development Zone	1. Jhapa 2. Dhankuta 3. Sankhuwasabha
Central Development Zone	1. Kathmandu 2. Sindhupalchowk 3. Parsa
Western Development Zone	1. Kaski 2. Gorkha 3. Kapilvastu
Mid-Western Development Zone	1. Dang 2. Sallyan 3. Jumla
Far Western Development Zone	1. Doti 2. Bajhang 3. Kanchanpur

Schools were categorized into six school types: primary (grades 1-5), lower secondary (grades 1-7), secondary (grades 1-10), proposed primary, proposed lower secondary, and proposed secondary schools. Proposed schools are those which have formally applied for and received permission to offer more grade levels on a provisional basis while their application for permanent status is being reviewed. For example, a proposed lower secondary school is an approved primary school which also offers instruction for grades 6 and 7 on a private basis.

Within each of the 15 districts one school was selected within each of the six schools types, for a total of 90 schools. In selecting a school from within each school type, the research team sought to ensure distribution across two additional dimensions: better school structures versus poorer school structures. Once schools were arranged on these criteria, schools which fulfilled all the criteria and also which had easy physical access were selected. This was necessary to ensure that the site visits could be completed within the time frame of the study.

4.0 FINDINGS

4.1 HISTORY OF DATA COLLECTION

Nepal's experience with modern education began almost 40 years ago. Only since the early fifties were serious efforts made to broaden access to education. The collection of educational data was not a priority at that time. One of the reports of the Nepal National Education Planning Commission described the situation in 1953 as follows:

> ...but there is still no uniform system of records from which to draw information and data. As a matter of fact, new schools are opening so rapidly – and a few are closing almost before their opening can be recorded – that it is impossible to obtain accurate figures. Even the Education Department's figures vary considerably from day to day because new reports are coming in from the Inspectors.

In 1962, a division for Research, Planning, and Statistics was established in the MOEC. One of its first tasks was to provide quantitative information for overall planning in the Fourth National Five-Year Plan. Later, in the mid-sixties, this division started to distribute data collection forms to schools which were processed manually. The first Educational Statistics Report was published in 1964-65 (2025). This Yearbook has been published annually ever since.

This Yearbook reports the number of students, teachers and schools by district and is the primary source for all basic education data. With the introduction of the New Education System Plan (NESP), there developed a need for manpower projections. "Manpower" was added to the title of the Section, which was located within the Planning Division. One of the main responsibilities of the Section was to provide the quantitative information required for the planning to be done by different sections of the Ministry.

In the early eighties, teachers were granted a status equivalent to the civil service. This necessitated keeping detailed teacher records for retirement liability and other purposes. Also, the MOEC implemented a policy to evaluate all schools in the country and to award cash prizes to those schools scoring the highest. This required the collection of detailed evaluation information from each school. The Manpower and Statistics (M&S) Section did not have this additional teacher and school data and so the School Administration (SA) Section was asked to assume responsibility for their collection.

Subsequently, the SA Section developed a 52-page form for collecting data on 50 different evaluation criteria which was to be completed by each school (see Appendix C). This form duplicated data requested by the M&S Section, but was seen to serve a different purpose (i.e., the awards program).

In the following sections, a detailed description of the data collection process used by each of these sections will be presented.

4.2 MANPOWER AND STATISTICS SECTION

To carry out its responsibilities, the M&S Section collects educational data from all the districts. In 1986 (2043 B.S.), the M&S Section reintroduced the use of a data collection form, four pages in length (see Appendix D), to be completed by each school. This form collects basic educational data on the grades running in a school, student enrollment, and teacher background. School forms had been used in the sixties for data collection but their use had been phased out. Prior to 1986 (2043), the M&S Section sent out a summary to be completed by each district but there was no standardized form for collection of data from

schools. Presently the M&S Section is staffed by one Under Secretary, three section officers, three non-gazetted 1st class officers, two non-gazetted 2nd class officers, and one worker.

4.2.1 Data Collection

This section reviews the data collection process, beginning with the sending of school forms to districts for distribution to the schools and ending with the return of district summary forms to the M&S Section.

The timing of the distribution of data collection forms to the DEO from the MOEC has varied over the last three years. In 1986 (2043), the forms were dispatched in May (Balsak Nepali month), asking the school data for the month of August - September (Bhadra). In the following two years, the forms were dispatched in June (Jestha) and February - March (Falgun) respectively asking schools to provide data based on mid-April (end of Chaitra). The earlier reference month for data collection was made in order to collect data from schools earlier so that these data would be available sooner for planning purposes. These data collection forms are sent by post to the 75 DEOs. It takes between three weeks and three months for the forms to arrive at DEOS.

The frequency of visits to schools varies considerably. In rural regions, many schools are 1-3 days walk (each way) from the District Education Office. All DEOs post a notice on a notice board requesting visiting teachers to collect the forms and to submit the completed forms within 2-3 months time. After repeated verbal requests to visiting teachers, and sometimes by taking punitive action such as temporarily stopping the school's grant money, the DEOs force schools to submit their forms. Such punitive action may have undesirable consequences in terms of the quality of the data provided. For example, four DEO staff reported to the research team that teachers had been found completing the forms while at the District Center without access to school records. The delivery and retrieval process takes nearly 4-5 months.

The average length of time these forms were held at the DEO and at schools was calculated by noting incoming and outgoing dates of these forms on the records kept at these offices. The M&S Section's data collection form for 1988 (2044) was selected for this analysis. According to Table 4.1, the average time that the M&S Section forms were held at DEO before being distributed to schools was 81 days. The delay in distributing data collection forms to schools is due to the distribution process described above.

The schools return three copies of the completed data collection forms to the DEO keeping the fourth copy at school for future reference. The DEO keeps one copy and sends one each to the REO and to the MOEC. The M&S Section asks the DEO to report the school level data on a district summary form supplied by the M&S Section. To assist in the preparation of this district summary, the M&S Section also supplies a form for tabulating the school data. The DEO generally assigns one primary or secondary supervisor to look after the tabulation work. Most of the time the actual tabulation is done by a "Mukhiya" or "Kharidar" in the DEO. The "Mukhiya" or "Kharidar" are clerical staff and only have grade ten or School Leaving Certificate (SLC) pass respectively. Waiting for all the forms to be returned and the lack of skilled manpower at the office to tabulate data were the reported reasons for the long delay at the DEOs. For example, Jumla did not start tabulating the forms for 8-9 months because of the lack of skilled manpower. After tabulation, the aggregate figures for the district are copied to the summary form.

There are wide variations across regions in the length of time the forms are held at each point. This suggests that delays are not so much due to logistical constraints, but rather that they are a function of the commitment of each level to making the process work.

Four DEOs reported that for the schools which failed to submit their forms on time or prior to tabulation, the school data is estimated from the school's prior year's records or from the monthly/quarterly report submitted by these schools. In general practice, the DEO staff increases the schools' figures by about 10 percent.

TABLE 4.1

Tracking of Data Collection Forms of 2044 by Region
(in Days)

Development Regions		DEO before distributing to schools	School before returning to DEO	DEO before sending Summary form to MOEC	Total
Eastern		58	54	174	286
Central		72	32	214	318
Western		126	20	120	266
Mid-Western		67	57	196	320
Far-Western		NA	41	217	—
TOTAL (Average)	Days	81	41	184	297
	Months	2.7	1.4	6.1	9.9

In 1986 (2043), a workshop on how to complete the tabulation as well as summary forms was held at the REO for two staff from each DEO. A follow-up training workshop was held jointly by the REO and M&S Section in December 1988 (Mangsir 2045). For the 1988 (2045) training program, the DEO staff brought the already collected data forms from each school to the workshop where the actual tabulation occurred. The summary form was also prepared during the workshop for those districts that brought a complete set of school forms. Both the 1986 (2043) and 1988 (2045) workshops were supported by the Improving the Efficiency of Educational Systems (IEES) Project.

One copy of the completed summary is forwarded to M&S Section of the MOEC, a second is sent to the REO, and a third is retained by the DEO for its records.

The summary forms for 1987 (2044) started arriving in the M&S Section in April-May 1988 (Baisakh 2045). The last forms were not received until September-October (Aswin), six months later. The first districts to return their forms show no general pattern as to location. The first districts included Taplejung, Lalitpur, Rautahat, Dhading, Kaski, and Jagarkot. It does not appear that the remoteness of a district affects the speed with which summary forms are prepared and sent to the MOEC. Size, however, may be a factor. Kathmandu tends to be one of the last districts to report.

All subsequent analysis in the M&S Section is based on the district summary data. When the district summary forms are received at the M&S Section, the data are checked for inconsistencies with prior years' data. If there are questions about the data, a wire and/or letter is sent to the district for clarification. Often this is followed with repeated wires before a satisfactory response is received from the district.

Since 1986 (2043), the Section has had IBM compatible computers provided by the IEES Project. Summary data are entered in the computer and basic tables for publication are prepared. National level summaries for 1987 (2044) were available in November 1988 (Katrick 2045). Preliminary data for 1988

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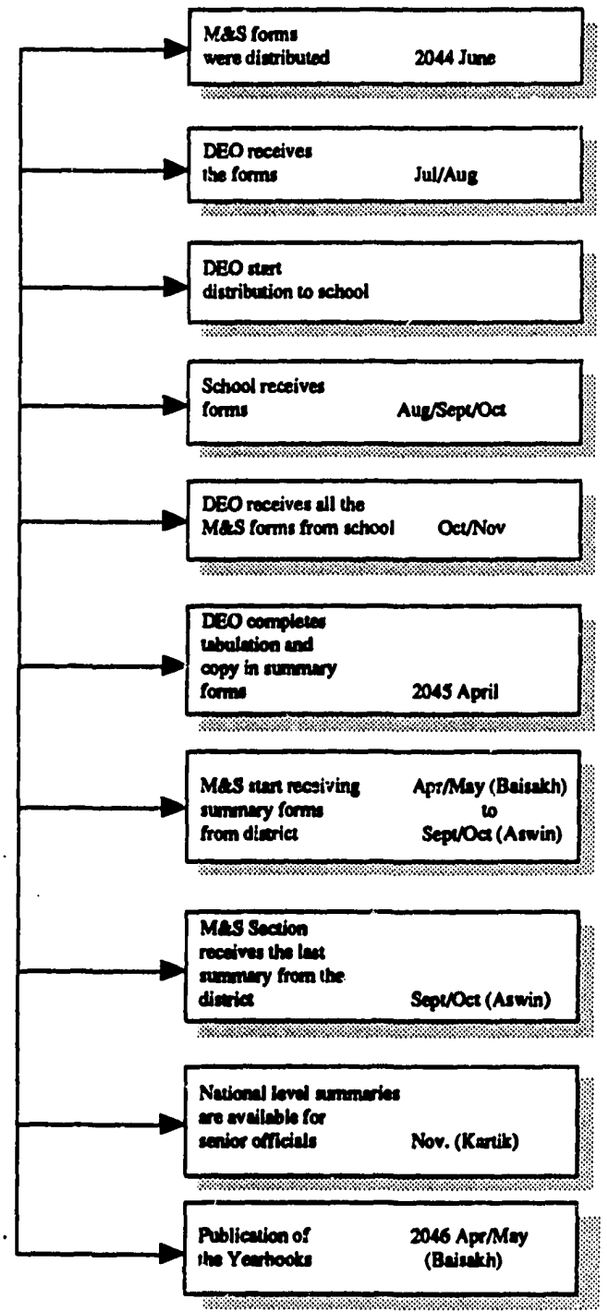
(2045), however, should be available by March 1989 (Chaitra 2045). The Statistic Yearbook (2044) will be published in April 1989 (Baisakh 2046). As shown in Figure 1, it takes almost two years for the data collection/reporting cycle to be completed.

FIGURE 1

Average Time Required at Different Points of Data Collection Process of 2044 M&S Forms



4.3 SCHOOL ADMINISTRATION (SA) FORM

The fifty-two page school administration form collects data on a wide variety of topics. These are briefly summarized below:

Topic	Types of data collected
Classes:	Type of approval, dates, school calendar, class schedule, prizes.
Facilities:	Number of buildings, rooms, ownership, quality, use of rooms, toilets, drinking waters, furniture, library, office/educational/sports materials, land, resources for providing above facilities.
Students:	Enrollment, examination pass/fail, repeaters, new students, preprimary, boarders, scholarship, vocation/optional subject enrollment, ages.
Teachers:	Number of posts, teachers appointed since NESP, government/private, date and status of appointment, salary, allowances, grade, qualifications, and address.
Finances:	Fees, income and expenditure for 5 years, auditing.
Extra curricular activities:	Types, frequency, competitions, ceremonies, social service, cultural shows, educational excursion.
Administration:	Cooperation with district, role of school managing committee.

The School Administration (SA) Section's data collection form is also given to DEOs for distribution to schools. One copy of the form is distributed to each school. The process begins with forms being sent out in about April. Prior to 1988, the SA Section also relied on the postal system; the method for distributing the forms was the same as for the M&S Section. However, because the SA Section has more resources, in 1988 they sent cables to REOs who then sent a REO representative to Kathmandu to pick up the forms. Subsequently, the REO distributed the forms to the DEO. The DEO distributes one copy of the form to each school. School distribution still relies on a school representative picking up the form during a visit to the DEO. The distribution/collection mechanism from the DEO to school and back to DEO is the same as for the M&S Section form. However, by avoiding reliance on the postal system, the SA Section data collection forms generally reach schools before the M&S Section's forms.

The average time the SA forms were held at DEO and at schools was also collected. The SA form for 1986 (2043) was used for this analysis because the SA 2043 form and M&S 2044 form collected the same academic year's data. Table 4.2 presents the average time that the SA forms of the MOEC were held at

DEO and at schools. On the average it took nearly three months (82 days) for all these forms to reach the schools.

The demands placed on school personnel who complete the SA form are substantially greater than those imposed by the M&S form. On average, the SA form requires five times longer to complete than the M&S form. The SA data form, as mentioned earlier, is 52 pages and asks for more detailed data as well as types of financial information and facilities data not requested on the M&S form. An average of 12.3 days was required to complete this form. However, the length of time ranged from 1 to 90 days. Hence, even though the SA form is received about the same time as the M&S Section forms in many schools, it takes longer to complete and generally is returned to the DEO later.

TABLE 4.2

Tracking of SA Data Collection Form by Region (in days)

Development Regions		Average No. of Days Forms Remained at DEO before distributing to schools (1)	School before returning to DEO (2)	DEO before sending to REO (3)	Total 1,2,3
Eastern		76	61	59	196
Central		87	77	133	297
Western		82	48	NA	NA
Mid-Western		130	25	70	225
Far-Western		34	38	94	166
TOTAL (Average)	Days	82	50	89	221
	Months	0.7	1.7	3.0	7.4

Schools were found to hold data collection forms for about one and a half months on an average. All schools under study reported that the SA form was too complicated for them to understand and complete correctly. They also reported that since the form was too long and sought data from a number of prior years, it took a long time to fill out. Also schools were not aware of the importance of the data and thus did not hurry to return the form. Staff disliked completing the form and viewed the request as a laborious task with no utility. Most schools, especially primary schools, had very poor record keeping systems (see Section 4.5).

At the District Education Office, these forms are reviewed by one of the staff who is paid 10 rupees per school form for editing and checking. Such a checking process is not built into the M&S Section form collection procedure. However, this checking concentrates on identifying only missing or illegible data since the DEOs lack information for actually auditing the accuracy of the figures reported. It is reported by the

staff of the DEO that such checking has never been satisfactory. They feel the practice should be discontinued or revised.

Data on the SA form are not summarized at the district level; rather the single school form is sent to the REO and the REO dispatches that form to the SA Section in Kathmandu. The REO does nothing to the form except sign it. However, the reason for sending these forms to the REO is to get verification of the data reported by schools from the REO also. Once reviewed in Kathmandu, the SA section sends the individual school forms to the National Computer Centre (NCC), a semiautonomous government agency, to have the data entered on the computer. It typically takes the NCC 12 to 18 months to computerize these forms, conduct a preliminary analysis, and make the results available to the SA Section.

The total process then, from initial distribution to the final availability of the results, is about two years. This schedule means that the analysis of the SA forms is not available by the time schools must be selected for national awards, which are announced in February (Falgun) on Education Day. Yet this was the ostensible reason for collecting the SA data in the first place. In order to keep the awards program on schedule, Regional Education Officers usually complete SA forms for a few selected schools which they think could possibly win the award. They calculate a cumulative total and recommend awarding prizes to certain schools. The REO sends these completed forms with his recommendation to the MOEC and the remaining SA data collection forms are sent when all the forms have been received. Most of the time, the MOEC endorses the REO's recommendation and awards the prizes to those schools recommended by the REO. There is far greater detail on these forms than can be incorporated in any comprehensive way in the judgment process of the REO.

4.4 MONTHLY/QUARTERLY REPORT

In addition to the two MOEC forms, each school is asked to submit a monthly or quarterly report to the DEO. These data collection efforts are at the discretion of individual DEO's. Actual practice and types of data collected vary considerably by district. However, these reports often provide student enrollment by grade and gender, teacher supply by gender and subject area, and physical facilities. This addition means schools are asked to provide the enrollment, student flow and teacher data more than three times in a year; some schools many times more.

This monthly or quarterly report is important for the DEO because the DEO controls the salary budget of all government or semi-government schools in the district. The DEO usually monitors the school expenses on certain line items of the budget through these reports. It is also important because, as teachers move from one school to another, the amount of money released to the school may vary during the school year. This monthly reporting procedure was initiated at the beginning of NESP in order to plan for the required number of teachers and to estimate the cost of education for the district for the following year.

4.5 PRIVATE SCHOOLS

As a result of encouragement from government, more schools are being registered as private schools. The private schools do not receive any government funds. As a result, the DEO has virtually no control over these schools. Private school teachers seldom visit the DEO. Consequently, DEO is not able to send the data collection forms to these schools. Depending upon the initiative of District Education Officers, data collection forms have been distributed by DEO staff to nearby schools. These private schools do not pay much attention to completing the forms and often do not return these forms. However, during the researcher's field visit to some of these private schools, it appeared that they have a better record keeping system than the government schools. In this study, four out of six private schools reported not receiving data collection forms from the DEO.

The Educational Statistics of Nepal Report, 2043 (1986), published by the M&S Section, reports that there are approximately 3,245 private schools in the country. However, the M&S Section personnel estimate that 40 percent of the private schools do not send their data collection forms to the DEO and so are not included in the reported data.

4.6 RECORD KEEPING PROCEDURES

The quality of data available depends in large part on the records kept by schools, DEOs, and REOs, since these are the primary sources of information for data users. This section describes the kinds of records kept by each of these levels and the problems they encounter.

Records at schools. Most schools keep records for the current year on student enrollment, student attendance, teacher attendance, and teacher qualifications. Schools may or may not have data for prior years. A large number of schools, especially high schools, have income and expenditure data as well. Nonetheless, the record keeping system in many schools is very poor. "Records" very often means just the daily attendance register for students and teachers. These registers for prior years are not adequately stored and so fall prey to termites and rodents and are quickly destroyed. The researchers observed one exception where the old records were hung from the ceiling. The researchers found one school in the sample were the record keeping system was exemplary. Amar Joti Madhyamik Vidalaya in Gorkha has a comprehensive, up-to-date record keeping system.

The various kinds of records kept by schools and the frequency of their occurrence are listed in Table 4.3. In general, the research team feels that well-kept records depends on the availability of good physical facilities and the commitment of the headmaster.

TABLE 4.3

Types of Records Kept by Schools

Type of Record	Frequency of Citation (N = 90)
Student and teacher attendance	90
Examination results	67
Income and expenditure records	56
Teacher appointment and transfer records	37
Student profile and information	37
Letters and school correspondence	33
Inventory of physical facilities	28

In 83 percent of the schools, completion of the M&S and SA data collection forms was supervised by the school headmaster. Of all the persons completing the forms, 68 percent had an academic qualification of intermediate or lower. Similarly 26 percent had a bachelor's degree. Most headmasters say they check the forms before submitting them and most report finding errors. Errors detected in this way relate to recording the data incorrectly by age, or in arithmetic errors in totaling columns and rows.

The time it takes a school to respond to a request for data or to complete standard forms depends on both the presence and commitment of the headmaster. It takes time and effort to respond; schools tend to

procrastinate when they can. The response time also depends on when a teacher or headmaster is going to the DEO, since the information must be hand carried to the office.

Ninety-eight percent of the schools complained that they had to supply the same data more than three times per year. As mentioned earlier, they complete the SA and M&S forms, send quarterly/monthly reports to the DEO, and also respond to requests from the District Panchayat and other researchers. Since requests are made at different times of the year, different enrollment figures are likely to be reported.

Almost all the teachers who had completed the SA as well as M&S data collection forms reported having difficulty in completing these forms.

The age wise student enrollment is the only section of the M&S form reported to be particularly difficult. On the contrary, on SA data collection form, more than 20 data elements were cited as difficult to complete.

Records at the DEO. All the financial records are kept by the senior accountant who is solely responsible for the financial transactions made by the DEO. Enrollment and teacher records are supposed to be kept by the supervisors or the administrative officers but, in fact, they are usually maintained by a "Mukhlya" or "Khardar."

When monthly/quarterly reports are received at the DEO, data are transferred to a large register which contains the records of all the schools. When DEOs are asked to provide information on individual schools, they consult this register which has up-to-date information rather than the individual M&S school form also on file with the DEO. When they are asked to provide aggregate data for the district, DEOs use the data reported on the M&S summary form.

Some districts maintain a very good record keeping system by assigning secondary supervisors full responsibility for the system. This however is the exception, not the rule. The quality of the records kept at the DEO depends primarily on the initiative and interest of the DEO itself.

Records at the REO. There appears to be no standard pattern for record keeping in REOs. Even though they should receive one copy of each M&S school form and one copy of each district summary form, this tends not to be the case. Very often then, REOs request their own data from the DEO; in one region a specific form is provided. Responsibility for keeping careful records often shifts from one staff member to another depending on the work load. Generally the real responsibility falls to the "Khardar" level staff. There are apparently no established positions in the REO with assigned responsibility for record keeping and data management. Again, the quality of the records available at the REO appears to depend on interest and commitment of the REO itself.

Most regions publish a statistical report or leaflet giving the basic educational data for their region. In some cases, REOs use information on the M&S summary form provided to them by the districts. More often they use their own data collected separately. Publishing this report is essentially the only use the REO has for the data available at his office. Since the REO does no planning or target setting (this is done at the central MOEC office), there is no demand for a system that assures that the data are accurate and reliable at the REO level.

4.7 COMPUTERIZATION OF THE MOEC (M&S SECTION)

With the help of IEES Project, the MOEC has acquired three microcomputers which are excellent tools for improving the EMIS in the MOEC. The microcomputers are IBM-compatible and are equipped with a number of software programs, such as Enable, SPSS PC Plus, Lotus, D-base III +, and WordStar.

These machines are used for the following tasks:

1. **Data Entry.** Summary forms sent by districts are entered in the machine.

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2. **Table Preparation.** This is the output after data entry which will generate a number of tables for immediate use.

3. **Comparison of Multiple Year Data.** Computers also being used to prepare tables which compare multiple years data to look for trends in enrollment as well as changes in school size and teacher characteristics.

4. **Projections.** The Ministry has developed various projections for its planning purposes.

5. **Special Requests.** On various occasions, the M&S Section of the MOEC must respond to specific requests for data from senior officials. In most cases, using the data-bases which have already been established with some additional analyses, the requests of these senior officials can be quickly met.

Computerization at the Regional Level

Except for the Mid-Western Region, all the regions have expressed interest in the use of computers at the regional level. The Mid-Western and Central Regional Directors believe that the use of the computers at the regional level should be considered. Directors of the other three regions believe that the use of computers will help to maintain the consistency of the data between MOEC and REO and therefore microcomputers should be introduced at the regions where the computer environment is suitable. Twenty other senior officials (69%) – including DEOs – also believe that the use of computers at regional level is possible.

Except for one person in the Central Development Region, no other staff at the REOs had previous training in the use of computers. Regarding the electrical supply, in all five regions 220 Volt A.C. supply is available.

Twenty senior officials (89%) believe that the use of computers at regional as well as at Ministry level will help to maintain the accuracy as well as the consistency of the data. Although senior officials are eager to see expanded use of computers in the educational system, they have had no direct experience with computers and therefore lack an understanding of the role computers can play. Inaccuracies in the data enter at the school level where the forms are completed and at the district level where they are tabulated. Computers at the regional level would do nothing to change this. Reporting consistent data by REOs, DEOs, and the MOEC can happen if all three levels have copies of the district summary form and agree to report only the data on these forms.

The MOEC makes extensive use of computers for developing projections and providing needed data to planners. Computers at the regional level would only be useful if their current responsibilities were expanded. For example, if certain records needed to be maintained at the regional level (e.g., for schools or teachers), or if the regions had more responsibility for planning educational programs and monitoring activities. At the present moment, there is little identifiable need for computers at the regional level. If focus of responsibility shifts to REOs, then the use of computers might be warranted.

It is also essential to realize that extensive support in terms of training, materials, and maintenance needs to be available when computer systems are introduced. The regional offices, with the exception of the central region, do not have easy access to such support services.

4.8 PERCEPTIONS OF THE DATA COLLECTION PROCESS

Senior officials who are involved in the data collection process have identified seven main difficulties which they have experienced in collecting data. The most frequently cited problem is timeliness (see Table 4.4).

TABLE 4.4

Seven Main Difficulties Experienced in Collecting Data Forms, as Perceived by MOEC Senior Officials*

Rank	Major Problem	Frequency of Citation (N = 36)
1	Forms do not arrive on time	25
2	Data are unreadable	12
3	Teachers are unable to fill out the form	6
3	School does not keep necessary records	6
3	Forms are not filled out completely	6
4	Requests for data do not reach school	4
4	Transportation problems	4

* Multiple responses were received.

It is clear from the above table that, apart from timeliness, senior officials believe that most of the problems lie at the school level.

As mentioned above, senior officials involved in the data collection process, and the others who were using data in their planning exercises at the MOEC, complained that they do not receive data on time. In fact, 89 percent of the interviewed senior officials complained of not receiving data in time. Most respondents blame the schools and DEO for the delay (Table 4.5). However, there is clearly a recognition that the transportation system is also inadequate.

Ninety-seven percent of the same senior officials perceived redundancy in data collection activities. They offered more than one reason for such redundancy, but basically pointed out that the reason for such redundancy is a lack of understanding and cooperation between the M&S and SA Sections (Table 4.6).

Observations About The Data Collection Process

1. In general, schools keep good attendance records but have difficulty maintaining records from prior years. Most schools keep few other records, and there are no standards set by the DEO as to what and how records are to be kept.
2. All schools received the M&S and SA data collection forms. The time of arrival of these forms varies from year to year.
3. These two main Sections, instead of complementing each other in data collection, are duplicating each other. Data collected by the M&S Section are entirely duplicated by the SA Section.
4. There is no clearly assigned responsibility for data collection and processing within the DEO. Data management tasks often fall to low level personnel who are not adequately supervised.
5. There are no incentives or consequences to assure the accurate reporting and processing of data by either schools or DEOs.
6. There is no systematic process for the verification of data on either form at the district level. No one has official responsibility for carrying out such verification.

TABLE 4.5

Major Reasons for Delays in Data as Perceived by Senior Officials

Rank	Reason	Frequency of Citation (N=32)
1	Lack of transportation for sending or receiving data forms	12
2	Failure of provider to understand importance of data being requested	10
3	Lack of requested data on the part of the provider	9
4	Reluctance on the part of the provider to show data	8
5	Lack of sense of responsibility on the part of the provider	6

TABLE 4.6

Major Reasons Senior Officials Give for Redundancy

Rank	Reason	Frequency of Citation (N=30)
1	Lack of coordination among MOEC sections	19
2	Data collected by M&S section is not sufficient for SA section	7
3	There is a difference in the purpose of the data collected by M&S section and SA section	5

7. A major source of delay is in transferring the forms to and from the schools. The transfer depends on headmasters or teachers going to the DEO. Their visits are not regular and, depending on the distance between the school and the DEO, may not be frequent. Both M&S and SA forms are held at schools longer than necessary for the reason.

8. There is no official requirement that schools return forms by a fixed date and so schools procrastinate. DEOs try to persuade schools to return forms quickly but they rarely use the blocking of school funds to compel the return of the forms. There are also no consequences for the non-reporting of private school data.

9. There is no official requirement that DEOs report district data by a fixed date. There is also a tendency in the DEOs to procrastinate.

10. Senior officials perceive timeliness as the greatest problem confronting the data collection process.

4.9 DATA DISSEMINATION

The extent to which policy makers and planners use information for policy making and planning purposes largely depends upon what kind of information is available, the timeliness of that information, and the process by which this information is brought to the attention of educational decision makers. This section assesses the current status of the educational data dissemination process by reviewing the kinds of data disseminated, the process by which data are supplied, and the adequacy of the data as perceived by users. The findings reviewed in this chapter are based on questions administered to data suppliers and data users from the district to central level.

4.9.1 Data Flow

The flow of data requests are represented in Figure 2. This chart indicates a complex and somewhat disorganized system with requests for data originating from almost every section/office in the MOEC. Two points are especially striking. First is the inordinately large number of boxes in the DEO column. Clearly, the DEO is a focal point for data collection and distribution. The success of data management system appears to rest on the DEO. Yet despite this heavy demand, this study found that not all districts had a section specially designated to manage the flow of data in the office.

In contrast, there appears to be no focal point in the MOEC through which data requests are funneled and organized. Each office initiates data requests with the office most likely to provide the primary data. The result is a mass of lines originating in separate boxes all merging in the DEO column. Some of these lines represent formal and other informal channels of communication. These are discussed in more detail in the following sections.

4.9.2 Formal Channels

Except for the M&S Section, none of the other sections of the MOEC formally distribute educational data. The M&S Section publishes the Nepali "Educational Statistics Report," a Yearbook which is distributed within the MOEC as well as to the NEC, REOs and other agencies outside MOEC. The M&S Section also publishes a leaflet called "Education at a Glance," a list of secondary schools, students, and teachers. "Education at a Glance" is the summary of the Yearbook and is published in English. All of these publications report basic facts about the school system.

These publications are distributed on an ad hoc basis, that is, there is no fixed mailing list. Publications are also provided in response to personal requests as long as copies last.

The Yearbook contains general data such as student enrollment, teacher characteristics (number, qualification), school numbers, and SLC results. Data are presented in tabular form by district. The

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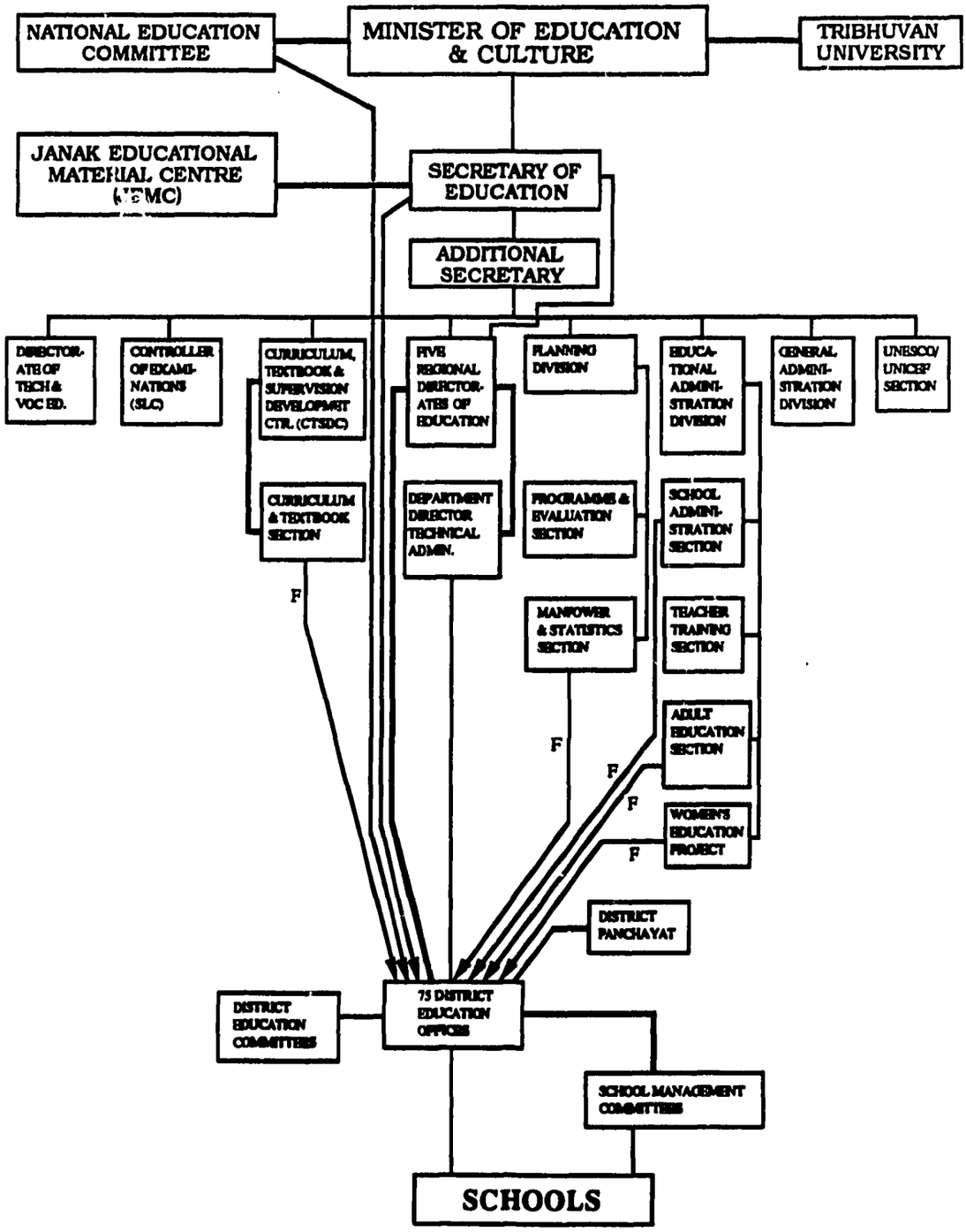
FIGURE 2

Data Requests Flowing to DEOs



F=Forms: send their data collection forms to DEO.

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Yearbook contains little analysis of the data. Prior to 2043, the Yearbook was published two years after the year and month in which the data was collected. However, with the introduction of computers in the M&S Section, the Yearbook has been published about six months earlier.

There is no formal reporting of data collected by the SA Section. It is not clear to the research team to what extent and how this large computerized data base is being used in the Ministry. In response to a question on use of these data, the reply was that the data are being used by the higher authorities including the Secretary of the MOEC. Since the use of this data is unclear, the study team can only pose the question: is the enormous expense required for this data collection and analysis justified by the use made of these data?

4.9.3 Informal Channels for the Dissemination of Official Data

Senior officials of the MOEC and the National Education Committee (NEC) listed M&S and SA Sections, as well as DEOs and REOs, as sources for educational data. Senior officials approach the M&S and SA Sections personally whenever the need for data arises.

Not only are requests for data made on a personal basis, they are often made at the last minute, with data being needed immediately. As a result, data often may not be available, and mistakes may be made in the haste to produce results. There is no regular, systematic process for reporting data to higher authorities, in part because it is difficult to anticipate what data will be needed and when it will be needed. As a consequence, more data may be collected than is needed "just to be on the safe side." For example, the Mid-Western REO ask for 20 different kinds of data, some of which are the same as M&S form and some are different, from the districts in preparation for a visit from His Majesty the King.

Different data sources are consulted depending on the data needed. For example, the NEC requests DEOs or REOs for student enrollment data without asking the M&S or SA Sections. Officials at the NEC seem to consider enrollment figures provided by districts as more accurate than those available at the central level.

DEOs supply data not only to the M&S and SA Sections of the MOEC, but also to various other offices and units on an ad hoc basis (see Figure 2: data flow chart). DEOs are confronted with numerous problems in trying to meet these requests. These include demands for non-existent data, time constraints, and a lack of skilled, trained manpower as well as frequent transfer of personnel who are trained. They also reported that quite often they were asked to supply data which needed additional work. Examples of such data were: the population of 6-10 age students and their enrollment percentage and the literacy rate of the district. The DEOs were not quite sure which data they needed to collect to fulfill the data needs of all the users who made such requests. The data flow chart clearly shows that DEOs experienced lots of pressure to supply educational data to various data users.

Sixty percent of the DEOs reported that occasionally they were asked to send data which they did not have. Reported examples of such data were: Panchayat-wise school numbers, number of students below the poverty line, the percentage literate in the 15-25 age group, information regarding teacher activities, districtwise literacy rate, castewise student enrollment, and so forth. As reported by the DEOs, the following actions were taken in response to such requests: (a) responding that they did not have the data and so could not supply them, (b) collecting them from other sources, and (c) using old data to make estimates for the current year.

4.9.4 Documents Review

Other data dissemination sources are published reports of the studies carried out by governmental and nongovernmental organizations and the reports published in the mass media including local newspapers,

radio and TV. A review of these sources (with the exception of radio and TV) was conducted to determine the data type, quality and the method of dissemination.

It was found that more than 80 percent of the documents reporting educational data (1977-1988) were prepared as part of donor-sponsored studies. Only about 20 percent of these documents were prepared by the MOEC. From the analysis of these documents, the following types of data were reported in order of frequency: student enrollment, teacher supply, teacher qualifications, teacher demand, and text books (see Appendix F for a summary of this analysis). Much of data reported in these document originated from the MOEC. New data only tended to be collected for small scale research studies or pilot projects.

4.9.5 Monitoring of Local Newspapers

Another channel of data dissemination is the mass media. Two daily and two weekly leading local newspapers over the past year (from November 1987 to September 1988) were monitored for educational data.

Newspapers published educational data mostly commemorating special events or occasions such as His Majesty The King's informal visits to different development regions, birthdays of Their Majesties The King and Queen and other members of the royal family, and Education Day. Data were also included as a part of reports on seminars, school functions, workshops, and trainings. The newspapers also contained speeches made by ministers and educationalists. The newspapers, of course, published the SLC results.

Data published in the newspapers were related to student enrollment teacher characteristics and school numbers. They reported lacked analysis of trends or other issues related to educational development. Sources for published information were the NEC and MOEC.

The NEC supplied data to newspapers and other mass media sometimes on its own initiative and at other times in response to requests from these media. It seems that the NEC, besides being a policy making body at the national level, also disseminates data. The NEC appears to disseminate data through the preparation of speeches and materials for special occasions.

4.9.6 Observations About the Data Dissemination Process

1. While data are formally published, most dissemination occurs through an ad hoc process of making requests to the M&S Section, REOs, and DEOs. Time is often short and so data must be prepared in haste.
2. The ad hoc nature of the dissemination process makes it difficult for data collectors to plan what data need to be collected and to anticipate the form in which data need to be available.
3. The extensive data collected by the SA Section are not formally disseminated and informally disseminated only to a limited extent.
4. The MOEC is the basic source of most education data available, although donor funded reports are major users and disseminators of these data.
5. The mass media tend to report basic education data, but make little use of the data beyond reporting.
6. Analysis of MOEC data is primarily available in donor-sponsored reports.
7. Senior officials often consult several sources for the same data, this tends to put an unnecessary burden on the data disseminators, especially the DEOs, and to undermine confidence in the quality of the data available.
8. When the MOEC demands data which DEOs do not have readily available, DEOs are pressured to provide estimated data.

5.0 DATA QUALITY

Data reported by the M&S Section, the SA Sections, DEOs, and REOs do not necessarily agree. This has led senior officials to question the reliability of the data. This section explores the possible sources of error in the data collection process of the M&S Section and SA Section and the perceptions of senior officials of data quality.

Errors in school-related data collected by the M&S Section can be introduced at various points in the data collection process. These are listed below:

1. Schools may provide incorrect data on the school forms.
2. Districts may make errors in copying and tallying data on data tabulation forms and in copying summaries to the summary form.
3. Districts may not be able to collect a data collection form from each school which means the data are either not comprehensive or are estimated.
4. Data may be incorrectly entered into the computer.
5. Data may be incorrectly printed in the publication process.

Except for numbers 2, 3, and 5, all the above mentioned errors could also enter into the SA data collection process.

This study has checked for errors at various stages in the data collection process. The findings are discussed in the following section.

5.1 ERRORS IN SCHOOL REPORTED DATA

To check on the quality of data provided by schools on the school form, the research team compared the student enrollment data provided on the M&S Section form filed at the DEO office with the number of students recorded in the student attendance record at the school. Such a comparison was made for 309 class rooms in 43 schools located at 12 districts outside Kathmandu, using data for 2044 (see Table 5.1).

For the 43 schools reported in Table 5.1, 12 school records (28%) exactly match the data provided by the school on the M&S form. For 24 schools (56%), the difference between the school record and the M&S form is relatively small. The magnitude of error in these schools is generally less than 10 percent. In fact, when individual grade comparisons are made, some grades show higher figures and some lower figures than reported on the M&S form. There is no consistent pattern of over- or under-reporting in these schools. For 84 percent of the schools, then, the reporting error was either zero or less than 10 percent.

One school significantly under reported enrollment data. Only six schools (14%) appear to deliberately inflate figures. In these cases, the magnitude of error is generally greater than 30 percent. When the enrollment of all 43 schools is totaled and the percent error computed, the result is about a 5 percent inflation of student enrollment figures from school records to the M&S form.

Generally, the magnitude of error is slightly higher at the primary than at the secondary level, 5 percent as compared with 4 percent. This may be because students are enrolled and leave, especially in the lower grades, throughout the year. As a result, the total number on the attendance register at the end of the year may be slightly different for that reported on the M&S Section form which requests enrollments for March-

TABLE 5.1

Comparison of Enrollment Data Recorded at School Register and Reported on the M&S 2044 Form and on the SA Form 2043

Name of School	PRIMARY					SECONDARY				
	Enrollment			M&S School %	SA School %	Enrollment			M&S School %	SA School %
	School	M&S	SA			School	M&S	SA		
A. JHAPA										
1. Nava Durga Primary	186	189	-	2	-	-	-	-	-	-
2. Mahendra Primary	166	219	-	32	-	-	-	-	-	-
3. Bidhur Lower Secondary	124	128	-	3	-	25	25	-	0	-
4. Janta Lower Secondary	391	432	-	10	-	126	130	-	3	-
B. DHANKUTA										
1. Sidhakaya Primary	118	118	-	0	-	-	-	-	-	-
2. A.N. Primary School	176	174	-	-1	-	-	-	-	-	-
3. Bhagwati Primary	65	67	-	3	-	-	-	-	-	-
4. Gramin Janta L. Secondary	139	127	-	-9	-	41	32	-	-22	-
5. Chulachuli Secondary	143	132	129	-8	-10	291	299	289	3	-1
C. PARSA										
1. Nepal Rastriya L. Secondary	131	131	223	0	70	19	19	22	0	16
2. Nepal Rastriya Secondary	94	159	-	69	-	164	177	-	8	-
3. Bal Bidya Mandir L. Secondary	386	375	-	-3	-	118	96	-	-19	-
4. Tri-Juddha Secondary	286	310	-	8	-	683	613	-	-10	-
D. KATHMANDU										
1. Jagriti Primary School	146	147	-	1	-	-	-	-	-	-
2. Balambu Lower Secondary	526	531	-	1	-	47	47	-	0	-
3. Kanya Secondary School	486	492	-	1	-	842	861	-	2	-
4. Bal Sudhar Secondary	88	145	-	65	-	97	106	-	9	-
E. SINDHUPALCHOK										
1. Bhumeswori Primary	40	40	111	0	178	-	-	0	-	-
2. Chhema Devi Primary	248	250	-	1	-	-	-	-	-	-
3. Seti Devi Lower Secondary	194	206	-	6	-	41	50	-	22	-
4. Sarswati Secondary	102	200	148	96	45	57	103	190	81	233
F. GORKHA										
1. Nava Jyoti Lower Secondary	181	181	332	0	83	40	40	51	0	27
2. Amarjyoti Janta Secondary	405	405	405	0	0	441	441	441	0	0

TABLE 5.1 (Continued)

Name of School	PRIMARY					SECONDARY				
	Enrollment			M&S School %	SA School %	Enrollment			M&S School %	SA School %
	School	M&S	SA			School	M&S	SA		
G. KASKI										
1. Yuba Jyoti Primary	99	106	140	7	41	-	-	0	-	-
2. Anabdadevi Smriti Primary	57	84	-	47	-	-	-	-	-	-
3. Amar Siddha Lower Secondary	271	275	304	1	12	53	77	57	45	8
4. Bindhabasini Secondary	329	517	-	57	-	499	684	-	37	-
5. Mt. Annapurna Secondary	537	493	-	-8	-	269	268	-	-0	-
H. KAPILVASTU										
1. Ram Janaki Primary	114	114	57	0	-50	-	-	0	-	-
2. Taulihawa Primary School	187	189	-	1	-	-	-	-	-	-
3. Gautam Budda Lower Sec.	212	212	-	0	-	34	34	-	0	-
4. Ram Gortha Secondary	243	243	-	0	-	590	590	-	0	-
5. Nepal Adarsha Secondary	349	349	-	0	-	239	239	-	0	-
I. DANG										
1. Bharatpur Primary School	414	414	-	0	-	-	-	-	-	-
2. Merigold Boarding	131	131	-	0	-	29	29	-	0	-
3. Padmodaya Secondary	-	-	-	-	-	1034	1034	-	0	-
J. SALLYAN										
1. Sharada Primary School	145	114	-	-21	-	-	-	-	-	-
2. Tribhuvan Primary School	227	206	-	-9	-	-	-	-	-	-
3. Sharada Lower Secondary	92	91	91	-1	-1	71	71	70	0	-1
K. JUMLA										
1. Malika Primary School	98	100	61	2	-38	0	-	6	-	-
2. Ratna Chandeswori Lower Sec.	71	71	69	0	-3	22	21	31	-5	41
3. Chandannath Secondary	199	203	-	2	-	423	441	-	4	-
L. DOTI										
1. Padma Public Secondary	48	52	167	8	248	346	382	376	10	9

April (Chaitra). Occasionally, the forms are completed by teachers from memory when they come to the DEO. This also adds some error to the reporting process.

The evidence suggests that, in general, with the exception of a small percentage of schools, the errors in reporting data on the M&S form are minor and are not due to deliberate efforts by schools to inflate their enrollment. Even when all schools are included, the error is only 5 percent.

SA forms for 13 of these 43 schools were also located. The enrollment totals on the SA form are also reported in Table 5.1. For primary enrollment, the average error is 25 percent inflation of enrollment figures from school records to the SA form. At the secondary level this inflation is 14 percent. Five schools under reported enrollment, seven schools over reported, and only one school report agreed with the SA report.

The question still needs to be raised as to how accurately these figures reported in the school attendance register describe the number of children actually attending school. Students are put on the attendance register when they first come to school. They may or may not attend regularly. For example, students may come for a month or two and then disappear until a month before final exams. Since schools cannot anticipate students; attendance patterns, names are left on the register throughout the year. It is not clear when or if students' names are removed from the attendance record. Some schools update their attendance register regularly, others do not. When schools are asked to report their enrollment, they report the total number of students on the attendance record. The figure reported certainly is an overestimate of the number of students who attend school with some regularity and are learning within the school curriculum.

5.2 ERRORS IN DISTRICT DATA PROCESSING

Another source of error is the data tabulation process at the DEO. Figures are copied from the school forms to a tabulation form and the results are tallied. The research team double checked the addition on the tabulation forms for student enrollment, grades 1-10, for five selected districts (Taplejung, Udayapur, Banke, Khotang, and Palpa). The results are shown in Table 5.2.

TABLE 5.2

Tally Errors on Tabulation Forms

District	Total Number of Tallies/Checked	Number of Incorrect Tallies
Taplejung	90	3
Banke	90	0
Khotang	90	9
Palpa	90	16
Udayapur	90	8

About 8 percent of the tallies were found to be incorrect. However, the tally errors ranged from 1 to 92 students, but most were less than 15. As a result, the magnitude of error resulting from the incorrect tallies was considerably less than one percent of the total student enrollment. The tabulation process appears to introduce very little error into the data collection and reporting process.

5.2.1 Data Comprehensiveness

As discussed in Section 4.2.1, some error is introduced when the DEO does not have a complete set of school forms but must provide district level summary data. At this point missing data is estimated from other records of these missing schools are simply omitted from the reporting process. The study team and four DEOs estimate that the magnitude of this error ranges from 0 to 25 percent.

5.3 ERRORS IN MOEC DATA PROCESSING

The M&S Section appears to have developed a system for correcting errors occurring during the data entry process. All data, after being entered on the computer, are doubled checked by the M&S staff. As tables are produced, data entry are also discovered and corrected.

5.3.1 Data Publication

After the basic tables are prepared in the M&S Section, they are sent to the printer for publication. Proofs are checked by the M&S staff. Nonetheless, numerous errors are made as data are transferred from the original to the printer's setup. In 2043, 153 errors were noted in the Yearbook publication. However, as discussed in the data disseminated section, much of the data produced by the M&S Section is disseminated through informal channels using reports generated directly by the computer. Therefore, publication errors may have little impact, at least within the MOEC.

5.4 CROSS YEAR COMPARISONS OF DATA REPORTED BY DEOS

In order to assess the quality of data provided by DEOs, primary student enrollment figures reported by DEOs to the MOEC were compared over a five-year period. Results for districts in the Eastern Region and the Mid-Western Region were selected for presentation in this report. The percent change in enrollment from one year to the next beginning with 2040 were computed. The results are presented in Table 5.3.

Generally, primary enrollments are expected to show an increasing trend, certainly the four-year average percent change shows reasonable growth of enrollments for all but three districts. In Taplejung, Rolpa, and Dolpa enrollment declined slightly, not an unusual pattern for mountainous areas. However, when year to year changes are examined, the data reported by many districts are not consistent, very large increases or sudden decreases are reported from one year to the next (see Table 5.3).

In order to assess the consistency of the data, the study has chosen a consistency standard of a change of less than +/- 10 percent from one year the next. If a district shows an increase or decrease in enrollment totals of more than 10 percent, then the quality of data is questionable based on this consistency standard. For the Eastern Region, data from 12 out of 16 districts (75%) fall in this questionable category. For the Mid-Western Region, 13 out of 15 districts (87%) fall on this questionable category. This lack of consistency is not unique to these two regions: similar patterns can be found in all regions.

This lack of consistency calls into question the quality of these data. It is difficult to reconcile this lack of consistency in district reported data with the findings of sections 5.1 and 5.2 indicating that error rate in data reported by schools and in data tabulated by DEOs is small. The most obvious explanation is that DEOs are not taking care to assure accuracy and comprehensiveness in the data collection process as a whole.

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TABLE 5.3

Trends in Primary Enrollment 2040 to 2044

EASTERN REGION

DISTRICT	2040 TOTAL	2041 TOTAL	2042 TOTAL	2043 TOTAL	2044 TOTAL	PERCENT CHANGE 2040/41	2041/42	2042/43	2043/44
PANCHTHAR	17,740	19,591	19,268	21,062	20,795	10.4	-1.6	9.3	-1.3
ILAM	25,083	25,992	28,303	20,494	32,368	3.6	8.9	-27.6	57.9
DHANKUTA	17,250	17,958	19,712	18,668	18,718	4.1	9.8	-5.3	0.3
TEHRATHUM	11,636	13,872	14,934	15,083	16,480	19.2	7.7	1.0	9.3
SANKHUWASABHA	16,549	18,237	19,293	17,511	19,007	10.2	5.8	-9.2	8.5
BHOJPUR	22,348	23,357	23,546	23,875	30,585	4.5	0.8	1.4	28.1
OKHALDHUNGA	13,259	16,319	17,502	15,561	15,838	23.1	7.2	-11.1	1.8
KHOTANG	19,434	20,204	19,881	24,248	24,106	4.0	-1.6	22.0	-0.6
HILL	143,299	155,530	162,439	156,502	177,897	8.5	4.4	-3.7	13.7
JHAPA	66,304	72,590	74,264	77,443	80,834	6.3	2.3	4.3	4.4
MORANG	54,069	60,044	63,156	65,269	70,656	11.1	5.2	3.3	8.3
SUNSARI	36,488	37,148	39,401	38,787	45,767	1.8	6.1	-1.6	18.0
UDAYAPUR	15,495	15,561	15,584	18,288	21,298	0.4	0.1	17.4	16.5
SAPTARI	33,642	34,662	34,687	33,904	34,124	3.0	0.1	-2.3	0.6
SIRAHA	30,050	40,054	46,233	27,245	27,940	33.3	15.4	-41.1	2.6
TERAI	238,048	260,059	273,325	260,936	280,619	9.2	5.1	-4.5	7.5
TAPLEJUNG	16,914	15,496	16,515	16,259	15,804	-8.4	6.6	-1.6	-2.8
SOLUKHUMBU	8,084	8,823	8,947	10,040	10,301	9.1	1.4	12.2	2.6
MOUNTAIN	24,998	24,319	25,462	26,299	26,105	-2.7	4.7	3.3	-0.7
EASTERN	406,345	439,908	461,226	443,737	484,621	8.3	4.8	-3.8	9.2

SOURCE: Statistics Year Book 2040-2044

TABLE 5.3 (Continued)

MID-WESTERN REGION

DISTRICT	2040 TOTAL	2041 TOTAL	2042 TOTAL	2043 TOTAL	2044 TOTAL	PERCENT CHANGE 2040/41	2041/42	2042/43	2043/44
PYUTHAN	17,213	22,094	14,387	17,486	18,481	28.4	-34.9	21.5	5.7
SALYAN	13,461	15,016	13,726	14,832	17,576	11.6	-8.6	8.1	18.5
JAJARKOT	7,144	7,309	6,779	7,167	7,370	2.3	-7.3	5.7	2.8
SURKHET	20,544	23,356	26,359	28,013	29,700	13.7	12.9	6.3	6.0
DAILEKH	14,836	15,410	15,406	15,058	17,504	3.9	-0.0	-2.3	16.2
RUKUM	11,212	12,926	13,503	13,766	17,460	15.3	4.5	1.9	26.8
ROLPA	15,975	14,499	14,812	16,307	14,705	-9.2	2.2	10.1	-9.8
HILL	100,385	110,610	104,972	112,629	122,796	10.2	-5.1	7.3	9.0
HUMLA	2,566	2,348	2,428	2,566	2,580	-8.5	3.4	5.7	0.5
MUGU	2,490	2,991	3,332	3,661	2,929	20.1	11.4	9.9	-20.0
JUMLA	5,241	5,461	5,432	5,854	5,602	4.2	-0.5	7.8	-4.3
KALIKOT	4,286	4,690	5,108	5,491	5,176	9.4	8.9	7.5	-5.7
DOLPA	3,172	2,662	2,762	2,431	2,655	-16.1	3.8	-12.0	9.2
MOUNTAIN	17,755	18,152	19,062	20,003	18,942	2.2	5.0	4.9	-5.3
BANKE	14,356	17,759	21,231	19,893	20,607	23.7	19.6	-6.3	3.6
DANG	27,930	30,017	30,188	37,678	38,247	7.5	0.6	24.8	1.5
BARDIYA	19,394	19,568	21,343	21,418	22,946	0.9	9.1	0.4	7.1
TERAI	61,680	67,344	72,762	78,989	81,800	9.2	8.0	8.6	3.6
MID WEST	179,820	196,106	196,796	211,621	223,538	9.1	0.4	7.5	5.6

SOURCE: Statistics Year Book 2040-2044

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5.5 COMPARISON OF DATA REPORTED BY DEO, REO, AND MOEC DOCUMENTS

Staff of the MOEC note that the educational data reported in DEO, REO, and MOEC reports do not necessarily agree with each other. In an attempt to compare such reported data more carefully, the number of schools, teachers, and students, for six districts over a period of two to four years were collected during the field visits of the research teams. The figures in the REO report and the Annual Statistical Yearbook of the M&S Section of the MOEC were compared with the districts' figures. These are presented in Tables 5.3, 5.4, and 5.5. Ideally, districts, regions, and the central MOEC should be reporting approximately the same data.

In Tables 5.4 to 5.6, there are 48 cases for schools, students, and teachers where the data are available from two or all three levels (DEO, REO, Central MOEC). However, in only six cases do the data agree exactly across all three levels. For example, the number of schools reported for Sindhupalchowk, 227, is the same in all reports for the year 2043. The teacher report also matches, but the number of students varies slightly.

REO, MOEC, and DEO reports are slightly discrepant for 23 cases where the totals reported differ by less than 10 percent. There appears to be no particular pattern in these minor discrepancies. Therefore, in 60 percent of cases (29 out of 48), the data reported are the same or fairly similar. In the remaining 27 percent of the cases (13), one level reports data quite different from the other two levels which tend to approximately agree. In only six cases do all three levels significantly disagree. There is more common agreement between REO and MOEC data than between DEO and REO. It is not clear from the study what leads to such large discrepant figures. One possible source of error is incorrect copying of figures. Jumla school data for 2043 appears to be such a case (see Table 5.4). The DEO and MOEC report 117 schools, the REO 177 schools. The middle "1" appears to be miscopied as a "7."

All five REOs complained of not receiving a copy of the completed M&S summary form from all districts in their region for their use. As a result, REOs had to ask for all basic aggregate data from the districts themselves and use that data to report their progress. Therefore, since REOs do not use the M&S summary form, results reported may not be exactly the same as the MOEC reports. Also, REO reports do not always indicate the month for which data are collected. It may be different from the MOEC data collection month which will also lead to slightly different results. If DEOs report the same data consistently without updating during the year, the reports at all levels are likely to be the same.

There is a general expectation that district enrollments should be increasing. These expectations can lead REOs to make small changes in the data. Two REOs reported inflating enrollment figures to maintain an increasing enrollment figure. However, in these cases the changes are less than one percent of the total enrollment of any district. These changes are small, but they maintain consistency in the data.

Data reported by REOs in general appear to be inflated relative to the data reported by the MOEC when REO and MOEC regional totals for student enrollment for 2042 were compared. Regions reported figures higher than the MOEC figures by the following percents:

Eastern Region	1.0 percent,
Central Region	5.1 percent,
Western Region	6.3 percent,
Far Western Region	1.8 percent,
Mid-Western Region	data were not available.

TABLE 5.4

Comparison of the Number of Schools Reported in DEO, REO, and MOEC Documents

District	Year	DEO	REO	MOEC
Parsa	2043	232	230	230
	2044	237	233	230
Kathmandu	2042	322	501	399
	2043	NA	524	524
Sindhupalchowk	2042	NA	264	255
	2043	227	227	227
	2044	202	285	264
Kaski	2040	376	375	372
	2041	377	380	378
	2042	291	393	395
	2043	362	401	401
	2044	365	NA	396
Kapilbastu	2041	146	198	197
	2042	146	202	197
	2043	151	208	208
Jumla	2043	117	177	117

TABLE 5.5

Comparison of the Number of Students Reported in DEO, REO, and MOEC Documents

District	Year	DEO	REO	MOEC
Parsa	2043	32954	32489	32485
	2044	33766	33766	33766
Kathmandu	2042	130183	120183	119109
	2043	NA	120153	120153
	2044	128153	88840	88810
Sindhupalchowk	2042	NA	29911	27727
	2043	23293	23303	23303
	2044	27745	27848	26324
Kaski	2040	53142	58037	52684
	2041	53931	59561	53930
	2042	73272	73272	58502
	2043	76650	56060	56060
	2044	76741	NA	76741
Kapilbastu	2041	28487	37467	37165
	2042	37544	37944	39023
	2043	37994	36259	36259
Jumla	2043	7823	7030	7030

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TABLE 5.6

Comparison of Teacher Data in DEO, REO, and MOEC Documents

District	Year	DEO	REO	MOEC
Parsa	2043	1032	1037	1037
	2044	1051	1056	1033
Kathmandu	2042	2665	2655	2628
	2043	NA	3794	3794
	2044	2398	4492	2324
Sindhupalchowk	2042	NA	896	880
	2043	929	929	929
Kaski	2040	1570	1702	1570
	2041	1700	1804	1701
	2042	1824	1816	1819
	2043	1825	1957	1957
	2044	1926	NA	1823
Kapilbastu	2041	796	592	727
	2042	796	712	796
	2043	920	934	934
Jumla	2043	412	412	412

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5.6 SUMMARY OF ISSUES RELATED TO DATA QUALITY

Figure 3 summarizes the sources of error and the degree of error as estimated by this study. The above results show little or no systematic inflation or deletion of figures reported by schools to the DEO and, finally, to the MOEC. This is not to say that the figures are consistent. Rather, the sources of error appear to be fairly random. This finding suggests that little attention is paid to accuracy in the data reporting process. Errors arise out of carelessness and the lack of a systematic approach rather than as the result of deliberate manipulation. The quality of the data provided by the present data collection and processing system depends on the interest and commitment of the individuals involved in the process. When care is taken, the system can work well. When care is not taken, inconsistent, unreliable data emerge from the process.

What emerges from the comparison of the data reported by the three government levels is that there is no clear pattern of differences. Some differences are small, others large, but in general they appear to be random except for the slightly higher figures reported by the REO.

5.7 PERCEPTIONS OF DATA QUALITY

Many senior officials who use data have reported that they rely on student enrollment, teacher supply, school cost, and school facilities data. However, only about a quarter (28%) noted that accuracy was a serious problem with currently available educational data. Timeliness is perceived as a much greater problem. In their opinion, on the average, there is a 17 percent error in the national student enrollment data. They consider an average of ten percent error as an acceptable level of error. The discussion at the beginning of this section concludes that data reported by 80 percent of the schools fall within the acceptable range of error, 10 percent, and that the average error when all schools are aggregated is only 5 percent. The magnitude of error is certainly far less than the 17 percent error officials believe exists. In other words, evidence suggests that the quality of the data reported by the schools is considerably better than senior officials perceive it to be.

One interpretation of this situation in which a perceived problem is in fact not really very significant is that most senior officials are very concerned with data consistency. Consistency may be more important than concern over how accurately the data reflect reality. Standards of consistency require that reported figures be the same. When numbers are not exactly the same, even though the differences may be small, then the figures are not consistent and the problem in serious.

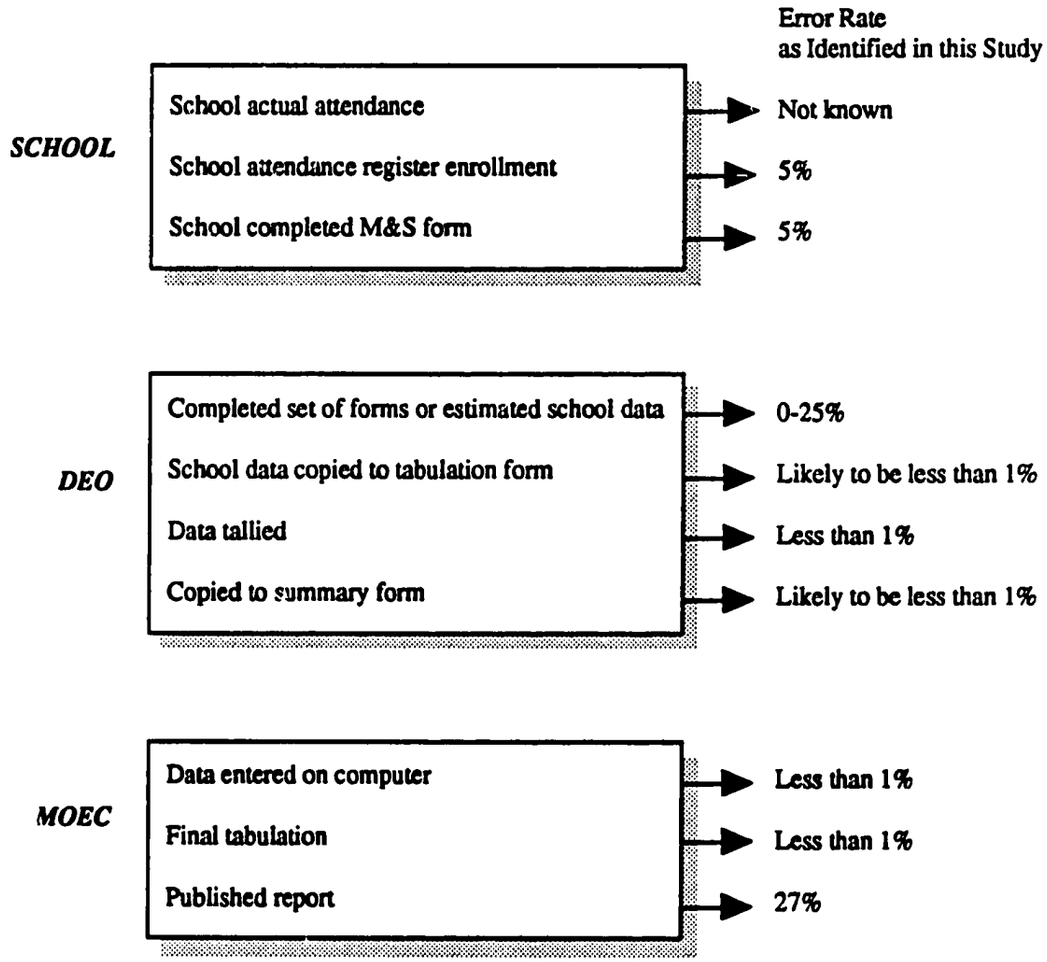
The importance of consistency permeates data production efforts. Numbers of schools, students, and teachers reported by Regions and by the MOEC are expected to be exactly the same. Data are expected to be highly consistent from one year to the next. Once figures are officially reported, all following reports are expected to be consistent with that first report. Often rounding errors, particularly in preparing projections, give figures that differ by only one. Nonetheless, these are expected to be corrected so they are exactly the same, i.e., perfectly consistent.

However, no data collection and reporting system will produce results that are perfectly consistent. A certain amount of error and variation is to be expected, especially when data are collected under difficult conditions such as those which confront the MOEC.

Senior officials say they will tolerate a ten percent degree of inaccuracy in the data. This is certainly an acceptable degree of accuracy for most planning purposes. As mentioned above, the data collection process reviewed for this report produced data within this tolerable range. In fact, data discrepancies which were found between school records and data reported to the M&S Section were less than 10 percent. Therefore, data provided by the M&S Section, when it is reasonably consistent, should be acceptable to senior officials as an adequate basis for planning purposes.

FIGURE 3

Error Entry Points: Student Enrollment (M&S Data Collection Form)



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In response to a question of how serious the problem of inaccurate information is, the respondents were allowed to rank the statements from 1 to 4 ("extremely serious" to "not a serious problem"). Many senior officials consider the school headmaster as responsible for much of the inaccuracies (see Table 5.7). Errors, they believe, result from the failure of schools to keep records and report data accurately. These sources of error are much more serious than the errors that result in tallying and transferring data. Even though tallying and transferring do not introduce much error, the overall process used by DEOs to collect and report data produces data that are often very inconsistent. The problems at the DEO appears to be more significant than problems at the school level.

TABLE 5.7

Average Score on Sources of Inaccurate Information About Student Enrollment

	Average Score	Standard Deviation
Headmasters do not keep accurate records	1.6	0.9
Headmasters do not report accurately the data they do have	2.0	1.0
Errors occur in transfering the data	2.5	0.8
Errors occur in adding the numbers	3.0	0.7

Observations About Data Quality

1. Discrepancies reported at different points in the data collection process show little systematic patterns, such as deliberate over or under reporting of data. While there is some over reporting, most errors are random, resulting from the lack of a systematic approach to data collection and reporting. Errors may also occur when data are reported under severe time constraints.
2. Enrollment on the SA form appears to be on the average more inflated than data reported on the M&S form.
3. There are considerable discrepancies in data reported by DEOs from one year to the next. There are also discrepancies in data reported by DEOs, REOs, and MOEC for a given year. This lack of consistency suggests that there is little commitment at the district and regional levels to careful collecting and reporting data.
4. REOs often feel constrained to report data that shows growth in student enrollments. This can lead to an inflation in their figures when compared with data reported by the MOEC.
5. Evidence suggests that the REOs do not use data reported on the M&S district summary form, but rather do their own data collecting. This duplicates data collection efforts and leads to inconsistencies in reported data.
6. The quality of the data may be better than senior officials believe it to be. The magnitude of error found in this study is far less than what these officials believe it to be.
7. Data discrepancies are perceived to be more significant than they are because of a concern for consistency.

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6.0 DATA USE

As described in the introduction, data can be used in three basic ways:

1. for reporting,
2. in planning, and
3. in decision/policy making.

The data collection and dissemination system is a reflection, in part, of how data are ultimately used. Therefore, in order to fully understand the education management information system currently in place, this section focuses on the use of data by senior personnel. These personnel include DEOs and REOs, as well as Central MOEC staff. As reported earlier, the M&S and SA Sections of the MOEC have collected a large volume of data. However, data collected by the SA Section are only partially processed and not formally reported. Therefore, most senior officials are using data reported by the M&S Section, DEOs, and REOs.

Senior officials were asked whether they use certain types of data. As reported in Table 6.1, a large number of senior officials said they are frequent users of data on student enrollment, teachers, educational costs, physical facilities, and educational materials.

TABLE 6.1

Types of Data Senior Officials Say They Use

Type	N=40
Student enrollment	36
Teacher supply/demand/training	34
Educational cost	24
Physical facilities/education materials	26
Access to education/school location/school	8

Senior officials have indicated more than one source for their data or information. Most users depend on the M&S Section for their data as shown in Table 6.2. Senior personnel were then asked specifically how they use data in each of these categories. More detailed responses are given in Table 6.3.

It is clear from the above table that the senior officials use data primarily for planning and implementing programs. Data also are used to provide school and teacher quotas and to prepare budgets.

TABLE 6.2

Sources of Data Reported by Central Level Senior Officials

	Frequency of Citation
1. Manpower and Statistics Section of MOEC	8
2. Secondary Literature	2
3. Best Guess	2
4. District Education Office	1
5. School Administration Section of MOEC	1
6. Curriculum, Textbook and Supervision Development Centre	1

When these senior personnel were asked specifically if data have been used for policy formulation, 33 out of 41 senior personnel replied in the affirmative. Table 6.4 lists the ways in which the senior personnel report using data in formulating policies.

Even though eight different uses were identified, only two categories suggest use in decision-making: to decide how fast girls' enrollment should increase and to decide the rate of increase needed in literacy. The other categories show data being used in planning after basic policy decisions have been made. There appears to be some confusion as to the difference between using data in decision (policy) making and in using data for planning.

The research team could find few examples of the use of data in the policy making process. More often policy is made and then data are used to set the targets or fill in the process by which the policy can be implemented. For example, the 10 plus 2 policy was announced during a Rastriya Panchayat Session (legislative council). After a few months, the National Education Committee created a task force to study the feasibility of the 10 plus 2 policy.

A similar situation arose with the announcement of the decision to universalize primary education by the year 2000 A.D. After the announcement, 6-10 age population and student enrollment projections were developed to serve as the basis for setting enrollment targets.

Using data in the policy making process requires that data be made available to senior officials before policy decisions are made, not after they are announced. This does not now appear to be the case.

To probe data use further, senior personnel were asked how much they depend on certain sources in making important decisions. Senior personnel ranked sources along with the importance of using data.

6.1 DATA GAPS

Senior personnel were asked to identify certain kinds of data which they believe are needed, but which are not currently available. In general, their responses show a lack of consensus as to what data are missing, since many categories of data were mentioned. Data needs were then classified into three groups: 1) data not appropriate or beyond scope of MOEC to collect, 2) data already collected, and 3) data which could be collected if necessary.

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TABLE 6.3

How Decisionmakers Use the Following Types of Data

Use	Frequency of Citation
Student Enrollment (N = 36)	
To provide additional teacher posts	13
To give permission to open new grades	5
To determine the number of students of correct school age	4
To open new schools and to distribute textbooks	4
For visual display	2
To calculate teacher/student ratios	6
To meet targets	2
To conduct examinations	2
To distribute miscellaneous expenses meant for the schools	2
Teacher Supply/Demand/Training (N = 34)	
To provide training to eachers	22
To improve the quality of teachers	20
To fill teacher posts	15
To release funds allocated for teacher's salaries	4
Educational Cost (N = 24)	
As a record of expenditure or for budget preparation	8
To propose educational expenses in Dsitrict Panchayat meetings	3
To expand physical facilities	5
No response	8
Physical Facilities (N = 36)	
To improve the quality of school	5
To request more funds for school which do not have classroom facilities	4
To provide educaitonal equipment	4
To give permission to open grades in schools	
To award prizes to schools	3
For the sake of knowing	3
No response	5
Educational Materials (N = 24)	
To improve the quality of education	3
To measure the effectiveness of textbooks	7
No response	12
Access to Education/School Location/School Quota (N = 8)	
To give permission to open new schools	8

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TABLE 6.4

Use of Data in Policy Formulation

Use	Frequency of Citation (N=33)
1. To use in Basic Needs Program exercise	10
2. To allocate teacher quotas in proportion to student number	9
3. To give permission to new schools	7
4. To set teacher training quotas	7
5. To decide what percentage girls' enrollment should be raised compared to the previous year	3
6. To find out what percentage literacy has increased compared to the previous year	3
7. To decide what percentage of literacy increase should be planned for in the five year plan of the Nation	1
8. To distribute textbooks	3

Nine senior personnel (50% of respondents) identified data in the first category, data beyond the scope of the MOEC to collect. These data include basic census data, population literacy, agewise population data and the number of children below 5 years. Such data are more appropriately supplied by the Centre for Bureau of Statistics (CBS).

Data in the second category, already collected by MOEC, were identified by 10 senior personnel. These data include: private versus public schools, gradewise repetition and dropout rates, number of girls, number of school-going age children, schoolwise examination data, school property and land information, financial statements, and the number of teachers and schools. In some cases, the data are several years old, but can still be used reliably.

Finally, four persons identified data which could be collected, but is not, category (3). These include data such as local financial contributions to schools, female dropout rates, physical facilities, and the number of disabled students in school.

Clearly, many of the data needs are either beyond the scope of the MOEC to provide or have already been addressed. There are some data gaps that remain. The problem appears to be more that senior personnel are not aware of what data are available, and that data that are available are not available in a usable form.

Senior personnel were then asked why they needed this additional data. Eleven of the 16 said the data were needed for reporting and the preparation of additional reports. Only five indicated data were needed for policy making or planning for school improvement.

6.2 CONSTRAINTS TO DATA USE

Senior personnel reported having difficulties in using data. The main difficulties identified by these senior personnel are given in Table 6.5.

TABLE 6.5

Main Difficulties in Using Data

Rank	Main Difficulties	Frequency of Citation (N = 42)
1.	Timeliness	16
2.	Lack of skilled and trained manpower	10
3.	Lack of accurate data	10
4.	Difficulties in relying on data when there is political pressure	6
5.	Lack of proper system and management	5
6.	Lack of current year data encourage to work on best guess	3
7.	Role of REO does not demand for the use of data	2
8.	Lack of analysis of MOEC data does not help much	2
9.	Responsibility does not call for using data	2
10.	Do not receive data when I asked for it	1
11.	Takes a long time in processing data	1

According to the Table 6.5, timeliness again emerged as the main constraint to using data. The lack of skilled manpower to provide data in a useful form and perceptions of data accuracy are also significant constraints.

Observations About the Use of Data

1. Data are used primarily for reporting, for planning for targets, and setting quotas. The study found little use of data in the policy making process.
2. Data users have difficulty articulating the kinds of data they use.
3. Senior officials feel that data are a very important source of information for decision making.
4. There are some gaps in the existing data, although much of the data needed are beyond the scope of the MOEC to collect.
5. Often data are available, but they are not in a form that is useful to decision makers.
6. Timeliness is a major constraint to the use of data in decision making.

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7.0 CONCLUSIONS AND RECOMMENDATIONS

Prior chapters of this report have introduced the concept of EMIS and described the current status of EMIS in the MOEC. Each major section closed with a set of observations or initial conclusions about the information presented in that section.

The purpose of this Chapter is to step back from the detail reported in the previous chapters and draw general conclusions about the EMIS. Rather than repeating the observations made earlier, this chapter will present nine major conclusions based on an integration of the information presented in this report. This chapter will then present recommendations for improving the EMIS in the MOEC.

7.1 CONCLUSIONS

Conclusion 1. The basic features of an EMIS are in place in the MOEC. There is a process for collecting, processing, storing, and disseminating data and information. The process begins with the collection of data at the school level. A well designed, simple form provides basic educational data from the schools to the DEO, where the data are tabulated and forwarded to the M&S Section for further processing and storage in data banks in the MOEC computers. There is a system for formally publishing and disseminating data and there is the capability to provide further analyses of these data.

Conclusion 2. While the basic features of an EMIS are in place, the system is not working efficiently enough to meet the needs of data users in the MOEC. Problems of timeliness, usefulness, and consistency of the data undermine the effectiveness of the system.

The major problem confronting senior officials is timeliness of the data. Data do not arrive in time to be useful in decision making and planning processes. There are long delays in sending data collection forms to schools and in returning them to the DEO. There are further delays while districts tabulate the data. Preliminary data are available to senior officials about 18 months after the official collection date and formally published data are not available within two years after this collection date.

Data are usually reported in basic tabular form. To use this data for planning purposes, additional analyses often need to be performed. This task requires both time and skilled manpower, neither of which may be available to senior officials. Therefore, although basic data may be available, it is often not in a form which is immediately useful to decision makers.

A third problem confronting the data management system is consistency; multiple data sources often report different figures. The M&S reports data provided to it by the districts on a specially prepared summary form. Many requests for data are channeled through this office. However, DEOs also respond directly to user requests for data. They may use data reported on the district summary form or they may provide data assembled from monthly/quarterly reports provided by schools. The REOs also provide data on request. They may request DEOs for the data or they may report data from their annual regional report containing data collected separately by the REO. These multiple sources, not surprisingly, tend to report different data. Often the differences are large enough to cast doubt on the validity of data from these sources.

The lack of consistency in data reported by multiple sources undermines confidence in the data management system and affects the willingness of senior officials to use data for planning and policy making purposes.

Even data reported by a given office are not consistent from one year to the next. Student enrollment figures reported by the DEOs often show unusually large increases or sudden declines. Since DEOs are the

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primary sources of data for all users, inconsistency in this primary source particularly destroys confidence in the quality of the data available.

Conclusion 3. The major reason for the lack of timeliness and consistency in reported data is that the elements of the EMIS are not institutionalized in MOEC policies, staff job descriptions, and established deadlines. As a result, participants in the data collection and processing system lack both a concern for and an understanding of the need to provide timely, accurate data.

At present the EMIS functions on an ad hoc basis, i.e., it responds to demands rather than operating as a self-sustaining, organized system. Schools return forms to DEOs when they wish or after they are finally pressured to do so. DEOs often receive repeated requests for summary forms from the M&S Section before they are finally submitted. No level has the authority to compel the timely collection and reporting of data.

Data are usually prepared in response to requests for information, rather than being systematically organized ahead of time. Requests often demand an immediate, and therefore hasty, response. Overlapping and poorly defined responsibilities encourage the EMIS to be reactive, to wait to see what will be demanded rather than planning ahead to meet the needs of data users.

In the absence of formally defined responsibilities, data collection and processing tasks are often assigned to the least qualified staff. There are no incentives to report accurate data nor consequences for reporting poor, inconsistent, and inaccurate data. Few people are willing to make the effort to supervise carefully, check work, and assure that data are carefully processed and reported. With little attention paid to the process, records are not carefully kept and errors in tabulation and copying happen frequently. There is much pressure to fulfill requests made by higher authorities, but little to assure the quality of the data which is reported.

When the data collection and processing system does work well, as it does in a number of cases, it is a result of the good will and interest of the personnel involved. When office managers supervise their staff and set expectations for quality work, then accurate, consistent data emerge from the process. For the most part, however, the system is haphazard and lacks organization. The resulting data is also haphazard; inconsistencies that emerge are random and difficult to explain. They are the result of inattention and indifference, not of deliberate manipulation and distortion.

Conclusion 4. Duplication of effort in data collection within the MOEC, as well as over-collection of data, is both inefficient and undermines the credibility of the EMIS and the confidence in the quality of the data.

The MOEC conducts two major, separate data collection efforts. The M&S Section has a four-page form to be completed by each school which is used to provide data for basic reporting and planning purposes. The School Administration has a 52-page form completed by each school and which was designed to be used to administer the school evaluation program and to award prizes to outstanding schools. These data do not appear to be available in time to be used for the award decisions and appear to be used only in limited informal ways within the MOEC. The data collected on the M&S form duplicates the data collected on the School Administration form. This duplication of effort places unnecessary demands on schools and DEOs and raises questions at the school level about the credibility of the MOEC data collection efforts.

Much more data appear to be collected on the School Administration form than are used. The process of collecting and computerizing the data is extremely expensive and represents a misallocation of resources given the financial constraints confronting the MOEC.

Conclusion 5. The data collection and processing process as checked in this study appear to produce data with relatively little error. The validity of this data, however, needs to be questioned.

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In contrast to the general lack of consistency in data reported by different offices, the pieces of the data collection process reviewed in this study introduced relatively little error. Schools generally report the number of students on their attendance register with a high degree of accuracy. The process of copying school data to tabulation forms, performing required tallies, and again copying totals to a summary form also entails relatively little error, probably less than one percent for each step. This finding is reassuring in that, if attention is given to improving the system, the basic parts are in place and could work well.

Although the system has the potential to report fairly accurate data, the question still must be raised as to whether these data are valid data for planning and policy purposes. Schools report the total number of students on their attendance register. Many schools do not update their registers during the year so this enrollment number includes students who have dropped out or who attend only very irregularly. As a result, enrollment figures inflate the actual number of students who are participating in school. A measure of school participation is important because this is the criteria for measuring the universalization of primary education.

Conclusion 6. There is no systematic process for disseminating data to users. Instead, much of the data is disseminated on an ad hoc basis based on personal requests to the data providers. The absence of a dissemination system reinforces the ad hoc process of making requests as users suddenly realize that data are needed and make requests often with little time allowed for provision.

Conclusion 7. The data available in the MOEC are quite comprehensive. The data essential to planning are generally, although not completely, available. Often these data are not in a form readily usable by decision makers. Senior officials identified a number of areas in which they felt data were missing. Most of these, however, were areas beyond the capacity of the MOEC to collect. They more appropriately are the responsibility of the Central Bureau of Statistics to collect.

Conclusion 8. Official concern for consistency causes the EMIS to be defensive about and overly concerned with small discrepancies in the data.

Senior officials expect figures reported by different sources to exactly agree. There is little tolerance for small discrepancies in the data. Some discrepancies are to be expected, however, since data may be collected at slightly different times of year and small errors are inevitably introduced at various steps in the process. Over attention to small discrepancies leads to a blurring of the distinction between data consistency and data quality. A high degree of consistency does not guarantee data quality. Concerns for data consistency distracts attention from ways to assure data quality.

Conclusion 9. The primary purpose of an EMIS is to improve the quality of education through improved planning and policy making which leads to the more appropriate and efficient use of financial and education resources. Yet the EMIS in the MOEC is not well integrated with the policy/decision making process.

Data tend to be used for reporting purposes and to set targets and develop plans for predetermined policies. Clearly, the problems of timeliness and usefulness are constraints to the use of information for policy making, but there also appears to be no channel of communication to assure that information is available to decision makers prior to establishing policy.

7.2 RECOMMENDATIONS

Nine general conclusions about the EMIS as it presently exists within the MOEC are presented above. These conclusions are the basis for the recommendations that follow. Of necessity, these recommendations are general; staff within the MOEC involved in the data management process have the in-depth knowledge needed to develop specific plans based on these general recommendations.

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Recommendation 1. The MOEC should develop and implement a plan for institutionalizing an EMIS within the MOEC. This plan should include:

- Specification of the processes by which data are collected and processed.
- Specification of the process by which data are disseminated.
- Specification of the records to be kept at every level:
  - School records,
  - DEO records,
  - REO records, and
  - M&S Section data bases.
- Specification of the job responsibilities for those involved at all levels in the EMIS.
- Specification of deadlines for the collection and processing of data.
- Consequences when data provided are late and/or incorrect, as well as ways to recognize those who report high quality, timely data.
- Establishment of a statistics section in all DEOs.

Information of this plan requires the full commitment of the highest officials within the MOEC, as well as incorporation of job responsibility and authority in the Education Code.

Recommendation 2. The MOEC should establish an EMIS Policy Board. The Board should be composed of all Additional Secretaries and Joint Secretaries within the MOEC and Under Secretaries who make frequent use of data prepared by the M&S Section. The Chairman of the Board should be the Secretary of Education. The main purposes of the Board would be as follows:

- Determine the types of data to be collected by the M&S Section and the data bases to be maintained by the Section.
- Monitor the quality and usefulness of the data.
- Assure implementation of the EMIS plan and all policies related to the EMIS.
- Revise the EMIS plan as needed.
- Promote the use of data in planning and policy making.
- Initiate dialogue with other governmental agencies with respect to data needs beyond the scope of the MOEC to collect.

Recommendation 3. The MOEC should revise the school evaluation process so that:

- Only data that can be used in a reasonable and timely fashion are collected. This means limiting the number of criteria considered and the amount of data collected.
- Data collection and use are coordinated with and do not overlap these activities in the M&S Section.

Recommendation 4. The M&S Section should be responsible for all data collection. Eighty-seven percent of the senior officials interviewed in this study also recommended this.

- A fixed month should be established for data collection and that month's data recognized as the official data for the academic year. Any data reported should clearly indicate the month of the collection.

Recommendation 5. The M&S Section should be responsible for the dissemination of all data related to primary and secondary level schools, students, and teachers in order to assure data quality and consistency and to reduce duplication of effort.

- The M&S Section should initiate a dialogue with senior officials at different times of the year to cater to the needs of these officials.
- The M&S Section should publish analyses of the data in addition to the annual Yearbook.
- The EMIS Policy Board should facilitate the data dissemination process by establishing a distribution list for MOEC publications and fixing dates for these publications.

Recommendation 6. The MOEC needs to provide training to support the implementation of the EMIS plan.

- DEOs and REOs should receive a thorough orientation to the new plan and their responsibilities with respect to this data management system.
- Teacher training programs should introduce teachers to the basic data collection form, the process for completing the form, and the importance of providing timely, accurate data.
- Staff within the DEO responsible for collection and tabulation of school level data need periodic training.
- As the complexity of the EMIS increases, staff within the M&S Section will need management training to assure that the system is well supervised and operates smoothly.
- Staff in the M&S Section need additional training in data analysis and in the use of computer based models for educational planning and policy making.
- As these models are developed, senior officials will need orientation to their use.

Recommendation 7. To support the implementation of the EMIS plan, focused policy studies should be conducted under the direction of the MOE. The following studies are recommended:

- A study of annual enrollment patterns in primary and secondary schools in order to determine (1) a more accurate measure of school attendance, and (2) the relationship of attendance in the data collection month to attendance in the other months of the academic year.
- A study to design and field test a school-level record keeping which improves the quality of data reported on the school form and yet is easy and economically and physically feasible for schools to maintain.
- A study to determine the feasibility of using the postal system to send data collection forms to and from schools.

Appendix A

APPENDIX A

1. Interview Schedule for Other Users
(English translation of Nepali documents)

1. Name _____

2. Office _____

3. Designation _____

4. Do you collect, provide, or use educational data?

   _____ Use data _____ Use and collect

   _____ Provide data _____ Use and provide

   _____ Collect data _____ Collect and provide

   _____ All three

5. If you collect data: What kind of data do you collect and why do you collect it?

   5.1 Is it a project specific data or a general kind of data which you need regularly?

   _____ Project specific

   _____ General

   5.1.1 Can't you get the same data from Ministry of Education?

   _____ Yes _____ No

   5.1.2 If no, why?

   _____

   _____

   5.2 If yes, why do you collect the same data?

   _____

   _____

   5.3 From whom do you collect data? What is the process of data collection? How long does it take to collect the data?

   _____

   _____

   5.4 Do you collect it regularly? If yes, at what interval of time?

   _____

   _____

5.5 If you do not collect it regularly, how do you manage for the required information in the subsequent years?

_____

_____

5.6 How do you process the data? How long does it take to get the required information after completion of data collection?

_____

_____

5.7 Do you supply the findings partially or wholely of your data collection to any other institution? If so, to whom do you supply and generally at what time of the year you supply it?

_____

_____

6. If you provide data: To whom do you provide data? _____

6.1 What kind of data do you provide? _____

6.2 What are the sources of your data? _____

6.3 Why do you provide such data? At what time of the year do you provide such data and in what form?

_____

6.4 Why are the institutions to which you provide data not getting the same information from MOEC?

_____

6.5 How is your information different from that provided by the MOEC?

_____

For The User

7. What kind of educational data do you use? _____

_____

8. How do you get such data? _____

_____

9. How do you use the data? _____

_____

10. (If the answer to Q.5 above is other than MOEC) Have you tried to get such data from MOEC?

10.1 If yes, what happened then? _____

_____

10.2 If no, why you did not try to get from MOEC? _____

_____

11. How frequently do you need educational data? _____

_____

12. At what time of the year do you need such data? _____

_____

13. In your opinion, how reliable are the data supplied by MOEC? _____

_____

14. In view of a larger audience, what kind of educational data should MOEC collect? _____

_____

15. Is there educational information that you need that is not available?

15.1 What is it? _____

15.2 How would you use it? _____

2. Interview Schedule for MOEC Personnel, DEO, and REO

1. Name _____

2. Designation _____

3. Section/Department _____

4. How do you categorize yourself? (Mark all applicable.)

   1._____ Data collector 2._____ Data provider 3._____ Data user

   (Ask Q.5 to Q.14 for Data collector, Q.15 for data provider, and the rest for data user.)

5. What data do you collect? (Get a copy of data collection forms if available.) _____

   _____

6. At what time of the year do you start your data collection? _____

7. At what time of the year do you complete your data collection? _____

8. Would you please describe your process for data collection? _____

   _____

9. How frequently do you collect data? _____

10. What is the source of your data? _____

    _____

11. What problems do you face in data collection? _____

    11.1 What can be done to minimize the above mentioned problems? _____

    _____

12. Do you receive the required data in time? _____

    12.1 If not in time, what is the main reason for delay? _____

    _____

    12.2 Do you have any ideas on how this delay can be overcome? _____

    _____

13. Is there any collected data which you have not used?

    _____ Yes _____ No

    13.1 What data is not used? (May need to review form and identify specific items not currently used.)

    _____

13.2 Why is it not used?

_____

13.3 Why was it collected?

_____

14. Is there data which should be collected but is not? _____

14.1 If yes, what kind of data should be collected? _____

_____

14.2 Why are these data important? _____

_____

15. Is there any duplication of data collection within the Ministry?

_____ Yes _____ No

15.1 If yes, which sections or units are collecting the same data? _____

_____

15.2 In your opinion, why is it being duplicated? _____

_____

15.3 How can this duplication be avoided? _____

_____

16. Do you provide data to other sections/units or agencies?

_____ Yes _____ No (Go to 17.)

16.1 What data do you provide? _____

_____

16.2 To whom do you provide data? (Review the data collection form and mark which one is provided to whom.)

Agency's name	Data provided	At what time of the year	How frequently

16.3 How are requests made to you to provide data (look for specific examples)? _____

_____

16.4 Do you have to do extra work to furnish their requests or can you give them readily available data?

_____Needs extra work

_____Readily available

_____Both

16.4.1 When it needs extra work, how much time is there between when data is requested and when it is expected to be provided? (Write specifically what extra work needs to be done.)

_____

_____

16.4.1.1 Is this time sufficient? (Explain.)

_____

_____

16.5 What problems do you face in providing data? _____

_____

16.6 Are data requested that you do not have?

_____ Yes _____ No

16.6.1 If yes,

Who requests it?	What data?	Why it cannot be provided?

17. Does your office use data relating to the following:

_____Student enrollment/growth of the education system
_____Teacher supply/demand/training
_____Educational costs and financing
_____School facilities
_____Educational materials
_____Other education issues (specify)

17.1 What types of data do you generally rely on in each of the following areas? (Be very specific.)

_____ Student enrollment/growth of the education system
_____ Teacher supply/demand/training
_____ Educational costs and financing

_____ School facilities
_____ Educational materials
_____ Other education issues (specify)
_____ Access to education/location of schools/school quotas

Comment: _____

_____

17.2 Where have you received such data in the past? _____

17.3 For what specific purpose did you use this data? (Review each type of data mentioned above.)

_____

17.4 (If the respondent does not collect data) How do you make a request for such data?

_____

17.5 Do you receive a reply in time? _____Yes _____No

17.5.1 If no, generally how long will it be delayed? _____

17.5.1.1 Has this delay caused you any special problems in the past? If so, what are they? _____

_____

18. How accurate do you feel your data is (or data supplied to you)?

_____ extremely accurate
_____ very accurate
_____ somewhat accurate
_____ not at all accurate

18.1 If not accurate, why not? _____

_____

18.2 In your opinion, how much error presently occurs in collecting and analyzing national student enrollment data?

_____

18.3 In your opinion, how much error is acceptable in collecting and analyzing national student enrollment data?

_____

19. Have you tried to verify your data (or data supplied to you)? _____Yes _____No

19.1 If yes, how did you do so? _____

_____

19.1.1 What made you decide to make such a decision? _____

19.2 If no, why did you not try to verify it? _____

20. Do you have any suggestions for enhancing the capability of the MOEC to provide data in time to its users?

_____

_____

_____

21. Who should be responsible for the analysis of data within MOEC? (Take the example of problem solving.)

_____

_____

_____

22. In your judgment, what is the most important thing that could be done to improve the quality of the information that is available to you about the education system?

_____

_____

_____

23. What is the major constraint in using education data in your job?

_____

_____

_____

24. To what extent do you see improving educational data as a priority activity for the Ministry, given other priorities within the Ministry?

_____

_____

_____

24.1 In your opinion, how important are the following types of numeric data in national decisionmaking?

	How Important			
	extremely	very	somewhat	not at all
student enrollment data	____	____	____	____
number of teachers	____	____	____	____
teacher background and qualifications	____	____	____	____

education costs	____	____	____	____
availability of textbooks	____	____	____	____

25. What other factors need to be taken into account in making educational decisions?

_____

_____

26. Who are the primary people you talk with in making decisions that affect the education system:

	Person /Title	Agency	Reason for consulting with this person
overall			
student enrollment/ growth of the education system			
teacher supply/demand			
teacher assignment			
educational costs and financing			

26.1 How important are each of the following sources of information to Ministry decisionmakers when formulating policy for the education system?

1=extremely important 2=very important
3=somewhat important 4=not at all important

personal experience	_____
conversations with headmasters	_____
conversations with teachers	_____
conversations with people in the Ministry	_____
conversations with personal friends	_____
conversations with other people you respect	_____
reading previous statistical analyses about the educational system	_____
formal statistical analyses of the education system	_____
other (specify)_____	_____

27. Rate the extent to which you believe that the information that can be obtained through statistical analysis of national educational data is better than the information you can obtain by talking with Ministry of Education officials.

_____always
_____usually
_____sometimes
_____seldom
_____never

Comments: _____

_____

28. What are the *most* serious problems with the education data currently available? _____

_____

_____

28.1 In your opinion, how serious is the problem of inaccurate information about student enrollment at each of the points listed below?

1=extremely serious problem 2=very serious problem
3=somewhat serious problem 4=not a serious problem

A. Headmasters don't keep accurate records _____
B. Headmasters don't accurately report the data they do have _____
C. errors occur in transferring the data from the school form to the district summary or from the district summary to the national summary _____
D. errors occur in adding the numbers that are reported _____

28.1.1 Which of the four problems above do you think is the most serious problem? (check one)

A._____
B._____
C._____
D._____

29. Rate the extent to which the following issues are problems you experience with educational data:

1=extremely serious problem 2=very serious problem
3=somewhat of a problem 4=not a serious problem

timeliness _____
accuracy of the data _____
mistakes in data analysis _____
results not clear _____
not clear how data was analyzed _____
not sure how to interpret the data _____
other (specify)_____ _____
Which of those items listed above are the most serious problems?

_____

_____

Comments: _____

_____

30. Overall, how good is the education data that is available to you? (Place a mark on the scale to indicate how good the data is.)

Excellent Good Fair Poor
/ ----------/ ----------/ ----------/

31. How do you think data is currently used in policy making? (E.g., examine a few recent policy decisions and reexamine role that data played.)

_____

_____

_____

32. If government were thinking about instituting an automatic promotion policy for the primary grades and asked your opinion in two weeks, how would you go about developing your response?

_____

_____

_____

33. If government were thinking about adding 2 years to secondary school and asked your opinion in two weeks, what would you need to know in order to give your answer?

_____

_____

_____

Respondent Information That Will Help Us Analyze the Data

Pick the selection below that best indicates how often you use numeric data about the education system in your job:

more than once a day _____
once a day _____
2-3 times a week _____
2-3 times a month _____
once a month _____
2-3 times year _____
almost never _____

Your position_____

Years of experience in your position_____

THANK YOU FOR YOUR HELP
IN COMPLETING THIS QUESTIONNAIRE.

3. Interview Schedule for Schools

Interviewer's Name _____
Date _____

1. Designation of Interviewee_____

2. School level

   _____a. Secondary

   _____b. Lower secondary

   _____c. Primary

3. Number of grades conducting (total): _____

   3.1 Grades conducting privately: _____

4. Do you keep school records? _____Yes _____ No

   4.1 Why do you keep school records?

   _____

   _____

   4.2 What records do you keep?

   _____

   _____

   _____

5. Do you receive forms or letters from MOEC, DEO, or REO requesting to send data of your school?

   _____Yes _____No

   5.1 What do you do when you receive such letters or forms? (Mention the procedure step-by-step.)

   a. _____

   b. _____

   c. _____

   d. _____

6. Please give us the following details:

	1	2	3	4
What forms do you receive?	_____	_____	_____	_____
From whom do you receive?	_____	_____	_____	_____

When is it received?	_____	_____	_____	_____
How long does it take to fill it out?	_____	_____	_____	_____
When do you send it back?	_____	_____	_____	_____
How is it sent?	_____	_____	_____	_____

7. Who fills out the above mentioned forms? (If the forms have been filled out by more than one person, please mention all of them.)

	1	2	3	4
Forms	_____	_____	_____	_____
Name	_____	_____	_____	_____
Designation	_____	_____	_____	_____
Main responsibilities	_____	_____	_____	_____
Educational qualifications	_____	_____	_____	_____

8. Do you know why MOEC, DEO, or REO sent this data collection form to you?

_____

_____

Comment: _____

_____

For the Interviewer: Ask Q.9 to Q.20 to those persons who have actually filled out the forms (such as clerk, kharidar, or accountant).

9. Do you fill out the forms partially or completely? (Review the form and identify specific items.)

_____Partially _____Completely

	1	2	3	4
Name of the office/ agency requesting the data	_____	_____	_____	_____
Name of form	_____	_____	_____	_____
Items that you fill out	_____	_____	_____	_____
Items that other person fills out	_____	_____	_____	_____

10. Do you have any difficulty in filling out the forms?

_____Yes _____No (Go to Q.11)

	1	2	3	4
Form name	_____	_____	_____	_____
Which items are difficult? (Review each item of the form)	_____	_____	_____	_____
Why is this item difficult?	_____	_____	_____	_____
How is the problem solved?	_____	_____	_____	_____

11. Are the instructions about how to complete the forms clear? _____

    Comment: _____

    _____

12. Do you understand how to compute the numbers that were being requested?

    _____Yes _____No

    12.1 Do you ask someone for clarification about what was being requested? _____

    12.1.1 Who do you ask for clarification? _____

13. Which of the data requested by DEO, REO, or MOEC are available at the school and which of them are not available? (Review each item of the form.)

Office/agency requesting for data	Form name	Data available in the school record: That can be copied out directly	Data available in the school record: That need extra work	Data not available in the school record: Description (items)	Data not available in the school record: What do you do with these data?
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

14. How accurate do you think is the school record you have kept?

    _____Very accurate
    _____Accurate
    _____Somewhat accurate
    _____Cannot say

    14.1 If it is very accurate or accurate, what made you say so? _____

    14.2 What are the most important causes of inaccurate data? _____

    _____

15. Which of the data you sent do you think are accurate and which do you think are inaccurate? (Review each item of the form.)

Office/agency requesting for data	Form name	Accurate data: Details (items)	Accurate data: Reasons for being accurate	Inaccurate data: Details (items)	Inaccurate data: Reasons for being inaccurate
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

16. What can be done to make school level data (the data you report) more accurate? _____

_____

_____

17. Do you check a second time before you submit the forms to higher authority?

_____Yes _____No

17.1 If yes, how frequently have you found mistakes in such rechecking?

_____None
_____Occasionally
_____Frequently

17.1.1 If you have found mistakes occasionally or frequently, usually in what kind of questions have you found mistakes?

_____

_____

17.1.2 What do you do when you find such mistakes?

_____

_____

18. How practical is this kind of rechecking?

_____Practical _____Impractical

18.1 Why is rechecking impractical?

_____

_____

19. Do you have to supply the same data more than once?

_____Yes _____No

19.1 Do you supply data to the agency where you had supplied the same data earlier?

_____Yes _____No

19.1.1 If yes, what kind of data do you resupply?

_____

When do they request it a second time?

_____

19.2 Do you have to undergo the same procedure which you had done earlier to supply the data or do you copy out from the form you worked out last time?

_____have to undergo the same procedure
_____copy out from the previous work

Comment: _____

_____

20. Do you think the filling out of the forms sent by DEO, REO, or MOEC useful or not? (Please rate your response according to the following scale.)

_____Very useful
_____Useful
_____Indifferent
_____Not useful
_____Useless

21. Do you have any suggestion to improve or to increase the efficiency of data collection in school level?

_____

_____

_____

_____

_____

_____

Appendix B

APPENDIX B

Documents Review Form

	Student Enrollment	Teacher Supply	Teacher's Qualification	Other Teacher's Characteristics
Overall	_____	_____	_____	_____
By level	_____	_____	_____	_____
Primary	_____	_____	_____	_____
Secondary	_____	_____	_____	_____
Voc./Tech.	_____	_____	_____	_____
Nonformal/Adult	_____	_____	_____	_____
By grade	_____	_____	_____	_____
By subject area	_____	_____	_____	_____
By geographical area	_____	_____	_____	_____
Lower secondary	_____	_____	_____	_____
Higher education	_____	_____	_____	_____

Availability of textbooks
- Overall _____
- By grade _____

Projected Teacher
- Demand _____
- Overall _____
- By grade _____
- By subject area _____
- By geographical area _____

Facilities Use
- Classrooms _____
- Furniture _____

Educational Costs
- Nationally _____
- By region _____
- By district _____
- By school _____
- Aggregate _____
- By type of cost _____
- Other _____

Appendix C

APPENDIX C

Data Collected by School Administration Section of MOEC

1. School's name _____

2. Date of establishment _____

3. Address _____

   and geographical location in terms of mountains, hills, and terai _____

   _____

4. Type of school:

   General: _____ Boarding _____ Without boarding

   Sanskrit: _____ Under district education committee _____ Under Sanskrit Campus

5. Details of classes running at present which included classes approved for government aid, classes approved to run privately, and classes which are running but their approval has not been taken.

   _____

   _____

   _____

6. Name of the Headmaster _____

7. Name of the school managing committee's chairman _____

Part I

8. Data related to number of classes which includes grades, the year of their approval for getting government aid, the year of approval for running the classes privately, the year when the classes were started with an intention to get approval later, reasons if the approval has been cancelled, and the year of cancellation.

9. Date of beginning and end of school year, number of working days, and number of class days.

10. Details of holidays which included number of days, dates, and months.

11. Schedule of classes which included total class hours for each grade and time of beginning the classes and time when they are over.

12. Details of prize which the school has been awarded including year when it was awarded, reason for being awarded, kind of award, and name of the organization giving award to the school.

13. Details of any punishment which the school has got, including the year, reason for being punished, type of punishment, and the name of the organization to punish the school.

Part II

14a. Description of school building which included number of buildings, number of rooms, and their quality in terms of cemented and thatched roofs, cemented and mud/stone/brick walls. It also included whether the building was the school's own, a government building, a public building, or privately rented.

14b. School compound area–fenced/unfenced.

15. Use of rooms: includes number of rooms and area occupied for each grade, headmaster's office, teacher's common room, administration, store, student's hostel, teachers' quarters, watchman house, rented out rooms, library science lab, vocational workshop, and assembly.

16. Toilets: Number in good condition_____, and poor condition_____.

17. Drinking water: It includes information whether the school has permanent drinking water facilities. If not, whether drinking water is brought to school from elsewhere.

18. Office assets: Number of English and Nepali typewriters and number of duplicating machines.

19. Furniture: Number of furniture items present in the school.

20. Teaching Materials: Includes number of materials such as blackboards, dusters, notice boards, bulletin boards, flannel boards, maps, charts, science apparatus, and vocational tools/apparatus.

21. Library: Number of levelwise curriculum and textbooks, and numbers of teachers instruction books, books related to extracurricular activities, reference books, other books, etc.

22. Land: Size and the quality of land owned by the school. The type of land included: land occupied by the building, kitchen, garden, playground, cultivated land (cultivated by the school), rented-in land, rented-out land, barren (unused) land, land which the school has been using but has not been registered in school's name, annual income from the land, and land revenue that the school has to pay annually.

23. Games/sports materials: Number of materials used for games and outdoor games.

24. Data related to cash or labor money to purchase, collect, build the above mentioned physical facilities, physical facilities including land, building, drinking water, toilets, office materials, furniture, library, educational materials, and materials for games/sports, and the sources of income including school's income, donation from the public, donation from the local panchayat, government aid, donation from other agencies or foreigners, and names of those agencies and foreigners.

Part III
Details of Students

24a. (Details of previous year.) The grade-wise number of students including the number of enrolled students, number of students whose names had been removed from the school register before the exam, number of students who appeared in the examination, number of students who dropped out after they passed the exam, number of students who dropped out when they failed the exam, number of terminal exams conducted in a year, and number of times that their guardians were given the progress reports of the students. All these data contain details by sex.

24b. (Data related to the exam of the previous year.) The data include the results of examinations held at the end of each of the levels (primary, lower secondary, and high school). The data consists of number of students by sex who appeared in the examination and passed in first, second, and third division.

25a. (Details of this year.) Data on the number of students in each grade who studied at the school the previous year. The data on the total number of enrolled students, number of students whose names were removed from the

register before the final examination, number of students who attended the final exam, number of students who passed the examination.

25b. (Data related to the exam of this year.) The data include the results of examinations held at the end of each of the levels (primary, lower secondary, and high school). The data consists of number of students by sex who appeared in the examination and passed in first, second, and third division.

26a. Preprimary students records by age (previous year). Number of students by age, newly enrolled students, students who had been studying for the last one year, and students who have been promoted from the lower level.

26b. Primary students record by age (previous year). Number of students by age, newly enrolled students, students who had been studying for the last one year, and students who have been promoted from the lower level.

26c. Lower secondary and secondary students record by age (previous year). Number of students by age, newly enrolled students, students who had been studying for the last one year, and students who have been promoted from the lower level.

26d. Records of boarders by grade (previous year).

26e. (Previous year) Record of students who received part or full scholarship, number of students in each grade who have been awarded 100 percent, 50 percent, and 25 percent scholarship.

26f. Details of scholarship given to poor and deligent students, scholarship given to students coming from remote areas, and to those who are backward, the name of the institution awarding scholarship, name or type of the scholarship, amount of annual scholarship, the number of students (boys and girls) from grade 6 to grade 10.

26g. (Previous year) Record of vocational subjects, optional subjects, and extra optional subjects given in the school and number of high school (grade 8-10) students studying these subjects.

27a. Preprimary students record by age (current). Number of students by age, newly enrolled students, students who had been studying for the last one year, and students who have been promoted from the lower level.

27b. Primary students record by age (current). Number of students by age, newly enrolled students, students who had been studying for the last one year, and students who have been promoted from the lower level.

27c. Lower secondary and secondary students record by age (current). Number of students by age, newly enrolled students, students who had been studying for the last one year, and students who have been promoted from the lower level.

27d. Record of boarders (current): Number of students (male/female) by grade.

27e. (Current year.) Record of students who received part or full scholarship, number of students in each grade who have been awarded 100 percent, 50 percent, and 25 percent scholarship.

27f. (Current year.) Details of scholarship given to poor and deligent students, scholarship given to students coming from remote areas, and to those who are backward, the name of the institution awarding scholarship, name or type of the scholarship, amount of annual scholarship, the number of students (boys and girls) from grade 6 to grade 10.

27g. (Current year.) Record of vocational subjects, optional subjects, and extra optional subjects given in the school and number of high school (grade 8-10) students studying these subjects.

28a. Teachers Posts: Number of teachers approved from the year when the new education system was introduced until now in each level, number of the teachers transferred to primary level from lower secondary level because of change of primary level to 1-5 from 1-3, number of secondary teachers reduced and year because of reduction of full marks to 700 from 900; Number of teachers in each of the levels–preprimary, primary, lower secondary, and secondary–that have been appointed by the school managing committee for the privately run classes.

28b. The data include number of posts and number of teachers working at present, number of teachers that get paid from the government, and also those which are paid by the school's resources.

29a. Data related to the history of teachers: name, sex, citzenship, address, date of birth, educational qualification, and training.

29b. Data related to the history of teachers data and status of appointment, promotion, and current status.

29c. Financial details related to the salary, allowances, and grade of teachers.

29d. Data related to the number of classes allotted to each subject and level-wise total classes (periods) per week.

30. Data related to the history of other staff members and workers: names of staff members, sex, address, educational qualification, status of appointment, and monthly and annual salary and allowances.

31. Data related to the rate of fees collected by the students of each grade under different headings, the details about amount to be paid monthly, annually, or periodically.

32. Income and expenditure details of past five years including income from government aid: including level-wise teacher's salary, allowance, and stationary; the data and account of total income, expenditure, and balance of the school.

33. Data related to auditing: date of last audit and amount (income and expenditure).

Part IV
Extracurricular Activities

34. Data related to different extracurricular activities and their frequencies. The activities included: national anthem, grade-wise national songs, God prayer, group songs, general games, athletics, football, physical exercise, and marching band.

35. Competitions/contests – inter-house, district-wise, zonal-wise, and national competitions in different activities such as drawing, kitchen gardening, essay, spelling, debate, quiz, cultural show, and eloquences.

36. Ceremonies, functions, and celebrations: number of students who took part in different ceremonies, functions, and celebrations like the auspicious birthday of His Majesty the King, the auspicious birthday of Her Majesty the Queen, King Mahendra Memorial Day, Constitution Day, King Tribhuban Memorial Day, Democracy Day, King Prithbi Memorial Day, Children's Day, Education Day, School's Anniversary Day, and Saraswati Pooja (worship to the goddess of learning).

37. Social services: number of students who took part in different social services like scouts, junior Red Cross, meetings, tours, services provided in fairs, afforestation, etc.

38. Data related to cultural shows: number of times cultural programs were organized by the students.

39. Data for grades and number of students who went on educational excursions during the last school year.

40. Data related to availability or nonavailability of the following things at the school:

    1. Photographs of Their Majesties the King and Queen.
    2. National flag or its picture.
    3. School flag.
    4. School uniform.
    5. Notice board.
    6. Wall magazine.

Part V
Administrative Details

41. Information related to whether or not the following activities were carried out during the past academic year.

41a. The account is audited regularly.

41b. Identification of misappropriation of funds.

41c. The Headmaster has been supervising the classes regularly.

41d. The members of the School Managing Committee visit (inspect) school regularly.

41e. The school has been cooperating in the examination conducted (given) by the District Education Office.

41f. The school has been cooperating in the training programs conducted by the District Education Office.

41g. The school has been cooperating in the cultural programs conducted by the District Education Office.

41h. The school has been cooperating in other activities as requested by the District Education Office.

41i. The school has been cooperating in other activities as requested by other schools.

42. Effectiveness of the school managing committee (SMC).

42a. Details of five most effective steps taken by the SMC during the past academic year towards uplifting the educational quality.

42b. Three main steps taken by the SMC towards improving the physical facilities of the school.

42c. Four points to prove that the SMC supervised and controlled during the past academic year in terms of running the school smoothly.

Part VI
School Property Management Central Committee, MOEC, Detail of School Land

Data related to school's land included the following information:

Name, address, and level of the school. _____

_____

Total area covered by school buildings and land used (owned) by the school. _____

Productive land (except area covered by buildings, hostels, playgrounds, etc.). _____

Area of registered land. _____

Local selling/buying rate. _____

Area land sold by the school. _____

Income of school from school's land in cash and in kind. _____

Total income in cash when kinds are converted into money. _____

Credit of the school. _____

Annual expenditure of the school on:

land revenue _____

furniture _____

buildings _____

others _____

total _____

Part VII

Information Related to Conducting Nonformal Education Centers
To Be Filled Out by the Facilitator (Teacher)

1. Name of the organization which asked for the quota. _____
2. Address: District, Panchayat, Ward, and Place _____

   Time: from_____ to_____
3. Date of beginning of class.
4. Name, educational qualification, and address of the facilitator. _____

   _____
5. Number of participants by age group and sex.
6. Marital status of the participants by sex.
7. Ethnic composition of the participants.
8. Literacy status of the participants in the beginning of the class. The data included number of participants who were illiterate and to some extent literate in the beginning.
9. Name and address of the teacher supervisor.
10. Information of whether or not nonformal education management committee was formed and reasons for not forming the committee.
11. Information of availability and adequacy of education materials, names and number of available education materials.
12. Problems encountered to run adult literacy classes.
13. Probable solution to solve the problems.
14. Information of the cooperation provided by the teacher supervision to run the center (class).

Part VIII
Adult Education Section
Supervision Form
To be Filled Out by the Supervisors

Date of Supervision_____

1. Address of the center, time, and duration of the class. _____

   Date of beginning of the class.

   Total number of working days to date.

   Name and qualification of the facilitator. _____

   _____

   (If the facilitator is a school teacher) Status (position) and name of the school.

   Name of teacher supervisor and school.

2. Information related to previous supervision of the class. Information including names of supervisors, their positions, and dates of supervision.

3. Number of participants: The data included total number of registered participants by sex and participants attending the class on the day of supervision.

4. Status of the number of participants and reasons if the number of participants has gone down.

5. Lesson that was being taught on the day of supervision.

6. Identification of number of participants who have learned the lessons already taught.

7. Evaluation of the class in terms of degree of interest.

8. Role of management committee in terms of its activities.

   8a. Number of committee meetings held to date.

9. Whether or not the participants have solved any community problems as a result of their gathering and discussion.

   9a. If yes, what kind of problems have been solved.

10. Whether or not money was made available on time by the district panchayat committee, education section.

11. Whether or not books were made available on time by the district panchayat committee, education section.

12. Outcomes observed (seen) by the supervisor.

13. Problems seen (observed) by the supervisor and suggestions to solve the problems.

14. Information on the classes taken by technicians related to agriculture, health, industry, etc. The information included date when the class was conducted, and number of classes in each of the areas (e.g., health, cottage industry, and others).

15. Information on whether or not classes have been conducted according to the lesson plan given in the guide book.

16. Information on to what extent the previous suggestions have been implemented.
17. Suggestions given to the facilitator.

18. Overall evaluation of the center in the eye of the supervisor.

19. Role of facilitator in running the class.

Part IX

Adult Education Section, MOEC
Nonformal Education Program
To be Filled Out by the Facilitator at the End of the Program

1. Name and address of the organization (agency) demanding the center. _____

_____

2. Address where the class was conducted. _____

3. Name, age, educational qualification, sex, and address of the facilitator (if the facilitator is a school teacher), his/her address, post, and training, if any.

_____

_____

4a. Number of participants by age group and sex who participated until the end of the program.

4b. Number of participants by sex according to the attendance register.

4c. Number of participants by sex who participated in the program until the end of the program.

4d. Marital status of the participants by sex.

4e. Ethnic composition of the participants.

5. Extent to which the Management Committee cooperated.

6. Number of meetings of the management committee held until now.

7. Record of supervision of the classes. The data included supervising persons and number of times they supervised the classes. The supervising persons are DEO/ADEO, supervisors of DE office, teacher supervisors, and others.

8. Total number of class days until the end of the program.

9. Data related to the participation of the facilitator in the training. The data included first and second trainings, their duration, and the number of days the facilitator attended those trainings. If he/she did not attend, reasons for not attending.

10. Feeling of the facilitator in terms of easiness when conducting classes according to the training received by him/her.

11. Situation of technical classes during program period. The information included number of classes and names of experts who took classes in fields like agriculture, health, family planning, cottage industry, and others.

12. The extent to which the participants were interested in the program.

13. Information related to timely availability or nonavailability of education materials from district education office.
14. Information related to availability or nonavailability of money from district education office. If not, the reasons for not being available.

15. Reaction of the participants regarding the educational materials. The information included to what extent the participants were interested in, picture discussion games, picture story, short story, arithmetic, and methods of teaching letters from words.

16. Suggestions for change of course content if it is not interesting to the participants–lesson, page number, and lines to be mentioned.

17. Problems encountered while conducting the program and their remedies for suggestions.

18. View of the facilitator whether or not the program has been helpful for rural development. If yes, how has it been helpful?

To be Filled Out by the Supervisor

1. Comment/remarks of the supervisor on the above information provided by the facilitator.

2. Data related to overall evaluation of the center. The rating scales included–satisfactory, fair, good, and very good.

3. Suggestions of the supervisor.

Appendix D

APPENDIX D

Data Available at MOEC

1. School's address including the first month of school year and distance of the school from district headquarters.

   _____

   _____

2. Data related to classes running at school, which includes government aided and privately run classes and years when the classes started.

3. Number of students by grade, sex, repeaters, enrolled this year, promoted to upper classes.

4. Number of students by age in each grade.

5. Teachers history including names, sex, post, educational qualification, training, status of appointment, subjects teaching, teaching experience, and subjects studied.

6. Data related to the number of teachers who get paid by HMG and those who got paid by school's own resources.

7. Details of examination which included the number of examinees and number of students who passed the examinations of Primary School (grade V), Lower Secondary (grade VII), High School (grade X), and S.L.C.

8. School's income from different sources, the sources include: government aid, fees from the students, and others. The record also included tuition fee rates of high school classes.

9. Description of subjects taught in school:

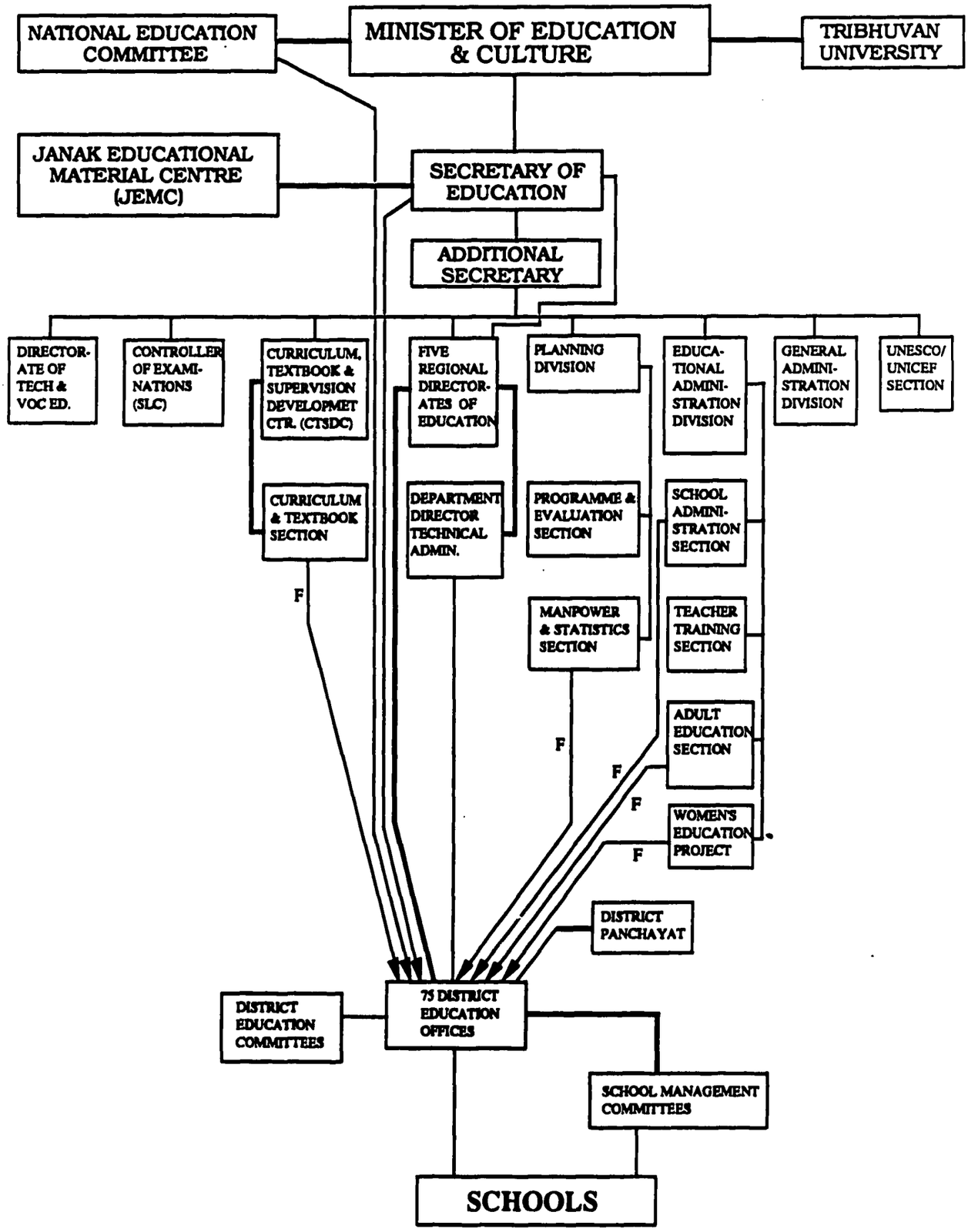
   1. Vocational subjects

   2. Optional subjects

   3. Extra optional subjects

Appendix E

APPENDIX E
Data Requests Flowing to DEOs



F=Forms: send their data collection forms to DEO.

Appendix F

APPENDIX F

Summary Result of Document Form

	Student Enrollment	Teacher Supply	Teacher's Qualification	Other Teacher's Characteristics
Overall	14	15	10	10
By level	12	10	6	4
Primary	35	25	11	12
Secondary	29	21	7	10
Voc./Tech.	9	5	0	0
Nonformal/Adult	9	0	0	0
By grade	19	4	2	0
By subject area	15	7	2	1
By geographical area	21	9	8	6
Lower secondary	24	17	7	9
Higher secondary	20	6	1	1

Availability of textbooks		
	Overall	0
	By grade	4
Projected Teacher		
	Demand	0
	Overall	0
	By grade	2
	By subject area	0
	By geographical area	0
Facilities Use		
	Classrooms	3
	Furniture	2
Educational Costs		
	Nationally	22
	By region	1
	By district	1
	By school	4
	Aggregate	12
	By type of cost	2
	Other	3

POLICY RESEARCH INITIATIVE

SOMALIA

Education Management Information Systems

Final Report

February 1989

Improving the Efficiency of Educational Systems/USAID

Ministry of Education and Culture
Planning Department

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Ali Hassan Ga'al
Director of Planning
Minister of Education and Culture

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Executive Summary

The Somalia Ministry of Education and Culture (MOEC) has long been aware of a growing dissatisfaction among decisionmakers in Somalia with the quality, timeliness, and accuracy of the educational data currently available. In order to develop a strategy for addressing data problems facing the MOEC, a diagnostic study of educational data presently in use was carried out by the Planning Department.

This study evaluated existing information from the school level to that of central administration. The processes by which data are organized, coordinated, and transmitted among various levels were assessed. It is hoped that this research will enable policy-makers to develop an Educational Management Information System which will allow decisions to be made on the basis of valid and reliable data.

The study of educational data flow involved three major components:

1. interviews with MOEC decisionmakers to determine the types of educational data they believe they need, their satisfaction with the quality of data currently available to them, and their perceptions of the major problems in educational data flow from the local schools to the MOEC;
2. a review of educational documents to determine what types of data were already available to decisionmakers, the source and quality of these; and
3. interviews with 80 headmasters, 8 DEOs, and 5 REOs to determine their perceptions of the constraints and problems in data flow between the schools and the MOEC.

The major findings of this study are summarized below:

Decisionmakers

- Most decisionmakers consider improvements in capacity building in the area of data management at both the central and regional levels to be highly essential.
- Decisionmakers consider training in all areas of data collection and analysis to be lacking and would welcome additional training.

Decisionmakers consider the major reasons for unreliable data to be: lack of training; lack of motivation; reluctance on the part of regional, district, and local level staff to provide data; and lack of analytic equipment and logistical support.

Data Flow

- The distribution system for the Annual Headmasters Questionnaire is pragmatic, but not systematic. Questionnaires are distributed through a variety of means ranging from the mail to hand delivery by whomever happens to be traveling in the direction of the school of central headquarters.
- Data collection is constrained by poor transportation and communication between central administration and the regional and district levels; by poor record-keeping in the schools; by failure of headmasters to understand what data are being requested, and by a lack of incentives for headmasters and DEOs to provide data.
- The Annual Headmaster Questionnaire contains items that are confusing to headmasters. It should be revised to clarify ambiguous questions and to add questions not currently included (such as textbook availability).

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- Staff at the district and school level see little use for educational data, mainly because they never see the results of the data they provide. More attention should be paid to sharing the results with the schools, perhaps by providing headmasters a short written statement describing major trends and developments in the education sector based on the annual data.
- National examination data should be collected by subject area or by items, rather than by total number or percent passing, as it is currently provided.
- Training in record-keeping and simple analytic procedures is needed at all levels. Headmasters, in particular, need additional training in completing the annual questionnaire.
- The Annual Statistical Yearbook should be expanded to include a narrative introduction explaining the major trends and issues that are emerging, as well as how the use the tables.

1.0 INTRODUCTION

1.1 BACKGROUND

Educational development in Somalia is divided into four eras: Precolonial, Colonial, Pre-revolution, and Revolution. These are described below:

1.1.1 Precolonial Era

Like other societies, the Somali people during the precolonial era had their own traditional education, based on their environment, philosophy, and culture. Its purpose was to prepare children for life by equipping them with the relevant skills needed to become useful and productive members of Somali society.

Traditional education in Somalia originated from daily nomadic activities. Young Somali children were taught to read and write in Arabic and to memorize verses of the Holy Koran. After a period of about three years, they proceeded to the second stage and learned Arabic grammar, the Prophet's sayings (Hadith) and Islamic Law (Shariah) from the Sheikhs. The primary emphasis was on fully understanding the meaning of the Koran. There was no central administrative office for the Koranic schools; it was the responsibility of all Somalis to ensure that this education was provided.

1.1.2 Colonial Era

Colonial education began in Somalia in the 19th century, which was divided into British Somaliland and Italian Somalia. The objective of colonial education was the same in both British-Somaliland and Italian Somalia: to produce individuals, such as interpreters and clerks, who could contribute to the colonial administration. Only the privileged received colonial education.

A MOEC Curriculum Development Center publication, "History of Education in Somalia" (1983), cites remarks of a British colonial officer in the Somaliland protectorate once stated, "Since the country cannot absorb the school leavers, only eight elementary and one intermediate school are sufficient for helping the lowest ranks of the administration." Similarly, an Italian colonial officer issued a secret directive during the fascist era in which he forbade attempts to educate the masses, stating, "We should reserve the strictly necessary education for the children of chiefs and more important nobilities only, because these can later succeed to the duties of their fathers, serve as interpreters, and hold modest positions."

The Development of Education in the Northern Region (British Somaliland). During the colonial period, northern Somalia, under the rule of the British colonies, developed a completely different educational system from that of southern Somalia, which was under the domination of the Italians. European secular education was introduced at a Catholic mission, which opened a school in Berbera in 1891. It later moved inland to Daimoleh. The first colonial government school was opened at Berbera in 1905. Schools were also built in Bulhar and Zeila, which like Berbera, are coastal settlements. Total enrollment in these schools averaged about 150 students each. The curriculum in these schools was mainly Arabic and mathematics. The Somali religious men (wadads) exerted strong influence to oppose colonial education. They feared a break with traditional thinking and the creation of an educated class which might question their authority. The missionary school in Berbera was closed in 1910 because of misunderstandings between these religious leaders and the colonial government. In 1938, a Department of Education was formed in

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British Somaliland. Subsequently, the first elementary school was built in Berbera and government schools were opened in a number of towns in the north.

Arabic was the language of instruction in both the Koranic and elementary schools. Somali was used, however, as a second language. English was the medium of instruction in all post-elementary education.

During the colonial era there were about 200 Koranic schools. The primary focus of these was on religion and Arabic, but a number of schools also included secular subjects, such as mathematics.

The first elementary school for boys was built in 1942, and included grades 1-4. This school is still in existence today. The first intermediate school (grades 5-7) for boys was opened in 1944 at Sheikh and an intermediate school for girls was opened in Burao in 1955.

Technical education began in 1945 at the Burao Intermediate School. In 1952, a Vocational Training Center was opened in Borama (Amoud) and a two-year teacher training course (post-intermediate) for elementary teachers was begun.

The Development of Education in Southern Regions. Between 1950 and 1961, many new schools were opened in Southern Somalia, mostly in areas outside the regional capitals. This is shown in Table 1 of Appendix A.

In Mogadishu, the emphasis has been on increasing the size of schools. Outside the regional capitals, stress was placed on increasing the number of schools throughout the country, consequently avoiding an increase in the average size of the schools. The number of pupils in each school during 1950-1960 is shown on Table 2 of Appendix A.

1.1.3 Pre-Revolution Era

At the time of national independence in 1960, Somalia inherited two disperate systems of education—the Italian trust territory in the south and the British protectorate in the north. Education was conducted in three different languages. Prior to independence, the primary education system in the north was comprised of three years of elementary education conducted in Arabic, followed by four years at the intermediate and the secondary level in English. In the southern region, primary education consisted of five years of elementary grades and three years of intermediate and secondary grades, with Italian as the medium of instruction at all three levels.

In the 1960s, substantial progress was made toward overcoming the problems which had resulted from this dual educational system. With the creation of a unified system of education, student enrollments at the elementary, intermediate, and secondary level increased, as did the number of teachers (see Appendix B, Tables 5-7).

1.1.4 Revolution Era

After the revolutionary government took power in 1969, a Latin script was chosen for the official Somali written language. In 1972, Somali was designated as the medium of instruction in both the primary and secondary schools. The enrollment rate increased substantially when universal primary education was established in 1975. At that time education was free and attendance was compulsory. The duration was reduced from eight years to six years. During this period, a self-help program was initiated, and the number of elementary schools increased substantially (MOEC, January 1988) (see Appendix C).

After the designation of the Somali language as the language of instruction, the Ministry of Education was faced with the task of developing and distributing textbooks written in Somali for grade 1 through grade 12. This task was carried out by the MOEC Curriculum Development Center.

As a result of increased enrollments and the demands of the national campaign to eradicate illiteracy, there was a great need for teachers. As an emergency measure, many national service teachers, with little

or no training, had to be deployed. In addition, the Halane Teacher Training Institute in Mogadishu was constructed. Subsequently, output from Halane, together with the national service teachers ensured that a sufficient number of teachers was available to handle the enrollment increases. However, the level of qualifications of most of teachers was quite low. All Halane teachers were grade eight leavers who had completed a teacher training course of one to two years.

By the end of the 1970s, Somalia had made significant gains in the education sector. Enrollments were at an all time high, a program for training teachers had been established, new textbooks had been developed, and some communities had assumed the responsibility for providing accommodations for teachers. Although the education sector was a long way from attaining a high level of educational development, progress was being made in that direction.

Since that time, however, there has been a progressive erosion of these gains. The percentage of the school age population enrolled in primary school declined from its peak of 27.2% in 1980/81 to 13.3% in 1986/87.

While it was likely that some decrease would occur as the students who enrolled during the 1975/76 literacy campaign passed through the system, grade 1 intakes have also been steadily declining since 1980. In addition, over 200 schools have closed since 1979/80. The number of schools, classes, students, and teachers for 1970/71-1985/86 are presented in Appendix C.

A number of factors have contributed to this decline, including poorly trained teachers, low salaries, lack of textbooks in the classroom, inadequate inspection and supervision and deteriorating school facilities.

In an effort to improve teachers qualifications, the MOEC recently changed the requirements for becoming a teacher from a grade 8 school leavers' certificate to that of a grade 12 leavers certificate.

In addition, a policy of decentralized training was adopted. The first decentralized teacher training colleges were opened in Hargeisa and Mogadishu, 1987/88. Those teachers who complete their two-year training courses serve in their home communities.

1.2 ORGANIZATIONAL STRUCTURE OF MINISTRY OF EDUCATION AND CULTURE

The MOEC consists of four Departments that report to the Director General (DG): Educational Development, Nonformal Education, Department of Administration, and Department of Schools. In addition, the head of the Central Inspectorate also reports to the DG.

The Department of Education Development is responsible for the oversight of development activities of the MOEC. This Department has three sections: Planning, Training, and Curriculum. Each section is subdivided into task-oriented units.

The Planning Department is responsible for analyzing data on schools, teachers, and students; forecasting system requirements for buildings, teachers, materials, and supplies; negotiating and monitoring donor funded projects; implementing government funded projects; and planning and exercising quality control over new construction. The Department is staffed by two statisticians (including the Director), one economist, one engineer, and three individuals who have received on-the-job training in basic statistical analysis.

The Teacher Training Section is responsible for training teachers and headmasters throughout the country. The Curriculum Development Department develops the textbooks for both primary and secondary schools.

The Department of Schools coordinates Primary, Secondary (including Correspondence), and Vocational/Technical Education and consists of three units: teacher, student, and logistical units.

There are 21 Regional Education Offices, one for each region. The Banadir Region, which contains Mogadishu, is divided into four regions. The Regional Education Officers (REOs) are responsible for visit-

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ing schools, assessing their strengths and weaknesses, identifying and resolving personnel problems, reporting to the Ministry on the condition of education (teachers, enrollments, students) in the regions and paying salaries to the teachers. These tasks are carried out with the assistance of the Regional Inspectors, the District Education Officers (DEOs) and the District Inspectors.

The Central Inspectorate provides the link between the Division of Educational Development and the Regional Offices. Its responsibilities are partially supervisory and partially supportive. Supervisory services are provided by the Education Section which is accountable for curriculum implementation in the schools. For the most part, the actual supervision is carried out by the Regional and District Inspectors who report directly to the Central Inspectorate, as well as to their Regional or District Officer.

Recently, the Central Inspectorate has undertaken responsibility for the inservice training of Regional and District Inspectors. The Department has a staff of 14. Theoretically, the Central Inspectors visit schools twice a year and Regional and District Inspectors visit schools at least three times. Shortages of vehicles and fuel, however, mean that regular visits are made to the schools nearby, while remote schools are visited less often or not at all.

Supportive services in the form of the distribution of textbooks and collection of Regional and District Inspectors reports are supplied by the Administration and Coordination Sections.

Each region is subdivided into one or more districts, depending on its size. The Regional Offices are headed by the REO and staffed by three Regional Inspectors, one or more accountants, and support persons (watchmen, janitors, etc.). DEOs report directly to their REO. The DEOs offices are staffed similarly to those of the REOs: one inspector, one accountant, and support personnel.

1.3 STATEMENT OF THE PROBLEM

The MOEC Planning Department is aware that the educational information now in use is of low quality. The importance of building a data base for educational planning and management cannot be overstated. However, the quality of the data base that is created largely depends upon that extent to which the information from which it is drawn is valid, reliable and up to date. This becomes even more critical when decision makers are faced with the difficult task of conducting both short and long range educational planning under stringent financial constraints.

There is a growing dissatisfaction among decision makers in Somalia with the quality, timeliness and accuracy of educational data. General speaking, there is very little information about the characteristics and condition of school buildings, teacher qualifications, number of utilized classrooms, and so forth. In addition, figures on other equally important areas (such as expenditures cost, availability, quantity and quality of teaching/learning aids) are not accurately reported to planners and decisionmakers.

Contributing to these problems are factors such as:

- Poor communication between central, regional, district, and school levels results in delays and other inefficiencies in decisionmaking (i.e., inaccuracies, missing data).
- Regions and districts do not follow a uniform system of data collection and recording.
- There is a lack of fit between the information currently collected and the needs of each level of the educational hierarchy, other government ministries, and donor agencies.

1.4 POLICY AND PLANNING IMPLICATIONS

Because central planners and policy makers do not have adequate and reliable information on the prevailing conditions of the regions and districts, they cannot draw up realistic plans and policies that are consistent with the differing needs of the individual regions or districts. The result is that educational

policy is based on national averages. Where such averages are not representative of the regions, the educational objectives are unrealistic and the content and methods of education are ill-adapted to the needs of the region or district.

Additionally, poor communication between central, regional, district, and school levels consistently undermines the education systems' planning, policy and administration initiatives.

The low level of importance attached to the way in which decisions are implemented in the field is also an obstacle to program success. Very often, educational planning ceases with the publication of the national plan. Only four percent of the five-year education development plan (1982-86) activities ever materialized.

The central education services frequently produce circulars and directives. However, problems with communication and transportation often result in long delays in the arrival of information. Hence, the implementation of these directives is severely hindered.

In addition to the MOEC's need for accurate and reliable information, data are also needed by donor representatives, who are accountable to their agencies for the results of their assistance. The lack of information may lead to a waste of those scarce resources.

The flow of information from the central to the local level (and vice versa) is too slow to serve as an effective basis for decisionmaking. Central level decisionmakers are committed to improving the information communication network.

Consequently, the development of a strategy for enhancing the quality of education is a priority objective and is explicitly stated in the current Five-Year Plan for 1987-91. An essential element in this program is the development of an effective system of data management. With this goal in mind, the Ministry, with the help of UNICEF, conducted school mapping studies in four regions in 1987.

The establishment of a computer unit in the Department of Planning with the help of USAID/IEES Project has improved the efficiency of the data collection and analysis at the central level. Central level staff have also trained planners in collecting and reporting data.

1.5 OBJECTIVES OF THE RESEARCH INITIATIVE

In order to develop a strategy for addressing data problems facing the MOEC, this diagnostic study of educational data presently in use was carried out. This study will enable policy makers to develop an Education Management Information System (EMIS) which will allow decisions to be made on the basis of valid and reliable data.

This study will evaluate the existing EMIS from the school level to central administration. The processes by which data are organized, coordinated, and transmitted among various levels will also be assessed. This research is conducted for the purpose of: (a) studying the impact of education data management systems on educational policy formulation and planning activities; and (b) providing relevant background information and up-to-date educational data so that education planners and decisionmakers can analyze alternatives, as well as formulate systematic operational procedures, policy recommendations, and appropriate strategies for enhancing the quality of education. Specifically, the objectives of this research are to identify:

- the type and sources of information planners and decisionmakers presently use;
- the major problems planners and decisionmakers usually face in using education data (i.e., adequacy, timeliness, accuracy, quality, training needs); and
- the types of data that planners and decisionmakers would like to have, but which they do not have at present.

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2.0 PROCEDURE

2.1 METHODOLOGY

The study of educational data flow in Somalia involved three major components. The first component was a study of national level decisionmakers to determine the types of education data they believe they need, their satisfaction with the quality of the data currently available to them, and their perception of the major problems in education data flow from the local schools to the MOEC. Part two involved a content analysis of education documents to determine what types of data were already available to decisionmakers and the source and quality of these.

Part three was a study of headmaster's, DEO's, and REO's perceptions of the constraints and problems in data flow between the schools and the MOEC. Between May and December 1988, structured interviews were conducted with 80 headmasters in eight regions to identify problems they experienced in collecting data within the school.

At the same time, structured interviews were conducted with selected DEOs and REOs to determine the problems they encounter in collecting school level data, in communicating those data to the MOEC, and in using data in management and decisionmaking at their respective levels of the educational system.

2.1.1 Content Analysis of Education Documents

A search for published material containing education data between 1965 and 1985 yielded 30 documents. While these 30 documents represent only a sample of a larger body of education reports and studies written during this time, difficulties in storing and archiving written materials have resulted in these being the only documents presently available in Somalia. Consequently, the sample represents a comprehensive set of the published data currently available to Somali decisionmakers.

2.1.2 Study of National Level Decisionmakers

Surveys were sent to all senior officials in the MOEC at or above the level of department head (N = 21), with the exception of the Minister of Education, who was not included in this study. Of these, completed questionnaires were received from 14 officials, representing 65% of the departments and offices within the Ministry of Education. In two cases, deputy directors completed the questionnaire on behalf of a department director.

2.1.3 Study of Data Flow

The study of the data flow consisted of interviews with 80 primary headmasters, 5 REOs, and 8 DEOs in 8 regions, including Awdal, Bakol, Bay, Gedo, Lower Shabelle, Northwest, and Togdheer. Due to the extreme difficulties experienced by the research team in implementing a random sampling procedure (which included securing transportation to distant schools), headmaster selection followed a convenience sampling procedure in which three criteria were employed. Only primary school headmasters were selected. Within

that sample, schools were selected to ensure representation of headmasters from urban, rural, and nomadic areas and they were selected to ensure that schools were geographically accessible to the interview team, generally understood to mean within one day's travel from the regional education office.

Characteristics of the headmasters participating in the study are reported in Table 1 of the results section (3.0). Ten percent of supervised schools were in nomadic areas, the rest were about equally divided between urban and rural settings. Nearly all headmasters were male and most (90%) had a teacher training diploma, which frequently meant they only had one or two years of education more than the more advanced students in their school.

Eight DEOs and five REOs completed the survey. They were drawn from the same eight regions selected for the headmaster study and were chosen because of their proximity to the schools being visited.

2.2 INSTRUMENTATION

The protocol used in the content analysis of documents was developed from a review of literature on data use (Chapman and Messec, 1985). In particular, it drew from the specification of data needed in the conduct of an Education and Human Resources Sector Assessment to support policy formulation and analysis (Cieutat, 1983; Pigozzi and Cieutat, 1988).

The survey of MOEC decisionmakers collected respondents' judgments about the timeliness, accuracy, and usefulness of current national level education data, reasons for possible loss of accuracy, and suggestions for how data accuracy could be improved. A core set of items was developed from a review of the literature on data use in developing countries (Chapman and Messec, 1985) and were selected to be consistent with parallel studies being conducted in four other countries as part of a larger research initiative. As part of this larger research effort, these items had been reviewed for appropriateness of content and clarity by a five-person research team, composed of researchers from four countries. These items were supplemented with a series of open-ended items developed by the local research team.

The interview protocol which was used with headmasters was adopted with substantial modifications from a sample protocol developed by Chapman and Messec (1985) which, in turn, was developed from a review of literature on data use in developing countries.

The items retained by the local research team collected headmasters reports of when they received requests for data from the MOEC and their identification of issues they encountered in collecting, recording, and reporting those data at the school level. The research team dropped items which elicited headmasters judgments about data quality and usefulness on the grounds that headmasters did not have sufficient information on those matters.

2.3 PRETESTS

All questionnaires were administered to the target population, in Somali language and were pretested. Revisions were made on the basis of pretest results and enumerators were trained in interviewing techniques.

3.0 FINDINGS

3.1 STUDY OF EDUCATIONAL DATA AVAILABLE TO DECISIONMAKERS

As previously noted, the first step in the analysis of educational data available to decisionmakers was to review literature published by the Ministry of Education and other relevant ministries, as well as other donors. In addition, unpublished documents and computer data bases were also reviewed.

3.1.1 Published Ministry of Education and Culture Data

A total of 30 documents were examined, of which 14 were produced by the MOEC, (either independently or in conjunction with a donor agency or advisor). An additional 8 documents were produced by other Ministries/donor agencies and 8 others were produced exclusively by donor agencies. Most of the studies reviewed were produced on an ad hoc basis, in response to a specific problem or request for information.

The majority of these documents (67%) were published between 1984 and 1985. The remaining 33% were published between 1965-1983. It should be noted that it was not possible to locate and review every document produced by the MOEC during this period. The documents included in this study represent only a sample of a large body of literature relevant to the education sector. However, every effort was made to locate and obtain as many of these reports as possible. Educational data reported in the documents by type and frequency are summarized in Table 1.

TABLE 1

Number of Studies Available by Category of Information

	Student Enrollment	Teacher Supply	Teacher Qualification
Area of analysis:			
Overall	19	11	6
Primary	14	8	2
Secondary	14	8	3
Technical/Vocational	19	6	0
Non-formal	7	2	0
Level of aggregation:			
Grade	5	1	0
Subject Area	2	0	1
Geographic Area	5	4	1
Age	2	1	0
Sex	7	1	0

N = 30
Numbers are not additive, since some studies fall into more than one category

Twenty-three percent of the studies reviewed were financed by USAID/IEES. The majority (90%) of the education documents were focused solely on the education sector, while about 10% were more general reports on the overall economy, with limited discussions on the relationship between education and development. A quick perusal of Table 1 reveals that teacher characteristics, such as qualifications and work experience, were given consideration in only 6 (20%) of the studies. The most frequently occurring statistic reported was student enrollment by primary and secondary level (14 documents), followed by teacher supply (8).

There were a number of studies reviewed which described the use of facilities, by component, including: classrooms (6), furniture (2), and schools (1). Other topics covered by these reports included projected manpower (1), projected teacher demand (3), examination results (1), student and teacher attendance (1), teacher training (4), and teacher/student ratios (4). All of the documents reviewed in this study are available to anyone on request to MOEC.

The MOEC publishes several education reports on a regular basis. The most frequent one is the quarterly document which highlights the most salient activities that the various ministry departments have carried out during the quarter. Copies of this document are submitted to both the party and the government, in order to fully acquaint them with the services provided by the Ministry and to keep them informed as to the status of current activities.

Another important document published by MOEC is the annual statistical abstract which, by and large, embodies quantitative basic data, such as enrollment by level, grade, age group, region, and sex. National examination results and educational expenditures by item are also reported. This document is the most widely circulated publication and is distributed to all ministries and nongovernmental agencies.

A vital MOEC publication that should be mentioned is the five-year educational development plan. Among other things, this document reports the educational policy and overall objectives and delineates the strategies by which target objectives will be reached. It is usually delivered to other ministries for whom the information is pertinent. The document is used as the basis for formulating the nation's educational programs and policies. It serves as a yardstick against which progress toward educational goals is measured.

For example, prior to developing the current Five-Year Plan (1987-1991), an analysis of previous five-year development plans (1982-1986) was made. The 1982-1986 Plan called for a program to implement the national policy of universal free primary education. Its goal, as evidenced by available statistics, was not reached. In fact, only 37% of the planned new intake, 48% of forecasted enrollment, and 29% of planned construction of classrooms was achieved.

3.1.2 Quality of Documents Reviewed

One reservation sometimes expressed about using quantitative data regards the extent to which data that presumably describes the same thing are consistent across sources. Inconsistency undercuts users' confidence in the data. Large inconsistencies put the data users' credibility in jeopardy, as the use of such data can be challenged by competing estimates of the same events. Appendix D contains the document rating form used in filling out the questionnaire.

One component of the content analysis of education documents involved a comparison of selected education statistics as reported across documents. Specifically, reports of primary and secondary enrollment for selected years, student retention, teacher supply, teacher/student ratio, and selected other indicators were compared across documents to determine the extent of consistency across reports. Results, summarized in Appendix E, show considerable variation in reported numbers from document to document. In some cases, the discrepancies are minor and hold no particular implications for planning. For example, the World Bank Action Plan and the EHR Sector Assessment vary only by five students in their estimates

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of primary school enrollment in 1980-81 and by ten students in 1981-82. Some discrepancies, however, pose a serious dilemma for planners. For example, estimates of the proportion of female teachers in Somalia range between 29% and 48%.

3.1.3 Production and Distribution of Documents

The main obstacles faced in the production and distribution of documents result from inadequate supplies and facilities necessary for reproduction. Moreover, problems of distributing reports to remote areas are enormous, and reports rarely reach their intended destination. These, as well as other problems, such as administrative inefficiency at the production plant and at the institution level, tend to limit availability of documents to the target population.

3.1.4 Unpublished Data

The MOEC collects and utilizes a large amount of data which are not published in the form of a formal report. These data are frequently used to provide information for ad hoc requests and underlie many of the MOEC estimates which are quoted by other ministries and donors. Examples of data of this type include information gathered in the school mapping study, the annual headmasters questionnaire and primary and secondary school examinations.

Recently, much of this information has been computerized using spreadsheet software. These data form the basis of the initial stages of a MOEC computerized data base which is now being developed with USAID/IEES assistance. The use of the computer in tabulating and analyzing these data has made an enormous difference in the time and effort required to respond to requests for information.

The quality of the information comprising this data base, of course is contingent upon the accuracy of the data that is available. The Ministry is currently attempting to improve the accuracy of this information by providing training to headmasters, central inspectorate and other MOEC staff in record-keeping and administrative techniques, as well as in procedures for filling out questionnaires and responding to information requests which they receive each year. It is hoped that as proficiency in these areas continues to grow, the quality of the information available to decisionmakers will increase, and educational decision-making can become a more systematic process.

3.2 IDENTIFICATION OF INFORMATION NEEDS OF DECISIONMAKERS

As indicated in the methodology discussion, this phase of research involved the administration of two questionnaires: (a) a data quality questionnaire, designed to ascertain the opinion of decisionmakers regarding the quality and availability of information; and (b) a decisionmakers information needs questionnaire to identify the data users, their primary sources of information, their importance, problems with the data, as well as additional data needed.

Appendix F contains the decisionmakers questionnaire. Appendices G-I contain the analysis of the questionnaire of decisionmakers information needs: Appendix G depicts the number of responses in each category for each question. Appendix H contains the average responses to each question and Appendix I depicts the percent of responses by category. Appendix J contains the data quality questionnaire, and Appendix K presents the statistical analysis of the data quality questionnaire. A summary of these analyses is presented in the discussion below.

3.2.1 Data Sources

The most frequently listed sources of information used by decisionmakers are depicted on Table 2. As illustrated on this table, reports from REO/DEO, data from headmasters and statistical surveys were the

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most frequently used sources. None of the respondents checked donor studies as a source of data used by their office

TABLE 2

Decisionmakers Sources of Information

	Estimate based on personal exper-ience	Statis-tical survey	Data from Head-master	Reports from REO/ DEO	Donor Studies	Other (specify)	Do not use data of this type	N*
a) Student enrollment distribution	0	2	5	2	0	0	1	10
b) Student characteristics (sex, age, etc.)	1	0	0	2	0	0	0	2
c) Student performance on promotional examination (one grade to next)	1	2	4	2	0	0	1	10
d) Student performance on national leavers exams	0	0	0	1	0	0	0	1
e) Student drop out rate	1	1	5	2	0	0	0	9
f) Teacher assignment placement	0	1	0	1	0	0	0	2
g) Teacher supply	0	0	0	2	0	4	1	7
h) Future demand for teachers	0	0	0	0	0	0	0	0
i) Teacher background/training	0	1	3	3	0	1	0	8
j) Teacher performance	0	0	1	1	0	0	0	2

However, it should be noted that many of the studies funded by other donors are published as Ministry of Education documents and may not be regarded by some as donor studies. This question does not ask respondents to specify how often each of these documents are used.

The responses to questions regarding the sources of data considered to be "most useful" are reported on Table 3. As can be seen from Table 3, when decisionmakers were asked about sources of information they found most useful, 4 listed data from the Regional Education Office, 6 from the Planning Office, and 1 from other MOEC sources.

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TABLE 3

Data Sources

Question No.	Question Content/ Category	Number of Responses	N
DM-6	Most Useful Sources of Information:		11
	Regional Education Officers	4	
	Planning Department	6	
	Other MOEC Sources	1	
DM-7	Most Useful Documents Consulted:		11
	Regional Education Officers	3	
	Planning Department	7	
	Other MOEC Sources	1	

Although question 7 on the decisionmakers questionnaire was intended to elicit actual names of documents found to be most useful, respondents listed the department issuing the reports, rather than document titles. This question produced similar, but slightly different, results than the responses to question 6.

A total of 3 out of 11 respondents indicated that they found the most useful documents to be those in Regional Offices, 7 out of 11 listed Planning Department reports, and 1 reported other MOEC sources. The response to question 15, an open-ended question which asks with whom decisionmakers consult before making decisions, 7 of 10 listed Regional Officers and Directorate General for Schools, while 3 listed the Planning Department.

3.2.2 Importance and Use of Data

Table 4 depicts the attitudes of the respondents to the decisionmakers questions about the importance and possible uses and sources of data. As illustrated on this table, a high proportion of respondents ranked all categories given as important.

Regarding the importance of various data sources, the number of responses receiving extremely important or very important ratings in each category were as follows: statistical analyses, 7 out of 10; personal experience, 3 out of 10; and conversations with MOEC staff, 2 out of 5. The mean ratings for statistical analyses, personal experiences, and conversations with others were 1.6, 1.8, and 3.0 respectively (with 1 being the highest rating and 4 being the lowest).

Question 6 on the data quality questionnaire asks decisionmakers to rate the importance of specific types of educational information. The results of these ratings were then compared to the analysis of information presently available to decisionmakers. The results of this comparison are depicted on Table 5. An examination of this table reveals that the types of information which were ranked highest in importance, i.e., student enrollment (1.17) and teacher supply (1.17), were also the most frequently occurring categories of the studies (19 and 11 studies respectively).

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TABLE 4

Data Importance Ratings by Use and Source

Question No.	Question Content/Category	Importance Ratings 1	2	3	4	N
DM-4	Data Use:					
a	Describe educational status	7	2	1	0	10
b	Program monitoring	7	3	1	0	11
c	Trends in education	8	2	0	1	11
d	Projections	8	1	2	0	11
e	Other	1	0	0	0	1
DM-11	Importance of Data Sources:					
a	Personal experience	3	1	2	0	6
b	Conversations MOEC staff 40	2	1	1	1	5
c	Conversations others	0	2	1	2	5
d	Statistical analyses	7	1	1	1	10

1 = extremely important
2 = very important
3 = somewhat important
4 = not at all important

TABLE 5

Importance Ratings of Data Type

Type of Data	Mean	Standard Deviation	Number of Reports Available
Student enrollment	1.17	.39	19
Teacher supply	1.17	.39	11
Teacher background/qualifications	2.17	.94	6
Education costs	1.42	.79	3
Availability of textbooks	2.92	.29	3

1 = extremely important
2 = very important
3 = somewhat important
4 = not at all important

Number of respondents = 14; Number of reports reviewed = 30

Likewise, there were only three reports dealing with availability of textbooks—the category which received the lowest ranking on the importance scale (2.92). Of course, there is no way of determining the extent to which the importance ranking was influenced by the respondents familiarity with the type of data they were asked to rank. That is, it is possible that some types of data are perceived to be more important than other types because they are more readily available and more frequently used.

These findings are somewhat contradictory to the results of the examination of available documents, in which a number of data inconsistencies were identified. However, it must be kept in mind that some of the documents in the literature review were published a number of years ago (as noted earlier, 33% were published between 1965 and 1983, and 67% between 1983 and 1985).

In addition, respondents to the decisionmakers questionnaire were not asked about specific documents, but rather were asked to give their overall perception of the quality of educational data available to them. Furthermore, respondents to the decisionmakers questionnaire were not given specific criteria on which to rate the data. The literature review, on the other hand, involved examining documents for inconsistencies in data across sources, as well as the overall quality of the reports.

When decisionmakers views of data quality were elicited by asking about specific data problems which they experience, however, the responses were somewhat different. These results are described in Table 7.

3.2.3 Data Quality

Both the data quality and the decisionmakers questionnaire contain items dealing with the quality of data. As noted earlier, statistical analysis of the responses to questions on the decisionmakers questionnaire is found in Appendices G-H, and responses to the data quality questionnaire are contained in Appendix K.

In response to the questions on the data quality questionnaire concerning the accuracy of the data, decisionmakers generally reported a higher amount of error in the data which they use than they considered acceptable. The mean percent of reported error was 21.3%, while the mean acceptable error was 9.9%. On a scale of one to four, with one being "extremely accurate" and four being "not at all accurate," the mean rating of the accuracy of educational data was 2.92 (slightly above the "somewhat accurate" category). All of the respondents felt that, relative to other demands, improving the quality of educational data was extremely important.

Table 6 depicts respondents ratings of data quality (question 20 on the decisionmaking questionnaire). As illustrated, 2 out of 10 people rated data quality as "excellent," 5 considered data to be of "good" quality, 3 ranked the data to be "fair," and 1 person considered the data to be "poor." The mean response was 2.2 (see Appendix I).

TABLE 6

Data Quality

Question No.	Question Content/Category	Data Quality Rating 1	2	3	4	N
DM-20	Quality of Educational Data	2	5	2	1	10

1 = excellent
2 = good
3 = fair
4 = poor

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3.2.4 Data Problems

Table 7 depicts the extent to which respondents regard various data issues to be serious problems which they experience with educational data (question 18). The problems having the highest number of extremely serious or very serious rankings include: "timeliness" (8 out of 8); "accuracy" (8 out of 10) and "not sure how to interpret" (10 out of 10). The mean response rate for each of these categories is 1.2, 1.3, and 1.5 respectively.

TABLE 7

Data Problems

Question No.	Question Content/Category	Number of Responses Seriousness Rating 1	2	3	4	Number Responding N
DM-18	Educational Data Problems:					
a	Timeliness	6	2	0	0	8
b	Accuracy of data	8	1	1	0	10
c	Mistakes in analysis	3	3	2	0	8
d	Results not clear	4	2	0	1	7
e	Not clear how data were analyzed	4	2	0	1	7
f	Not sure how to interpret	3	3	0	0	6
g	Other	0	0	2	0	2

1 = extremely serious problem
2 = very serious problem
3 = somewhat of a problem
4 = not a problem

Seventy percent of the respondents believe that a lack of adequate training in making the best use of educational data in their job is the major constraint they face (question 9). Concerning the most serious problems with available data (question 10), 50% stated that data is not up-to-date, while 40% feel that data is not available in the form needed.

In response to an open-ended question (question 8) asking what could be done to improve the quality of the information about the education system available to decisionmakers, 9 of the 11 respondents listed the need for capacity building in the area of data management at both central and regional levels as highly essential to improving data quality, while 2 decisionmakers call for the improvement of coordination among ministry departments and between the central and regional levels.

To the decision makers, questions regarding what type of information decision makers do not have but would like to receive (question 12) (see Table 8), 3 out of 10 of the respondents would like to know the exact number of the MOEC employees, and 5 out of 10 expressed the need for more regular and comprehensive information, particularly on issues related to:

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- number of textbooks, preferably by grade, subject, level, and lifetime;
- promotion examination results; and
- background information on the prevailing local conditions under which schools function, particularly primary schools.

The remaining 20% of respondents feel that they are not usually consulted by the top executives in ministry matters that concern their department and for other departments whose job is related to theirs in some way.

TABLE 8

Information Decisionmakers Would Like to Have

		Number
DM-12	Information Don't Have but Would Like to Have:	
a	Exact number of MOEC empioyees	3
b	Total number of textbooks by grade, level and conditions	1
c	More reports on the conditions	
d	Rural schools	2
e	Promotion examination results	2
f	Consultation with MOEC superiors	2
DM-15	Primary People Consulted:	
a	Planning Department	7
b	Regional Education Officers and D.G. for Schools	3

N = 10

When decisionmakers were asked how often they base their decisions on the examination of specific educational data (question 14), 7 checked "always" and 4 checked "most of the time."

With regard to the involvement of decisionmakers and their staff in the process of statistical analysis and interpretation (question 16), 2 out of 11 decisionmakers report that they do the statistical analysis and interpretation themselves, 7 do the interpretation but have the analysis done by a staff member, and 1 has a staff member do both the analysis and interpretation. No one checked "I do not use statistical data."

In response to question 17, which asks who uses data analyzed in the respondents department, none reported that the data was used only by the decisionmaker. Of the 11 respondents, 2 said that both they and the people in their office use the data, 1 that the data is widely available to anyone who wants to see it, and 7 said that no statistical analysis is conducted in their unit.

Note that this seems to contradict the responses to question 16. A total of 7 out of 10 decisionmakers reported that they have hand calculators (question 21), while only 1 has access to computers or know how to use them. All respondents expressed interest in learning to use a microcomputer.

3.3 MAPPING OF DATA FLOW

3.3.1 General Description of Data Flow

Primary responsibility for data collection within the MOEC is vested with the Statistical Division of the Planning Department which is responsible for preparation of the Statistical Yearbook issued each year by the Ministry. However, school level data also are collected by the Department of Primary Education and the Department of Personnel. Other departments such as Adult Education, Women's Education, and Non-formal Education collect data that are more narrowly focused in scope and pertain more directly to their own area of interest. These data collection efforts are described below.

The Statistical Division is responsible for the design of the main school level survey on which data is collected annually. While there is a different form used at each education level (e.g., primary, secondary, vocational/technical), the forms at each level have remained relatively constant from year to year to ensure comparability of data over time.

At all the levels, the forms collect student enrollment by age, gender, and grade; the number of teachers and administrators by gender, qualification level, and experience; and the number of classes, classrooms, and amount of support space (e.g., administrative offices, storerooms, toilets). The number of teachers by subject is collected only at the secondary level. The forms at all levels ask for data on repeaters and dropouts, however, schools seldom provide it. These statistics are estimated later in the data analysis by cohort comparisons from year to year. The primary and secondary school forms also collect average scores for students taking the primary and secondary leavers examinations, respectively.

Until 1988, Statistical Division data forms were sent to schools in November. This distribution was accomplished by mailing the forms to Regional Education Officers or giving them the forms when they came to meetings. They, in turn, distributed the forms to the District Education Officers either by visiting the districts or handing them out as district personnel came through the regional office. District personnel delivered the forms to schools or, more often, gave them to school personnel when they came to the district office to pick up teacher salaries for their school. Since these visits were intermittent and, in some cases, occurred only once in three months, actual completion of the forms in the school was not scheduled until January.

In early January, one day was designated as data collection day across all schools. By having all schools complete the forms within the same time frame, double counting of students transferring among schools in the middle of the year was reduced—a significant problem in a society that is still primarily nomadic. At the end of this time, completed forms are returned to the Ministry by reversing the distribution process. School personnel send forms to the DEO, who sends them on to the REO and eventually to the MOEC.

In 1988, the school year was moved forward by two months, to start in September. From 1988 on, data collection will be scheduled for mid-November.

In theory, REOs are expected to develop a region-wide summary of key indicators—enrollment, teacher supply, and facilities use. In practice, this seldom or never happens, for reasons discussed later. In either case, the MOEC Statistical Division codes data directly from the school forms submitted by the REOs. Until 1985, hand calculators were used for all national level data analysis. Since then, data have been coded and entered into a Wang microcomputer and analyzed using dBase and Lotus programs.

Each year a draft summary of the analysis is distributed to department heads within the MOEC as soon as it is available. This allows for the data to be circulated and used even before it is available in a published form. Eventually, it is published as the Annual Statistical Report of the MOEC.

In the early 1980s, the time between data collection and final publication of the Statistical Yearbook averaged about two years. With the introduction of the microcomputer, the lag time has been reduced to as little as two months between data collection and analysis, though some delay is still encountered in publishing the Yearbook due to competing demands on the limited capacity of the government printing press.

Department of Personnel. The MOEC Department of Personnel annually conducts a separate data collection in which REOs are asked to complete a questionnaire on which they must list all teachers, administrative staff, and support personnel by salary grade. These data are the basis for recurrent budget allocations to the schools, so there is considerable cooperation on the part of school personnel in providing the data. REOs collect the necessary information by working through the DEOs who, in turn, get the data directly from the schools. Within the school, the form to be completed is short (two or three pages) and relatively simple.

These personnel lists do not necessarily match the number of teachers and administrators a school reports on the Statistics Division Survey, since the personnel department survey also includes those people who are on leave, sick, or unassigned. The Statistics Division Survey, however, collects only information on those actually teaching or administering in a given year.

Departments of Primary and Secondary Education. Separate data collections are conducted annually by the Department of Primary Education and the Department of Secondary Education. Each department collects data on teacher supply, teacher demographics, and headmaster evaluation of teacher performance. The questionnaires also collect student promotion examination results and student grades by subject and by teacher. The teacher evaluation data ostensibly are used in the selection of teachers to become headmasters.

The student examination and course performance data are used to assist students transferring across schools. The family of a student who is moving to another district can write to the MOEC requesting that the student's school performance data appear to assist student mobility across schools, these data are not systematically analyzed as a means of providing qualitative data on student performance or achievement.

In addition to these school level data, the Departments of Primary and Secondary Education collect REO evaluations of DEO performance and MOEC evaluations of REO performance. Again, these data are used primarily in personnel promotion decisions.

Other MOEC Departments. Other departments of the MOEC collect data in support of their specialized interests. For example, the Department of Adult Education, Woman's Education, and Nonformal Education engage in school level data collections, though they target only schools in which they believe some activity within their domain of interest is occurring.

These data collection efforts tend to concentrate on curriculum and enrollments in their special interest programs, and on management issues and teacher performance related to those programs.

The net effect of these data collection activities is that headmasters receive multiple requests to provide data. The requests, however, vary in the specific data being sought. While headmasters express some concern over redundancy, it appears not to be a major problem. Nonetheless, there are few incentives for headmasters to provide the requested data and few sanctions if they do not. Over the last three years, the MOEC has been holding a series of workshops to train headmasters in how to complete the data forms. Part of this training has involved explaining to headmasters more about why the data are sought and how the resulting analyses are used. Officials in the Statistics Division report an appreciable increase in headmaster cooperation and a corresponding drop in errors in completing the data forms among those who have attended this training.

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The MOEC also has trained REOs to check school forms and to conduct initial calculations on the data they collect at the regional level. As part of this workshop, participants were range educational planning under stringent financial constraints.

There is a growing dissatisfaction among decisionmakers in Somalia with the quality, timeliness, and adequacy of educational data. Generally speaking, there is very little information about the characteristics and condition of school buildings, teacher qualifications, number of utilized classrooms, and so forth. In addition, figures on other equally important areas (such as expenditure cost, availability, quantity and quality of teaching/learning aids) are not accurately reported to planners and decisionmakers.

Contributing to these problems are many factors, such as analyses which have resulted in the more rapid provision of information that have traditionally been reported by the MOEC, rather than in the provision of new types of analyses. The annual Statistical Yearbook continues to be the primary formal reporting mechanism of national level education data and remains in essentially the same format as it has previously. The one exception is that more ratios (e.g., student:teacher, student:class, teachers:school) are now reported. Still, no trend statistics or projections are yet reported in the Statistical Yearbook, even though data to support such analyses are available.

This is not to imply that the new data are not used or that the increased speed with which the data are now available is an insignificant accomplishment. The increased speed in analysis has meant that draft summaries of each year's data are available to policymakers much earlier. This directly addresses the problem of tying range educational planning under stringent financial constraints.

MOEC Statistical Division personnel believe that data use within the Ministry is increasing. They report that they regularly respond to ad hoc requests for data from the Minister of Education; the National Examination Board used MOEC data to prepare for administration of the national examinations; and donor requests for data are common. The ability to provide data that can be used by donors to justify their continued investment in Somali education is especially important, given the country's heavy dependence on external donor assistance. Moreover, some local industries use the data. For example, a local textile company uses the data to project the need for school uniforms.

3.3.2 Results of Headmaster/REO/DEO Survey

A total of 80 Headmasters, 5 Regional Educational Officers (REOs), and 8 District Education Officers (DEOs) participated in this survey (see Appendix K). For the purposes of discussion, the responses of REOs and DEOs are presented in aggregated form.

General Information. Table 9 indicates that 46.2% of the Headmasters in the survey were located in urban areas, 43.7% in rural areas, and 10% in nomadic areas. All of the REOs and DEOs were from urban areas.

Headmasters in the survey included 79 males and one female. All 13 REOs and DEOs were male.

TABLE 9

Location of Headmasters

Area	Number	Percent
Urban	37	46.2
Rural	35	43.7
Nomad	8	10.0
TOTAL	80	100.0

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Experience and Educational Background. Table 10 shows the mean, median, and mode number of years respondents have served as headmasters, DEOs, and REOs. The mean and median for headmasters, as well as REOs and DEOs, is five years.

A total of 2.5% of the Headmasters in the survey (see Table 11) had university degrees, 90.0% had teacher training diplomas, 6.2% had secondary school leaving certificates, and 1.3% had primary leaving certificates. Furthermore, almost all Headmasters had completed one or two years of teacher training at Lafoole Teacher Training College, Eel Jaalle, Halane, Collegio Nuova Somalia, or the Arabic Teacher Training Institute. From Table 12, it can be observed that 60% of the Headmasters had one year of teacher training courses, 30% had two years, 1.3% had three years and 3.75% had received four years of training.

TABLE 10

Number of Years in Present Position

	Headmasters	REO/DEO
Mean	5	5
Median	5	5
Mode	2	4

N-Headmasters = 80
N-REOs = 5
N-DEOs = 8

TABLE 11

Headmasters Educational Level

Educational Level	Number	Percent
University Degree	2	2.5
Teacher Training Diploma	72	90.0
Secondary	5	6.2
Primary	1	1.3
TOTAL	80	100.0

TABLE 12

Number of Years of Teacher Training (Headmasters)

Years of Training	Number	Percent
One Year	48	60.0
Two Years	24	30.0
Three Years	1	1.3
Four Years	3	3.7
Not Specified	4	5.0
TOTAL	80	100.0

Most of the REOs and DEOs (11) had university degrees, with four years of teacher training at Lafoole, which is part of the Somalia National University. One had a teacher training certificate, with three years of training, and one had only a secondary certificate (see Tables 13 and 14).

With regard to inservice training, it was observed that 20% of the Headmasters had never participated in any seminars, 75% had attended one, 3.8% had attended two, and 1.3% had participated in three seminars (see Table 15).

TABLE 13

REO/DEO Educational Level

Educational Level	Number	Percent
University Degree	11	84.6
Teacher Training	1	7.7
Secondary	1	7.7
Primary	0	0.0
No Certificate	0	0.0
TOTAL	13	100.0

TABLE 14

Number of Years of Teacher Training (REOs/DEOs)

Years of Training	Number	Percent
One Year	0	0.0
Two Years	0	0.0
Three Years	1	7.7
Four Years	11	84.6
Not Specified	1	7.7
TOTAL	13	100.0

TABLE 15

Seminars Attended by Headmasters at Regional Level

No. of seminars attended	Number Headmasters	Percent Headmasters
0	16	20.0
1	60	75.0
2	3	3.7
3	1	1.3
TOTAL	80	100.0

Distribution and Collection of Questionnaires. As previously noted, each year the Department of Planning of the MOEC produces an Annual Statistical Yearbook. Most of the data is related to annual student enrollment for grades one to twelve, the number of teachers in the schools, and other information about primary, secondary, technical and vocational schools throughout the country.

In addition to this information, a Yearly Teachers Report is compiled by Headmasters and forwarded to the Regional Education Officer or District Educational Officer. There are occasionally other reports also written by Headmasters as the need arises

During the past year, a total of 98.8% of the Headmasters filled out the Annual Statistical Questionnaire, 11.3% completed the Yearly Teachers Report, and 3.8% filled out other surveys as well (see Table 16).

TABLE 16

Type of Questionnaires Filled Out by Headmasters, 1987/88

Questionnaire	Number	Percent
Annual Statistical Survey	79	98.7
Yearly Report of Teachers	57	71.3
Special Survey/Other	3	3.7

*Figures are not additive across categories since headmasters may receive more than one type of survey.

All of the REOs and DEOs indicated that they distribute the Annual Statistical Survey, 92.3% present a Yearly Report of Teachers to the central administration, and 30.8% help the MOEC carry out special surveys (see Table 17).

As indicated in 3.3.1 above, the Annual Headmasters Questionnaires are supposed to be distributed from Central Administration to the REO, from the REO to the DEO, and from the DEO to the Headmaster. One of the objectives of this survey was to determine how closely this process is actually followed.

TABLE 17

Types of Questionnaires Distributed by REOs/DEOs During 1987/88

Questionnaire	Number	Percent
Annual Statistical Survey	13	100.0
Yearly Report of Teachers	12	92.3
Special Survey/Other	4	30.8

*Figures are not additive across categories since REOs/DEOs distribute more than one type of survey.

When REOs and DEOs were queried about the channels through which questionnaires are distributed, all of the REOs said that they pass the questionnaires along to the DEOs for distribution. The DEOs, in turn, reportedly distribute these questionnaires to Headmasters. None of the REOs or DEOs indicated that they give the questionnaires directly to teachers (see Table 18).

However, this information is contrary to the Headmasters responses to the same question. A total of 28.7% of the Headmasters indicated that they receive the Annual Headmasters Questionnaire in 1987/88 from the REO, 52.5% from the DEO, 7.5% from the Planning Unit, and 10.0% from Regional Inspectors. These data are depicted in Table 19. As noted in Table 20, most REOs and DEOs distribute the questionnaires by vehicle transport.

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TABLE 18

To Whom REOs/DEOs Distributed Questionnaires, 1987/88

	Number	Percent
DEO*	5	38.5
Headmaster or Principal**	8	61.5
Teachers/Others	0	0.0
TOTAL	13	100.0

*REO responses
**DEO responses

TABLE 19

From Whom Headmasters Received Questionnaire

Title	Number	Percent
REO	23	28.2
DEO	42	52.5
Regional Planning Unit	6	7.5
Regional Inspector	8	10.0
No Response		1.3
TOTAL	13.0	100.0

TABLE 20

How REOs/DEOs Distribute Questionnaires

Method	Number	Percent
By transport	7	53.8
Other	4	30.8
No Response	2	15.4
TOTAL	13	100.0

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[redacted]

The Annual Headmasters Questionnaire may be returned to the REOs, DEOs, or central administration in a variety of ways. It may be sent through the mail, carried by personal friends, or it may be picked up by the DEO. When DEOs and REOs were asked about the means they use for collecting the questionnaire, 7.7% of the REOs responded that they received the questionnaire by post, 30.8% by transport, and 61.5% by other means (see Table 21).

TABLE 21

Method of Collecting Questionnaire

Method	Number	Percent
By Post	1	7.7
By Transport	4	30.8
Other	8	61.5
No Response	0	0.0
TOTAL	13	100.0

When Headmasters were asked to whom they return the questionnaire, most (60.3%) said that they send it to the DEO, and 39.7% send it to the REO. From there it is sent to the central administration for analysis (see Table 22).

TABLE 22

To Whom Headmasters Return Annual Statistical Questionnaire

	Number	Percent
DEO	47	60.3
REO	31	39.7
Central Administration	0	0.0
TOTAL	78	100.0

Understanding of Purpose of Data Collection. Headmasters were asked to state the purpose for each type of questionnaire they received during the school year. A total of 83.8% of the respondents answered that the purpose of the questionnaire was "to gather data about schools." The remaining 13 Headmasters did not give any response to this question. With regard to the yearly Report of Teachers, half of Headmasters said that the purpose was "to gather information from the teachers," while the other half gave no response.

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This question was asked in order to determine whether the Headmasters understood the importance of the questionnaire and the reasons for collecting the data. It is clear from the vagueness of their answers, and the lack of response, that Headmasters have no real understanding of why the data are needed. This may help to explain why there is so little concern by Headmasters about the timeliness and accuracy of data (see Table 23).

TABLE 23

Purpose of Questionnaires (Headmasters Perceptions)

Purpose	Annual Statistical Questionnaire		Yearly Report of Teachers	
	Number	Percent	Number	Percent
1. Get statistics about schools	67	86.2	0	[illegible]
2. Get information about teachers	0	0.0	28	49.0
3. No response	12	13.8	29	51.0
TOTAL	79	100.0	57	100.0

As shown in Table 24, REOs and DEOs had no better understanding of the purpose of the annual surveys which they are asked to distribute.

TABLE 24

Purpose of Questionnaires (REO/DEO Perceptions)

Purpose	Annual Statistical Questionnaire		Yearly Report of Teachers	
	Number	Percent	Number	Percent
1. Get statistics about schools	10	76.9	0	0.0
2. Get information about teachers	0	0.0	7	58.3
3. No response	3	23.1	5	41.7
TOTAL	13	100.0	12	100.0

When asked about the month in which the questionnaires were received by the headmasters, most received the questionnaires between December and February (see Table 25).

TABLE 25

When Annual Headmasters Questionnaires Were Received by Headmasters

Month Received	Annual Statistical Survey		Yearly Report of Teachers		Other	
	Number	Percent	Number	Percent	Number	Percent
1987						
October	1	1.3	0	0.0	0	0.0
November	8	10.0	2	3.5	0	0.0
December	17	21.2	3	5.3	0	0.0
1988						
January	27	33.7	8	14.0	1	33.3
February	23	28.7	3	5.3	0	0.00
March	3	3.8	10	15.5	1	33.3
No Response	1	1.3	31	54.4	1	33.3
TOTAL	80	100.0	57	100.0	3	99.9

Problems of Data Collection. When asked what problems they had in filling out the questionnaire, 10.0% of the headmasters answered that the information is not available, 36% said that they could not understand the questions, 5% said the questionnaire does not apply to their situation, 3.7% said that the questionnaire is too long, while 10.0% gave other reasons, such as not getting feedback about their responses (see Table 26).

The question on the Annual Headmasters Questionnaire concerning those students who are repeaters is rarely filled out by headmasters, and when it is completed, it is usually filled in incorrectly. Consequently, the Planning Department was interested in knowing what problems headmasters have with this particular question. When asked about this question, 20% said that they do not understand how to answer it, 15% do not have the information, 2.5% do not think the information is important, 10% use automatic promotion (so the issue is irrelevant), 2.5% do not have repeaters in their school, 13.8% say that it is too difficult to calculate and report information about repeaters, and 17.5% indicated that there were other problems (which they did not specify). These responses are depicted on Table 27.

Regarding how the questionnaire could be improved, only two headmasters offered suggestions. One requested that feedback be given to the schools, and the other suggested that the questionnaire be divided into two parts—one portion relating to students and the other portion about school personnel.

When REOs and DEOs were asked about problems with the Annual Headmaster Questionnaire, over half of the respondents mentioned that the Headmasters do not understand the questions. Most of the difficulties stemmed from the ambiguity of terms in the questionnaire. In particular, they mentioned questions dealing with repeaters, the number of classes, and the number of classrooms. They also cited problems with counting the number of chairs and benches in the school. Only one REO or DEO said that he did not understand any of the questions.

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TABLE 26

Problems in Completing Questionnaire (Headmasters)

Problem	Number	Percent
1. Information is not available	8	10.0
2. Don't understand question	29	36.3
3. Questions do not apply to local situation	4	5.0
4. Questionnaire is too long	3	3.7
5. Other	8	10.0

N = 80
Numbers do not total to 100% because response categories are not mutually exclusive, i.e., respondents could list more than one problem.

TABLE 27

Headmasters Problems in Answering Questions on Repeaters on Annual Headmasters Questionnaire

	Number	Percent
1. Do not understand the question	16	20.0
2. Do not have information	12	15.0
3. Do not think the information is important	2	2.5
4. Use automatic promotion	8	10.0
5. Do not have repeaters	10	12.5
6. Too difficult to calculate	11	13.8
7. Other	14	17.5

N = 80
Numbers do not total to 100% because response categories are not mutually exclusive, i.e., respondents could list more than one problem.

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One person felt that the questions did not apply to his own situation. These responses are depicted on Table 28.

TABLE 28

Problems in Completing Questionnaire (REO/DEO)

Problem	Number	Percent	Question
1. I do not understand the question	1	7.7	22, 3
2. Headmasters do not understand questions	7	53.8	1, 7, 20, 21
3. Question do not apply to my situation	1	7.7	2
4. Questionnaire too long	0	0.0	
5. Other	2	15.4	8t, 9j, 20

N = 13
Numbers do not total to 100% because response categories are not mutually exclusive, i.e., respondents could list more than one problem.

One of the major impediments to accurately reporting statistics at the school level is the lack of analytic equipment. As illustrated on Table 29, only about 9% of the Headmasters had access to adding machines or calculators. Most of the Headmasters must therefore do all calculations manually. This is very time consuming and leads to inaccuracies. However, all of the REOs and one DEO had calculators. Most of these were given to the REOs by the MOEC.

When Headmasters were asked what sources of information or documents they used in filling out the questionnaire, 23% said they collected the information from the teacher register, 76% use information from the class register, 28% use the general school register, 30% apply the method of observation and counting students, and 6.2% ask parents. The remaining Headmasters use other sources, such as previous exam results and miscellaneous school documents or last year's questionnaire (see Table 30).

Regarding who fills out the Headmaster questionnaire, as noted on Table 31, 97% of the Headmasters fill out the questionnaire themselves (rather than the secretary or teachers). One Headmaster did not answer this question and one said that the questionnaire was filled out by other sources.

When asked about whether Headmasters have some sort of training in filling out the questionnaire, 52.5% said they received training on how to fill a questionnaire of this type, while 46% had no training at all (see Table 32).

Most of the training which was provided was given by the Central Inspectorate (32%). In addition, 8.7% of the Headmasters were trained by the Planning Department of the MOEC, 6.3% by REOs. Another 3.7% had received training from DEOs, while 1.2% learned how to fill it out by asking a colleague (see Table 33).

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TABLE 29

Equipment Available to Headmasters, DEOs/REOs

	Headmasters		DEOs/REOs	
	Number	Percent	Number	Percent
Calculators	5	6.3	5	38.5
Adding machines	2	2.5	1	7.7
None	73	91.2	7	53.8
TOTAL	80	100.0	13	100.0

TABLE 30

Sources of Information

	Number	Percent
1. Teacher register	19	23.0
2. Class register	61	76.0
3. General school register	23	28.0
4. Observation or counting students	24	30.0
5. Asking parents	5	6.2
6. Information on last year's questionnaire	19	23.0
7. Previous examination results	5	6.2
8. School Documents	1	1.2
9. Unspecified	9	11.0

*Respondents were allowed to check more than one category; therefore, the responses were not mutually exclusive. Percentages cannot be added across categories of responses.

TABLE 31

Who Fills Out the Questionnaire

	Number	Percent
1. Headmaster	78	97.5
2. Secretary	0	0.0
3. Teachers	0	0.0
4. Others*	1	1.2
No response	1	1.2
TOTAL	80	99.9**

*Not specified.
**Numbers do not total to 100% due to rounding.

TABLE 32

Training in Filling Out Questionnaire

Responses	Number	Percent
Yes	42	52.5
No	37	46.3
No response	1	1.2
TOTAL	80	100.0

TABLE 33

Who Conducted Training

	Number	Percent
REO	5	6.3
DEO	3	3.7
Headmaster	1	1.3
Central Inspectors	26	32.5
Planning Department	7	8.7
No Training	38	47.5
TOTAL	80	100.0

With regard to REO/DEO training on filling out the questionnaire, 30.8% answered that they received group training workshops, 23.1% had individual face-to-face instructions, 30.8% were provided with written instructions, while the remaining 25.4% they had not received training of any type. These figures can be seen on Table 34.

TABLE 34

Type of Training Provided to REOs/DEOs in Filling Out Questionnaire

Training	Number	Percent
Group training workshop	4	30.8
Individual face to face instruction	3	23.1
Written instructions	4	30.8
Other	0	0.0
None	2	15.3
TOTAL	13	100.0

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REOs are supposed to check the accuracy and completeness of the data before forwarding the school forms to the MOEC. In practice this does not happen often. Even if they check the forms, their contribution generally is limited to assuring the internal consistency of the data within the form, since they have no way of assuring that the school data are themselves accurate.

Few Headmasters had the time or the information to check all the answers on the Annual Headmasters Questionnaire before sending it in. As indicated on Table 35, approximately 40% of the Headmasters said that they had an opportunity to check the answers on the questionnaire, 15% of the respondents were able to check some of the answers, while 43.7% had no opportunity to check the answers on the questionnaire.

TABLE 35

Proportion of Figures Checked by Headmaster Before Sending

	Number	Percent
All	32	40.0
Some	12	15.0
None	35	43.7
No response	1	11.3
TOTAL	80	100.0

Table 36 depicts the proportion of the figures on the Teachers Yearly Report and the Annual Headmasters Questionnaire that REOs and DEOs are able to check. Approximately 76.9% of REOs/DEOs say that they check all figures before sending them to central administration, 15.4% check some of them, and 7.7% do not check any of the figures.

TABLE 36

Proportion of Figures Checked by REOs/DEOs Before Sending

Response	Number	Percent
All	10	76.9
Some	2	15.4
None	1	7.7
TOTAL	13	100.0

When DEOs and REOs were asked how they checked figures which were reported to them, the following responses were given: 30.8% verify calculations, 30.8% make on-site visits, 69.2% compare figures with previous years records while the remaining 7.7% (one person) applied other methods besides the ones mentioned above (see Table 37).

TABLE 37

How REOs/DEOs Check Figures Reported to Them

Method	Number	Percent
1. Verify calculations	4	30.8
2. On-site visits	4	30.8
3. Compare with previous years' records	9	69.2
4. Others	1	7.7

*Respondents were allowed to check more than one category; therefore, the responses were not mutually exclusive. Percentages cannot be added across categories of responses.

With regard to the information or documents headmasters collect for new students, the following responses were given: 67.5% collect information on age and sex of the student, 22.5% on parents occupation, 12.5% on students health, and 8.8% on educational background. Another 48.8% of respondents also collect students birth certificates (see Table 38).

TABLE 38

Information or Documents Collected for New Students

	Number	Percent
1. Students, name, age, and sex	54	67.5
2. Parents occupation	18	22.5
3. Students health	10	12.5
4. Birth certificate	39	48.8
5. Educational background (Koranic school)	15	18.8
6. Others	13	16.3
7. None	1	1.3

*Respondents were allowed to check more than one category; therefore, the responses were not mutually exclusive. Percentages cannot be added across categories of responses.

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Concerning the assistance received from REOs and DEOs in collecting data, 25% of Headmasters obtain advice from DEOs, while 22.5% get help from REOs. Another 5% of the Headmasters get assistance in the form of training from DEOs and 7.5% get trained by REOs. Only three Headmasters received assistance in the form of transportation or actual data collection (see Table 39). The type of assistance which REOs and DEOs received from central administration in collecting and summarizing data are shown on Table 40. None of the REOs reported receiving any assistance from central administration in the form of transport nor in collecting and summarizing data.

TABLE 39

Assistance Received by Headmasters in Collecting Data

Assistance	DEO	REO
1. Transportation	0	1
2. Training	4	7
3. Advice	20	18
4. Collecting information	1	1
5. Other	0	0
6. Do not receive assistance	0	0

Figures shown in actual numbers.

Approximately 15.4% responded that they received training, and 23.1% reported getting advice on data collection. However, 69.2% stated that they do not receive any assistance in performing this task (see Table 40).

TABLE 40

Assistance Received by REOs/DEOs in Collecting Data

Assistance	Number	Percent
Transport	0	0.0
Training	2	15.4
Advising	3	23.1
Collecting information	0	0.0
Other	0	0.0
Do not receive assistance	9	69.2

Headmasters were asked how important they consider various categories of information for school management purposes.

The information that Headmasters consider most important is examination results. As shown on Table 41B, 88.7% of respondents consider exam results to be very important and 5% consider them to be somewhat important. Enrollment figures, number of teachers and number of classes were considered to be very important by 83.7% of the Headmasters. Information about student and teacher absentees was considered to be very important by 78.7% and 76.2%, respectively. Supplies and equipment availability was rated very important by 75.0% of the headmasters and physical condition of schools by 68.7%

With regard to REOs and DEOs opinions about the usefulness of the information gathered on the Annual Statistical Questionnaire, 84.6% said that this information is extremely useful, while 7.7% responded that it was not useful (see Table 42).

As shown in Table 43, only five Headmasters indicated that they collect other information for their own use in the school. Of those, one Headmaster collects information about school discipline, one gathers information on school needs, and the other three collect information about the condition of the school.

At the REO/DEO level, the information on the Annual Statistical Questionnaire can be very useful for carrying out regional and district-wide analyses. When REOs and DEOs were asked how they use the statistical data they receive from the schools, 61.5% stated that they use the information for regional administration, 69.2% for placement and transfer of teachers, 69.2% for distribution of textbooks and materials, 46.2% for calculating school dropouts, 15.4% for purposes other than those listed. In addition, 7.7% do not use statistical data (see Table 44).

TABLE 41A

Importance of Data to Headmasters – Number of Respondents

Information Category	Number		
	Very Important	Somewhat Important	Not Important
1. Enrollment	67	6	4
2. No. of teachers	67	7	3
3. No. of classes	67	6	4
4. Teacher absentees	61	9	7
5. Student absentees	63	5	9
6. Repeaters	55	11	9
7. Examination Results	71	4	2
8. Physical condition of schools	57	15	4
9. Supplies & equipment availability:	60	10	4
a) teacher incentives	2	0	0
b) school transfer	1	0	0
c) curriculum	1	0	0

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TABLE 41B

Importance of Data to Headmasters—Percent of Responses

Information Category	Percent		
	Very Important	Somewhat Important	Not Important
1. Enrollment	83.7	7.5	5.0
2. No. of teachers	83.7	8.7	3.8
3. No. of classes	83.7	7.5	5.0
4. Teacher absentees	76.2	11.2	8.7
5. Student absentees	78.7	6.2	11.2
6. Repeaters	68.7	13.8	11.2
7. Examination results	88.7	5.0	2.5
8. Physical condition of schools	71.3	18.7	5.0
9. Supplies & equipment availability:	75.0	12.5	5.0
a) teacher incentives	2.5	0.0	0.0
b) school transfer	1.3	0.0	0.0
c) curriculum	1.3	0.0	0.0

*Respondents were allowed to check more than one category, therefore, the responses were not mutually exclusive. Numbers and percentages cannot be added across categories of responses.

TABLE 42

REO/DEO Views on Usefulness of Data

Rating	Number	Percent
1. Extremely useful	11	84.6
2. Very useful	1	7.7
3. Somewhat useful	0	0.0
Not useful	1	7.7
TOTAL	13	100.0

TABLE 43

Other Information Collected by Headmasters for Use in the School

Use	Number	Percent
1. School needs	1	1.3
2. School conditions	1	1.3
3. School discipline	3	3.7
4. None	75	93.7
TOTAL	80	100.0

TABLE 44

How REOs/DEOs Use Statistical Data

Use	Number	Percent
1. Regional administration	8	61.5
2. Placement and transfer	9	69.2
3. Distribution of textbooks & materials	9	69.2
4. Calculating school dropouts	6	46.2
5. Other	2	15.4
6. Do not use statistical data	1	7.7

*Respondents were allowed to check more than one category, therefore, the responses were not mutually exclusive. Percentages cannot be added across categories of responses.

Table 45 depicts the way in which REOs/DEOs summarized data for use at the regional and district level. As illustrated, all of the REOs and none of the DEOs publish an annual statistical summary containing information about their region or district (see Table 46).

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TABLE 45

Type of Summaries Carried Out by REO/DEO

Level	Number	Percent
1. Regional-level	6	46.2
2. District-level	10	76.9
3. School-level	10	76.9
4. Grade-level	6	46.2
5. Class-level	6	46.2
6. Teacher information	2	15.4
7. Student information	2	15.4
8. Other	2	15.4
9. Do not summarize data	0	0.0

*Respondents were allowed to check more than one category, therefore, the responses were not mutually exclusive. Percentages cannot be added across categories of responses.

TABLE 46

Publish Annual Statistical Summary

Response	Number	Percent
Yes	5	38.5
No	5	38.5
No response	3	23.0
TOTAL	13	100.0

The annual statistical summaries produced by REOs are primarily distributed to central administration (23.1%), DEOs (15.5%) and other authorities, such as regional inspectors and authorities of other agencies (15.4%). Only one (7.7%) of the REOs gives this information to Headmasters (see Table 47).

TABLE 47

To Whom Regional Statistical Summaries Are Distributed

Response	Number	Percent
1. DEOs	2	15.4
2. Headmasters	1	7.7
3. Central Administration	3	23.1
4. Other Reg. Authorities	2	15.4
5. Other	0	0.0

*Respondents were allowed to check more than one category, therefore, the responses were not mutually exclusive. Percentages cannot be added across categories of responses.

One problem in collecting and analyzing data at the regional and district level is the unavailability of trained staff. A total of 61.5% of REOs/DEOs in the survey felt that the staff available for collecting and summarizing data are insufficient. These responses are depicted on Table 48.

TABLE 48

REO/DEO Assessment of Whether Staff is Sufficient for Data Collection

Response	Number	Percent
Yes	4	30.8
No	5	38.4
No response	4	30.8
TOTAL	13	100.0

4.0 CONCLUSIONS/RECOMMENDATIONS

4.1 EDUCATIONAL DATA AVAILABLE TO DECISIONMAKERS IN SOMALIA

From the findings of the study of data available to educational decisionmakers, we can conclude the following about the attitudes of decisionmakers in the study:

1. Most decisionmakers either consult the Regional Education Officers, Planning Department staff, or documents available in their department when they need information.

2. Most decisionmakers consider improvements in capacity building in the area of data management at both central and regional levels to be highly essential, and all respondents in the survey want to have training in the use of microcomputers. In addition, most decisionmakers consider training in all areas of data collection and analysis to be lacking and would welcome additional training that might be provided.

3. Decisionmakers would like to have more information about textbook availability, promotion examination results, and the condition of schools. Decisionmakers, particularly in the MOEC Planning Department, report a need for information about teacher retention, qualifications, and performance.

4. The most serious problems decisionmakers have with data is with the timeliness, accuracy, and availability of data in the form needed. The failure to get data in time to use the information for planning purposes has contributed to the inability of staff at all levels to adequately address the educational problems. There is a strong need for information-sharing among the various agencies and ministries, such as the Ministry of National Planning, Ministry of Labor, and Ministry of Education and Culture.

5. The system's lack of accurate, relevant, and reliable educational data is by and large attributed to:

   - Lack of adequate training, particularly at regional and district levels. In collecting information, central-level statisticians use the services of headmasters, inspectors, and sometimes teachers, none of whom are trained as statisticians;

   - Lack of motivation/incentives. Most recipients dislike filling out questionnaires and view the request as a laborious task with no immediate utility;

   - Reluctance to provide data. Education officers at regional, district and school levels are understandably hesitant to report information that might negatively reflect upon their performance; and

   - Lack of analytic equipment. Outside the central office, a lack of hand calculators and equipment has been a major contributor to inaccuracy in data, particularly in remote regions.

4.2 DATA FLOW

From the findings of the second study, an analysis of the flow of educational data in Somalia, a number of conclusions and recommendations have been made. These are presented below.

1. Every year the MOEC distributes an Annual Statistical Questionnaire to all schools in the country. Each school receives three copies of the survey. Upon completion, one copy is retained at the school, one at the Regional Office, and one is sent to the Statistics Division of the MOEC. Consequently, DEOs do not have ready access to either the data from the schools or the data summaries from the MOEC.

The distribution system for the annual survey is pragmatic, but not systematic. Headmasters may receive the survey from the DEO or REO, pick it up when they are visiting the MOEC in Mogadishu, or have it delivered by teachers who pass by the district or regional office.

This distribution pattern means that there is no way to know which schools have not received the form, at least until forms are returned and non-responding schools can be identified. By then, however, it is generally too late in the year to capture the missing data. Efforts should be made to ensure that a more systematic distribution and collection procedure is followed. That is, the established policy of sending the questionnaire from the Planning Department to the REO, from the REO to the DEO, and from the DEO to the headmaster, should be adhered to whenever possible. Although this may appear to be a cumbersome and lengthy process, it is important that the information pass through each link in the chain.

In addition, deadlines should be set for returning the completed questionnaire. If the survey is not returned by that date, follow-up should be made by the Planning Department to determine where the delay has occurred. The Planning Department should also make periodic visits to the field to verify data and observe first-hand conditions in the schools. This would assist Planning staff in identifying further problems with the questionnaire and in verifying the accuracy of the results.

2. Data collection from the schools is constrained by poor transportation and communication between central administration; district staff and headmasters, by poor record-keeping in the schools; by the failure of headmasters to understand what data are being requested, and by a lack of incentives for headmasters and District Education Officers to provide the data. Incentives, such as providing REOs and DEOs a transportation allowance for distributing questionnaires, as well as paying headmasters for filling out the questionnaire, should be considered.

3. Most headmasters and DEOs have no analytic equipment, such as calculators and adding machines. REOs, however, have been provided with calculators and do not suffer from this problem. Therefore, it is recommended that calculators also be provided at least to DEOs. Although it would be helpful to provide headmasters with such equipment as well, the cost would be prohibitive at this time.

4. The Annual Headmaster Questionnaire currently used by the Statistics Division of the MOEC contains items that are confusing to some headmasters. Several of the items on the annual survey were identified by headmasters as being unclear or, for other reasons, difficult to answer. One reason is that the Somali language, available as a written language only since 1972, does not have widely used terms for all educational needs.

Headmasters appeared to confuse requests about the number of classrooms with questions about the number of classes in a school. Similarly, there is ambiguity in the terms used to describe some school characteristics. The questionnaire elicits separate information on the number of chairs and benches in a school. However, some chairs seat two students; benches can seat up to four students. Knowing the number of benches does not necessarily indicate how many students can be seated.

Headmasters also have difficulty in reporting data on grade repetition. Part of the confusion stems from the fact that repeaters are included in total enrollment by grade and then reported again as a separate count. This appeared to some headmasters as double counting (although some assumptions are factored into the calculations to estimate repetition). A relatively simple clarification of the annual survey to explain what is meant by a repeater, and by asking for repeater information in a separate item, may yield substantially improved information.

In completing questions on the space available in the school, some Headmasters were unsure how to count classrooms that were larger or smaller than the official size of 8 x 7 meters. Some Headmasters counted large rooms as more than one room.

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Data quality could be improved by shortening and simplifying the annual survey, defining terms and items the Headmasters find confusing, and explaining how some data can be collected within the school.

The Planning Department should revise the questionnaire to make it easier to understand. A small brochure, explaining why the data are needed and providing specific instructions for how the questionnaire is to be completed should be produced. Headmasters suggestions, such as dividing the questionnaire into two parts (students and school personnel) should also be considered when the questionnaire is being revised.

5. The Annual Statistical Questionnaire, at present, does not collect data on textbook availability in the school. Hence, refined estimates of textbook needs are not available for planning and production of materials at the national level or for distribution of materials at the regional levels. A section eliciting information about textbooks should be added to the questionnaire.

6. Most of the Headmasters use the class register for filling out the questionnaire, while very few take advantage of the information contained in the general school register. Instructions provided to Headmasters should stress the use of the general school register.

7. Staff at the school and district level see very little use for educational data, since most decisions occur at the regional and central level. Presently, most REOs, DEOs, and Headmasters, have no real understanding of why data should be provided, who in government uses the information, or what decisions are informed by the data. A factor contributing to this problem is the lack of communication of data results downward.

Headmasters and DEOs seldom, if ever, see the statistical summaries of the data they help provide. When headmasters say they want feedback, they usually mean they want a response to the urgent needs they indicate on the survey each year. One issue undercutting the willingness of headmasters to cooperate is that the survey asks headmasters to indicate their "urgent needs." However, the MOEC has few if any resources with which to respond to those needs, once identified. Hence, this lack of MOEC response to indication of needs reinforces the perception of headmasters that the MOEC does not use the data which they provide.

Even DEOs and REOs believe they are cut off from the results of the surveys. Each REO receives two copies of the Annual Statistical Yearbook from the MOEC. One copy is intended for Regional Office use, the other copy for use of the regional government authority. DEOs are not given copies due to the lack of MOEC funds to print sufficient copies.

It is unlikely that data collection will be improved meaningfully until data providers see some value or consequence based on the data they provide. More attention to sharing the results with the schools (even if school people have no immediate use for the data) may help improve data quality and timeliness, as headmasters and DEOs can see the product of their work.

It may also be useful to provide a short written statement describing major trends and developments in the education sector based on summaries of the annual data. Such a statement could be sent to each headmaster to help involve them in the issues faced by the larger education system and to demonstrate to them that the data they provide are used and an important part of larger developments.

8. Regional Education Officers have little training in the analysis or use of data. Data analysis at the regional level, where it occurs, is rudimentary. REOs do not have the capacity to do regional projections and often lack the training to understand the implications of the enrollment summaries they receive from the Statistics Division of the MOEC. If use of data is to be decentralized, considerable training of regional staff will need to occur.

If properly trained, the REOs are in the best position to use the data to improve the efficiency of education. REOs exercise the authority to transfer teachers, recruit new teachers for schools that suffer a particularly severe teacher shortage, allocate teachers salaries based on teacher performance, and dis-

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tribute instructional materials. Much of this is done presently without the benefit of much formal analysis of enrollment patterns or teachers supply across schools.

The MOEC has organized formal training courses designed to address many of the data collection problems already mentioned. Although they may be effective in delivering needed training, the MOEC does not have the resources to provide the continuing day-to-day assistance that is needed.

9. One unplanned effect of improved training for enumerators and education officials in data collection and analysis is that they are able to secure better employment opportunities outside the education system. Training in data collection and analysis has increased job turnover among those trained. Consequently, the Ministry should search for incentives to keep trained staff from leaving their jobs.

10. The Somalia MOEC is one of the few ministries that collects and analyzes its own data. It now is regarded by many as the best data system of any ministry. The Ministry of National Planning (MNP) has a data analysis unit, but that unit relies on other ministries for the raw data. Consequently, there is widespread use of MOEC data by other Ministries: Ministry of National Planning uses MOEC data for national planning; Ministry of Labor and Sports uses MOEC data to project the labor supply; and the Somali National University uses MOEC data to project demand for university entrance.

11. Despite the widespread use of MOEC data, there are frequent discrepancies in figures across documents. For example, total primary school enrollments for 1984 are reported differently across documents. This can partially be attributed to the use of different time periods or bases for projections (e.g., different population growth rates). One can also point to a certain amount of error which might occur when data are transposed into other studies. Some discrepancies can be traced to the use of different sources, and hence the use of different underlying assumptions or estimates. Whatever the cause, it is clear that a more systematic method of information exchange must be devised. This is even more evident when one examines the discrepancies between data use among host government and donor agencies.

12. In the educational planning process, MOEC personnel tend to rely on data in the Annual Statistical Yearbook, published by the Ministry, while donors tend to rely on their own analyses. Ministry personnel seldom consult donor produced studies of the education system. As a consequence of these patterns, there appears to be two self-contained systems of education data analysis—one created and used by the MOEC, the other created and used by donors.

13. Seeing a visible impact of improved data takes time. The preconditions of good data use have now been met and some activities necessary to support improved efficiency are in place. The data collected by the Ministry provide basic information on the status of the system and have been collected consistently over many years. MOEC reports have usually tended to contain descriptive data about the education system, while donor studies have concentrated on the analysis and reporting of educational trends and projections.

Since MOEC personnel outside the Planning Department are generally unfamiliar with the interpretation or use of trend and projection data, there has previously been little demand for such data, except for external donor groups. Recently, however, the Statistics Division has begun computing projections for enrollment, teacher supply and demand, and facilities use. Such analyses are undertaken mainly on an ad hoc basis in response to special requests. Nevertheless, these projections are used by the Ministry of National Planning and published in the Somalia National Five-Year Plan.

As discussed above, the computerization of national education data satisfies one precondition for more extensive use of projections in educational planning. Efforts to improve the data system have resulted in more rapid analyses and have improved availability of descriptive data about the system. This directly addresses a primary concern of many Ministry officials that quantitative data has not been available in a timely manner.

As the MOECs analytic capability continues to grow, future data analyses should place greater emphasis on projections and trend analyses.

In addition, the Annual Statistical Yearbook should be expanded to include a narrative introduction explaining (in prose) the major trends and issues that are emerging and explaining how to use the tables.

14. A major resource related to the use of data is in securing donor funds. The greater accessibility of the data and the capacity of the Statistics Division to conduct special analyses needed by donor groups to justify their investments in the education sector may result in an improved ability to capture external resources in the education system. While this is a high priority of the Ministry, its impact on efficiency depends on the care and planning that goes into the design of the donor-funded activities.

15. The National Examination Board grades the Primary Leavers Exam and Secondary Leavers Exam by hand, but the data are then summarized by the Statistics Division of the MOEC. The Primary School Leavers Exam and the Secondary School Leavers Exam are reported as total number and percent passing. Data are not received by subject or by item (for item analysis). The addition of data broken down into these components would be very useful in identifying problem areas. Therefore, it is recommended that these data be added to the analysis each year.

16. While the improved data could be used to support better teachers assignments, instructional material distribution systems, and a variety of other decisions, the regulations and internal structures necessary to support such assignment programs are not yet in place. For the most part, data are not used in systematic activities to improve educational efficiency. A major reason is the serious resource constraints facing the government. What is needed now is a coherent plan of action that ties the activities together.

17. One proposal to improve data quality is for the MOEC Statistics Division staff to offer workshops/discussions each year with other department heads to explain what the educational data mean. This would serve to market the yearbooks and to increase the use of data in the decisionmaking process in Somalia.

Appendix A

APPENDIX A

TABLE 1

Number of Primary Schools 1950-1961

	50-51	55-56	59-60	61-62
Mogadishu	10	17	13	-
Other regional capitals	6	13	10	-
Outside regional capitals	23	82	158	-
TOTAL NO. SCHOOLS	39	112	181	187

TABLE 2

Number of Pupils Per School 1950-1960*

	50-51	55-56	59-60
Mogadishu	124	160	425
Other regional capitals	101	92	229
Outside regional capitals	64	71	64

*Includes pupils enrolled in preparatory classes

TABLE 3

The Number of Schools in Lower General Education

	52-53	53-54	58-59	59-60	60-61	61-62
Intermediate school (Italian)	1	1	1	1	1	7
Intermediate school	1	1	1	1	4	1
School for Islamic studies	-	1	1	1	1	1

TABLE 4

Enrollment in Lower General Education 1950-1961

	50-51	51-52	52-53	53-54
Scuola media inferiore	55	81	43	85
Italian scuola media inferiore	107	204	199	112
*School for Islamic studies	-	-	-	60

	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62
Intermediate school (Italian)	113	96	128	189	237	433 (23)	484 (38)	566 (79)
Intermediate school	95	71	70	45	50	42	-	-
*School for Islamic studies	142	248	234	299	247	188	142	-

*Includes female enrollment

TABLE 5

The Number of Schools in Lower General Education

Type of School		1943	1946	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Koranic	Boys	-	-	-	864	1082	1300	1300	1400	-	2254	2500	2800	-	-	2115
	Girls	-	-	-	101	118	158	119	149	-	200	250	250	-	-	815
Elementary	Boys	99	408	469	556	639	962	1021	937	1107	1095	1342	1746	2332	2940	3750
	Girls	-	-	-	-	-	-	21	47	64	95	97	221	275	450	555
	TOTAL	99	408	469	556	639	962	1042	984	1171	1191	1439	1967	2607	3390	4305
Intermediate	Boys	-	-	-	226	274	292	326	325	308	431	595	856	1020	1500	1621
	Girls	-	-	-	-	-	-	-	-	-	-	38	58	86	150	145
	TOTAL	-	-	-	226	274	292	326	325	308	431	633	914	1106	1650	1766
Secondary		-	-	-	-	-	-	16	29	47	63	68	81	112	-	159
Teacher Training College (boys)		-	-	-	-	-	7	15	5	15	27	27	22	55	-	54
Vocational schools		-	-	-	-	-	13	53	87	75	86	71	45	-	105	2

Most of the above data were collected by school inspectors, who usually visit the school and had contact with the teachers and headmasters of the different schools. These data were stored in the Ministry of Education or Regional Education Officers office.

TABLE 6

Type of School		1943	1946	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Koranic	Aided	-	-	-	41	38	42	45	45	62	90	120	130	-	-	98
	Unaided	-	-	-	-	-	-	-	-	-	36	125	100	-	-	-
Elementary	Total	-	-	-	9	10	14	19	17	14	19	26	38	40	-	68
Governmental		3	8	8	8	8	12	16	17	16	16	16	25	25	-	-
Intermediate	Boys	-	-	-	2	2	2	2	2	3	5	9	13	13	-	14*
	Girls**	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(2)
Secondary		-	-	-	-	-	-	1	1	1	1	1	1	1	1	1
Teacher Training College		-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Vocational schools***		-	-	-	-	-	2	2	2	2	2	2	2	2	2	2

* Including intermediate technical school (Trade School) at Hargeyea
** The number of girls schools is shown between brackets
*** Clerical Training school and Vocational school (later Technical Institute)

TABLE 7

Number of Schools in Secondary Education, 1950-1961

Type of School	50-51	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62
Secondary Education												
Upper general	-	-	-	1	1	1	1	1	1	1	1	1
Secondary School (Italian)	1	1	1	1	1	1	1	1	1	1	1	1
School for Islamic studies	-	-	-	1	1	1	1	1	1	1	1	1
TOTAL	1	1	1	3	3	3	3	3	3	3	3	3
Vocational: Lowers												
Industrial school	-	-	-	-	1	1	1	1	1	1	1	1
Sec. for seaman & fisherman	-	-	1	1	1	1	1	1	1	1	1	1
Commercial school	-	-	-	-	-	-	-	-	1	1	1	1
Italian school	-	1	1	1	1	1	1	1	1	1	1	1
Agricultural school	-	1	1	1	1	1	1	1	1	1	1	1
Domestic economy school	-	1	1	1	1	1	1	1	1	1	1	1
TOTAL	0	3	4	4	5	5	5	5	6	6	6	6
Upper:												
Teacher Training Institute	-	1	1	1	1	1	1	1	1	1	1	1
Geometrician, Tech. Inst.	-	-	-	-	-	-	-	-	-	1	1	1
Tech. Accountancy Inst.	-	-	-	-	-	-	-	-	-	1	1	1
Political & Admin. school	1	1	1	1	1	1	1	1	1	1	1	-
TOTAL	1	2	2	2	2	2	2	2	2	4	4	3
Higher Education:												
University	1	1	1	1	1	1	1	1	1	-	-	-
TOTAL	1	1	1	1	1	1	1	1	1	0	0	0

TABLE 8

Elementary Education 1954-60					Intermediate Education 1954-60					Secondary Education 1954-60				
		Enrollment					Enrollment					Enrollment		
Year	School	MF	F	Teachers	Year	School	MF	F	Teachers	Year	School	MF	F	Teachers
54/55	113	6690	774	...	54/55	8	784	42	...	54/55	6	166	-	...
55/56	117	8047	1054	...	55/56	9	1024	70	...	55/56	6	359	-	...
56/57	111	9111	1365	...	56/57	11	1212	79	...	56/57	6	290	-	...
57/58	140	10950	1748	...	57/58	15	1530	100	...	57/58	6	271	-	...
58/59	182	13342	2307	...	58/59	20	1936	109	...	58/59	7	435	-	...
59/60	233	15374	2951	...	59/60	22	2199	152	...	59/60	8	551	57	...

... Number of teachers is not available
- Number of female enrollment is not available

This table shows the total number of schools, enrollment, and number of teachers for both regions, North and South of the Somali Republic, plus the schools, enrollment, and number of teachers in colonial era (1954-60).

Appendix B

APPENDIX B

TABLE 1

Elementary Education 1960-69					Intermediate Education 1960-69					Secondary Education 1960-69				
		Enrollment					Enrollment					Enrollment		
Year	School	MF	F	Teachers	Year	School	MF	F	Teachers	Year	School	MF	F	Teachers
60/61	239	16332	3392	696	60/61	23	2790	229	...	60/61	8	782	62	...
61/62	239	17620	3686	771	61/62	27	3390	289	...	61/62	8	950	62	...
62/63	248	18989	4334	933	62/63	30	4027	569	252	62/63	10	1053	67	85
63/64	269	20849	4472	1155	63/64	31	4818	703	334	63/64	12	1117	...	94
64/65	233	20698	4719	806	64/65	32	5961	1110	369	64/65	12	1487	90	165
65/66	220	23288	5425	913	65/66	31	5595	1042	298	65/66	14	1908	135	163
66/67	211	21050	4984	738	66/67	39	7532	1502	341	66/67	16	2218	207	184
67/68	198	23121	5332	771	67/68	56	10056	2466	439	67/68	13	2066	211	144
68/69	182	24697	5742	783	68/69	57	10609	2195	394	68/69	15	3133	358	201
69/70	165	23842	5206	671	69/70	62	14129	2831	464	69/70	16	4185	588	243

... Number of teachers is not available
- Number of female enrollment is not available

This table shows the total number of schools, enrollment, and number of teachers for both regions, North and South of the Somali Republic, plus the schools, enrollment, and number of teachers in colonial era (1960-69).

Appendix C

APPENDIX C

TABLE 1

Schools, Classes, Students, and Teachers 1969/70-1985/86

PRIMARY							SECONDARY							TOTAL						
			Enrollment		Teachers					Enrollment		Teachers					Enrollment		Teachers	
Year	Schools	Classes	MF	F	MF	F	Year	Schools	Classes	MF	F	MF	F	Year	Schools	Classes	MF	F	MF	F
69/70	165	...	23642	5206	671	both	69/70	62	...	14129	2831	464	both	69/70	16	...	4185	588	1135	0
71/72	310	1267	59846	14547	1946	253	71/72	29	231	3153	1267	453	69	71/72	339	1498	67999	15814	2399	322
72/73	359	2085	78133	20075	2454	263	72/73	33	262	9457	1452	579	68	72/73	392	2347	87590	21527	3033	331
73/74	407	2544	96930	27399	2842	287	73/74	42	316	10900	1773	640	76	73/74	449	2860	107830	29172	3482	363
75/76	844	5148	219517	75526	4281	927	75/76	39	227	7046	1062	572	68	75/76	883	5375	226563	76588	4853	995
76/77	1002	5640	229030	81119	6540	1263	76/77	48	356	13666	3128	988	109	76/77	1050	5996	242696	81228	7528	1372
77/78	1085	5955	228544	83109	8392	2051	77/78	48	336	14178	3573	916	92	77/78	1133	6291	242722	86682	9308	2143
78/79	1438	6856	263757	95200	8141	2070	78/79	54	474	20801	5361	1226	93	78/79	1492	7330	284558	100561	9367	2163
79/80	1509	7219	271129	98943	8695	2509	79/80	55	560	24373	6625	1438	121	79/80	1564	7779	295502	105568	10133	2630
80/81	1407	7450	271704	98053	8122	2365	80/81	78	883	45491	12521	2018	191	80/81	1485	8313	317195	110574	10140	2556
81/82	1357	6890	239916	85856	8391	2524	81/82	100	1150	57730	17462	2868	255	81/82	1457	8040	297646	103318	11259	2779
82/83	1352	6660	218726	76711	10065	2956	82/83	109	1333	64999	21587	3686	333	82/83	1447	7993	283725	98298	13751	3289
83/84	1309	6715	220780	78997	9509	3041	83/84	108	1336	64289	21877	3055	234	83/84	1417	8051	285069	100874	12544	3275
84/85	1258	6489	209315	72843	10258	4843	84/85	103	1119	52348	18334	2857	299	84/85	1361	7588	261663	91177	13115	5142
85/86	1201	6128	196496	66753	10338	4664	85/86	109	1051	46305	16269	2818	320	85/86	1310	7179	242801	83022	13156	4984

Appendix D

APPENDIX D

Document Rating Form

A) Type of Education Data Reported (check all that apply)

	Student enrollment	Teachers supply	Teachers qualification	Other teachers characteristics
Overall	_____	_____	_____	_____
by level	_____	_____	_____	_____
primary	_____	_____	_____	_____
secondary	_____	_____	_____	_____
Voc/tech	_____	_____	_____	_____
nonformal	_____	_____	_____	_____
by grade	_____	_____	_____	_____
by subject area	_____	_____	_____	_____
by geographical area	_____	_____	_____	_____

B) Availability of textbooks
- overall _____
- by grade _____

C) Projected teacher demand
- overall _____
- by grade _____
- by subject area _____
- by geographical area _____

D) Facilities use
- classrooms _____
- furniture _____

E) Educational costs
- nationally _____
- by region _____
- by district _____
- by school _____
- aggregate _____
- by type of cost _____
- other (describe) _____

Document name: _____

Sponsoring agency (Bureau/Department [where paid for document])

_____

Who conducted the research: _____

Described Reason Document was Produced (be specific): _____

_____

_____

Intended audience for Document: _____

_____

_____

How was document distributed/made available: _____

_____

_____

limitation on how document was distributed?

_____

_____

Relationship of Education Data portion to overall document (describe): _____

_____

_____

_____

Appendix E

(Text not available.)

Appendix F

APPENDIX F

Decision Makers Questionnaire
Name of Interviewer

_____

IEES Policy Research Initiative on
Education Management Information Systems

1. Title/Position: _____

2. Ministry/Agency: _____

3. How often does your office use data for each of the following purposes listed below. Indicate by placing a check under the appropriate category. Choose only one category for each item.

   1. extremely important
   2. very important
   3. somewhat important
   4. not at all important

	1	2	3	4
a) To describe the general condition of the educational system	____	____	____	____
b) To monitor program activities	____	____	____	____
c) To identify trends in the education system (trends in enrollment, teacher supply, etc.)	____	____	____	____
d) To develop projections for use in planning	____	____	____	____
e) Other (Specify)	____	____	____	____

4. How important do you regard each of the following possible uses of data?

   1. extremely important
   2. very important
   3. somewhat important
   4. not at all important

	1	2	3	4
a) To describe the status of the education systems	____	____	____	____
b) To monitor program activities	____	____	____	____
c) To identify trends in the education system (trends in enrollment, teacher supply, etc.)	____	____	____	____
d) To develop projections for use in planning	____	____	____	____
e) Other (Specify)	____	____	____	____

APPENDIX F

5. For each type of data used by your office, please indicate the source of information by placing a check under the appropriate source. If data of a particular type is generated from more than one source, you may check more than one.

Category	Source						
	1 Estimate based on personal experience	2 Statistical survey	3 Data from Headmaster	4 Reports from REO/ DEO	5 Donor Studies	6 Other specify	7 Do not use this type of data
a) Student enrollment distribution	____	____	____	____	____	____	____
b) Student characteristics (Sex,Age,etc.)	____	____	____	____	____	____	____
c) Student performance on promotional examination (one grade to next)	____	____	____	____	____	____	____
d) Student performance on national leavers exams	____	____	____	____	____	____	____
e) Student dropout rate	____	____	____	____	____	____	____
f) Teacher assignment placement	____	____	____	____	____	____	____
g) Teacher supply	____	____	____	____	____	____	____
h) Future demand for teachers	____	____	____	____	____	____	____
i) Teacher background/ training	____	____	____	____	____	____	____
j) Teacher performance	____	____	____	____	____	____	____

APPENDIX F

6. What *sources of information* about the education system are most useful to you?

_____

_____

_____

7. Which *documents* are most useful to you when you are making decisions that affect the education system? (Specify)

_____

_____

_____

8. In your judgment, what is the most important thing that could be done to improve the quality of the information about the education system that is available to you?

_____

_____

_____

9. What is the major constraint in using education data in your job. (e.g., no way to analyze data, political issues, inadequate training in using data)

_____

_____

_____

10. What are the most serious problems with the present information available to you about the education system? (e.g., not available in form needed, not up-to-date, data needed are not available)

_____

_____

_____

APPENDIX F

11. How important do you regard each of the following sources of information when you are making decisions about the education system. (Check only one blank for each question.)

    1. extremely important
    2. very important
    3. somewhat important
    4. not at all important

	1	2	3	4
a) personal experience	____	____	____	____
b) conversations with people in the Ministry	____	____	____	____
c) conversations with people outside the Ministry	____	____	____	____
d) reading previous statistical analyses about the educational system	____	____	____	____
e) formal statistical analyses of the education system	____	____	____	____

Comments:

_____

_____

12. What type of information do you not have that you need for decision making? _____

_____

13. How important do you think quantitative data is in making decisions about the education system? (Check only one blank)

    1. extremely important _____
    2. very important _____
    3. somewhat important _____
    4. not at all important _____

Comments:

_____

_____

APPENDIX F

14. To what extent are your decisions about the education system based on your examination of specific education data? (Check only one blank)

    1. always _____
    2. most of the time _____
    3. sometimes _____
    4. seldom _____
    5. never _____

    Comments:

    _____

    _____

15. Who are the primary people you talk with in making policy decisions that affect the education system? List only title and agency. It is not necessary to list people's names.

	Title	Agency/Ministry/Department
a) overall		
b) student enrollment		
c) teacher supply		
d) teacher placement		
e) educational costs & financing		

16. Which statement best describes the way in which statistical data is used or analyzed in your office? (Check only one blank)

    a) I usually do the statistical analysis and interpretation myself. _____

    b) A staff member usually does the statistical analysis and gives me the results to interpret. _____

    c) A staff member usually does both the statistical analysis and interpretation before presenting the information to me. _____

    d) I do not use statistical data. _____

    e) Other (Specify) _____

APPENDIX F

17. Who uses the results of data analyses conducted by your department/office? (Choose one)

a) Only me. _____

b) People in my unit and me. _____

c) Only official Ministry personnel. _____

d) It is widely available to anyone who wants to see it. _____

e) No data analysis is conducted in my unit. _____

f) Other (specify) _____

18. Rate the extent to which the following issues are problems you experience with educational data:

1. extremely serious problem
2. very serious problem
3. somewhat of a problem
4. not a problem

	1	2	3	4
a) timeliness	____	____	____	____
b) accuracy of the data	____	____	____	____
c) mistakes in data analysis	____	____	____	____
d) results not clear	____	____	____	____
e) not clear how data was analyzed	____	____	____	____
f) not sure how to interpret the data	____	____	____	____
g) other (specify)	____	____	____	____

APPENDIX F

19. Which of those items listed above is the most serious problem?

_____

_____

_____

_____

Comments:

_____

_____

20. Overall, how good is the education data that is available to you? (Check only one blank)

1. excellent _____
2. good _____
3. fair _____
4. poor _____

21. For each statement below, check the appropriate blank.

a) I have a hand calculator available for my use. Yes_____ No _____

b) I would like to learn how to use a microcomputer. Yes_____ No _____

c) I already know how to use a microcomputer. Yes_____ No _____

d) I have used a word processing program. Yes_____ No _____

e) I have a microcomputer available for my use. Yes_____ No _____

Appendix G

APPENDIX G-1

Decision Makers Questionnaire
Number of Responses by Category

QUESTION	N	1	2	3	4	5
Q3A	10	8	1	1	0	
Q3B	13	5	6	2	0	
Q3C	13	8	4	0	1	
Q3D	13	8	1	2	2	
Q3E	1	1	0	0	0	
Q4A	10	8	1	1	0	
Q4B	13	5	7	1	0	
Q4C	13	8	2	0	3	
Q4D	11	8	1	2	0	
Q4E	4	2	2	0	0	
Q11A	12	3	7	1	1	
Q11B	8	2	3	2	1	
Q11C	7	0	3	1	3	
Q11D	9	4	2	1	2	
Q14	13	5	6	2	0	0
Q16	12	2	6	1	3	0
Q17	12	0	2	2	7	1
Q18A	11	6	1	3	0	
Q18B	12	9	2	1	0	
Q18C	10	2	3	3	2	
Q18D	6	3	0	3	0	
Q18E	7	3	2	1	1	
Q18F	6	1	3	1	1	
Q18G	2	1	0	1	0	
Q20	11	1	7	3	0	

APPENDIX G-2

Decision Makers Questionnaire
Number of Responses by Category

QUESTION	N	1	2	3	4	5	6	7
Q5A1	11	0	3	6	2	0	0	0
Q5A2	2	0	0	1	1	0	0	0
Q5B1	11	0	4	5	2	0	0	0
Q5B2	1	0	0	0	1	0	0	0
Q5C1	11	0	2	8	1	0	0	0
Q5C2	1	0	0	0	1	0	0	0
Q5D1	11	0	4	1	3	0	2	1
Q5D2	0	0	0	0	0	0	0	0
Q5E1	10	0	1	3	6	0	0	0
Q5E2	1	0	0	0	1	0	0	0
Q5F1	10	0	0	4	5	0	1	0
Q5F2	1	0	0	0	1	0	0	0
Q5G1	10	0	0	3	1	1	5	0
Q5G2	0	0	0	0	0	0	0	0
Q5H1	11	1	0	3	4	0	3	0
Q5H2	1	0	0	0	0	0	1	0
Q5I1	10	0	0	1	2	2	4	0

Appendix H

APPENDIX H

Decision Makers Questionnaire
Average Responses

QUESTION	N	AVERAGE
Q3A	10	1.3
Q3B	13	1.8
Q3C	13	1.5
Q3D	13	1.8
Q3E	1	1.0
Q4A	10	1.3
Q4B	13	1.7
Q4C	13	1.8
Q4D	11	1.5
Q4E	4	1.5
Q11A	12	2.0
Q11B	8	2.2
Q11C	7	3.0
Q11D	9	2.1
Q13	13	1.4
Q14	13	1.8
Q16	12	2.4
Q17	12	3.6
Q18A	11	1.6
Q18B	12	1.3
Q18C	10	2.5
Q18D	6	2.0
Q18E	7	2.0
Q18F	6	2.3
Q18G	2	2.0
Q20	11	2.2

Appendix I

APPENDIX I

Decision Makers Questionnaire
Percent of Responses by Category

QUESTION	N	1	2	3	4	5
Q3A	11	82	18	0	0	-
Q3B	11	73	27	0	0	-
Q3C	11	73	18	0	9	-
Q3D	11	82	9	9	0	-
Q3E	1	100	0	0	0	-
Q4A	11	82	18	0	0	-
Q4B	11	64	27	9	0	-
Q4C	11	73	18	0	9	-
Q4D	11	73	9	18	0	-
Q4E	1	100	0	0	0	-
Q11A	6	50	17	33	0	-
Q11B	5	40	20	20	20	-
Q11C	5	0	40	20	40	-
Q11D	10	70	10	10	10	-
Q14	11	64	36	0	0	0
Q16	11	18	64	9	9	0
Q17	11	0	18	9	64	9
Q18A	8	75	25	0	0	-
Q18B	10	80	10	10	0	-
Q18C	8	38	38	25	0	-
Q18D	7	57	29	0	14	-
Q18E	7	57	29	0	14	-
Q18F	6	50	50	0	0	-
Q18G	2	0	0	100	0	-
Q20	10	20	50	20	10	-

APPENDIX I

Decision Makers Questionnaire
Percent Responses by Category

QUESTION	N	1	2	3	4	5	6	7
Q5A1	10	0	20	50	20	0	0	10
Q5A2	2	0	0	0	100	0	0	0
Q5B1	10	10	20	40	20	0	0	10
Q5B2	1	0	0	0	100	0	0	0
Q5C1	9	11	11	56	22	0	0	0
Q5C2	2	0	50	0	50	0	0	0
Q5D1	7	0	0	0	29	0	57	14
Q5D2	0	0	0	0	0	0	0	0
Q5E1	8	0	12	38	38	0	12	0
Q5E2	2	0	0	50	50	0	0	0
Q5F1	9	11	11	33	44	0	0	0
Q5F2	2	0	0	50	50	0	0	0
Q5G1	8	12	0	12	12	0	62	0
Q5G2	0	0	0	0	0	0	0	0
Q5H1	9	11	11	11	33	0	22	11
Q5H2	1	0	100	0	0	0	0	0
Q5I1	8	12	12	0	50	0	25	0

Appendix J

APPENDIX J

Somalia Questionnaire on Data Quality

This questionnaire is part of a four-country study of people's opinions about the accuracy of educational data. The results will be used by the Ministry of Education to assess the information system in education. Please complete the following questions based on your own opinions and experience. All responses will be confidential.

DATA ERROR

There are always some errors in reporting data. In your opinion:

1. How much error is there in national student enrollment data?_____%

2. How much error is acceptable?_____%

3. How important are the following types of numeric data in national decision making?

	HOW IMPORTANT?			
Type of Data	Extremely	Very	Somewhat	Not at all
a. Student enrollment data	_____	_____	_____	_____
b. Number of teachers	_____	_____	_____	_____
c. Teacher background qualifications	_____	_____	_____	_____
d. Education costs	_____	_____	_____	_____

4. In your judgment, how accurate are the educational data that is currently available to decision makers?

   1. Extremely accurate _____
   2. Very accurate _____
   3. Somewhat accurate _____
   4. Not accurate _____

5. How important is it to improve the quality of data relative to other demands?

   1. Extremely important _____
   2. Very important _____
   3. Somewhat important _____
   4. Not important _____

6. How important are each of the following sources of information to Ministry decision makers when formulating policy for the education system?

   1. Extremely important
   2. Very important
   3. Somewhat important
   4. Not important

   a) Personal experience _____
   b) Conversations with headmasters _____
   c) Conversations with teachers _____
   d) Conversations with people in the Ministry _____
   e) Conversations with personal friends _____
   f) Conversations with other people you respect _____

g) Reading previous statistical analyses about the educational system _____
h) Formal statistical analyses about the education system _____
i) Other (specify) _____

7a. Rate how serious you believe is the problem of inaccurate information about student enrollment at each of the points listed below.

1. Extremely serious problem
2. Very serious problem
3. Somewhat serious problem
4. Not a serious problem

A) If headmasters don't keep accurate records _____
B) If headmasters don't accurately report the data they do have _____
C) If errors occur in transferring the data from the school form to the regional summary or from the regional summary to the national summary _____
D) If errors occur in adding the numbers that are reported _____

7b. Which of the four problems above do you think is the most serious problem? (Check one).

A) _____
B) _____
C) _____
D) _____

8. How much of a problem are the following issues for decisionmakers? Rate from one to four.

1. Extremely serious problem
2. Very serious problem
3. Somewhat serious problem
4. Not a serious problem

a) receiving data on time _____
b) accuracy of the data _____
c) mistakes in data analyses _____
d) results not clear _____
e) not sure how data was analyzed _____
f) not sure how to interpret the data _____
g) other (specify) _____

Which of those items listed above are the most serious problems?

(most serious) _____
(second most serious) _____
(third most serious) _____

9. How often is it better to get information from printed documents than from talking to ministry officials?

always _____
usually _____
sometimes _____
seldom _____
never _____

APPENDIX J

10. In your judgment, what is the most important thing that could be done to improve the information you get?

_____

_____

Respondent information that will help us analyze the data

Pick the selection below that best indicates how often you use numeric data about the education system in your job:

more than once a day _____
once a day _____
2 - 3 times a week _____
2 - 3 times a month _____
once a month _____
2 - 3 times a year _____
almost never _____

Your Position:_____

1= MOEC
2= Headmaster

Years of experience in your position:_____

Overall, how good is the educational data that is available to you? (Place a mark on the scale to indicate how good the data is.

excellent good fair poor
I_____I_____I_____I

THANK YOU FOR YOUR HELP IN COMPLETING THIS QUESTIONNAIRE

Appendix K

APPENDIX K

Data Quality Questionnaire Results

Question	Mean	Std.	N
1. How much error in national student enrollment data?	21.33	8.08	12
2. How much error is acceptable in national student enrollment data?	9.91	6.07	11
3. Importance of types of data for decision making:			
a) student enrollment	1.17	0.39	12
b) number of teachers	1.17	0.39	12
c) teacher background/qualifications	2.17	0.94	12
d) education costs	1.42	0.82	11
e) availability of books	1.45	0.29	12
4. How accurate is educational data currently available?	2.92	0.29	12
5. How important is it to improve the quality of data relative to other demands?	1.00	0.00	12
6. How important are:			
a) personal experience	2.17	0.94	11
b) conversations with headmasters	1.91	1.04	11
c) conversations with teachers	2.36	0.92	10
d) conversations with personal friends	3.10	0.88	11
e) conversations with other people you respect	3.73	0.90	10
f) statistical analysis	3.70	0.67	10
g) formal statistical analysis	1.17	0.39	12
h) other	1.17	0.39	12
7. Seriousness of problem of inaccurate data about:			
a) headmasters don't keep accurate records	1.17	0.39	12
b) headmasters don't report accurately	1.17	0.39	12
c) error in transferring data	2.55	0.58	11
d) errors occur in adding numbers	3.36	0.69	11
8. Importance of issues:			
a) receiving data on time	1.00	0.00	12
b) accuracy of data	1.33	0.89	12
c) mistakes in analysis	2.42	0.79	12
d) results not clear	2.58	1.00	12
e) not sure how data was analyzed	2.73	0.79	11
f) not sure how to interpret data	3.11	0.60	9
g) other	2.00	2.83	2
9. How often do you get information from printed documents?	1.75	1.06	12
10. Most important way to improve data?	2.67	1.97	12
11. How often numeric data used?			
12. Position?	2.00	0.00	12
13. Years experience in position?	11.33	8.66	12

Appendix L

APPENDIX L

Information Survey for Headmasters

General Information

1. Type of School: (check one) Urban_____ Rural_____ Nomad_____

2. Male_____ Female_____

3. Region: _____

4. District: _____

5. Highest level of education completed. (Check only one)
   (a) University Degree _____ 1 yr._____2 yrs._____3 yrs._____

   (b) Teacher Training Diploma _____

   (c) Secondary School Certificate _____

   (d) Primary School Certificate _____

   (e) No Certificate _____

6. Number of years you have been a Headmaster:_____

7. List additional seminars you have attended in the country or abroad.

   a)_____ b)_____

   c)_____ d)_____

Data Collection

8. What equipment is available to you for data collection and reporting? (Check all that apply)

   (a) Calculator _____

   (b) Adding machine _____

   (c) Other _____ (Specify)_____

   (d) None _____

9. What questionnaires were you asked to fill out during this school year?

   (a) Annual statistical questionnaire _____

   (b) Yearly report of teachers _____

   (c) Other _____ (Specify)_____

   (d) None _____

APPENDIX L

IF THE HEADMASTER DID NOT RECEIVE ANY QUESTIONNAIRES DURING THIS SCHOOL YEAR, SKIP QUESTIONS 10 - 11.

10. For each questionnaire you have received during this school year, state which month it was received and who gave it to you (e.g., REO/DEO/Central Inspectorate).

Type of Questionnaire	Month received	From whom
(a) Annual statistical questionnaire	_____	_____
(b) Yearly report of teachers	_____	_____
(c) Others (Specify)_____	_____	_____

11. For each type of questionnaire which you received during this school year, state what you think was the purpose of the questionnaire?

Type of Questionnaire	Purpose
(a) Annual statistical questionnaire	_____
(b) Yearly report of teachers	_____
(c) Others (Specify)	_____

Annual Statistical Questionnaire

QUESTIONS 12-19 REFER TO THE ANNUAL STATISTICAL QUESTIONNAIRE.
IF THE HEADMASTER DID NOT RECEIVE THE ANNUAL STATISTICAL QUESTIONNAIRE IN THE PAST YEAR, SKIP QUESTIONS 12-19.

12. What problems have you had in filling out the statistical questionnaire? (Check all that apply. For each category that you check, list the question number on the statistical questionnaire if applicable.)

		Question No.
(a) Information is not available	_____	_____
(b) Don't understand questions	_____	_____
(c) Questions do not apply to your situation	_____	_____
(d) Questionnaire is too long	_____	_____
(e) Other (Specify)	_____	_____

13. What questions should be added that are not currently asked?

_____

_____

_____

APPENDIX L

14. In particular, what problems have you had in filling out questions about repeaters? (Question 21 on the annual statistical questionnaire)

    (a) Do not understand the question _____

    (b) Do not have the information _____

    (c) Do not think the information is important _____

    (d) Use automatic promotion _____

    (e) Do not have repeaters _____

    (f) Too difficult to calculate and report _____

    (g) Other (Specify)_____ _____

*15 What sources of information or documents are used in filling out the questionnaire?

    (a) Teacher register _____

    (b) Class register _____

    (c) General school register _____

    (d) Observation or counting students directly _____

    (e) Asking parents _____

    (f) Information on last years' questionnaire _____

    (g) Others (Specify)_____ _____

*16. Who fills out the questionnaire which you receive?

    (a) Headmaster _____

    (b) Secretary _____

    (c) Teachers _____

    (d) Others (Specify)_____ _____

17. Has the person who fills out the questionnaire received training in filling out questionnaires?

    Yes_____ No_____

APPENDIX L

18. If yes, by whom was the training conducted? (Check all that apply)

(a) REO _____

(b) DEO _____

(c) Headmaster _____

(d) Central Inspectorate _____

(e) Planning Department _____

19. What proportion of the figures reported this year on the annual statistical questionnaire did you have an opportunity to check before you sent it in?

(a) all _____

(b) some _____

(c) none _____

*20. What information or documents do you collect for new students in Grade One?

(a) Students' age and sex _____

(b) Parents' occupation _____

(c) Students' health _____

(d) Birth certificate and 2 photos _____

(e) Education background _____

(f) Other (Specify)_____ _____

(g) None _____

21. What other information do you collect for your own use in the school?

_____

_____

_____

APPENDIX L

*22. What assistance do you receive in collecting data? (Place a check in the appropriate column next to each type that applies.)

Type of assistance	DEO	REO
(a) Transportation	_____	_____
(b) Training	_____	_____
(c) Advising	_____	_____
(d) Collecting information	_____	_____
(e) Other _____	_____	_____
(f) Do not receive assistance	_____	_____

23. Place a check under each category that describes how important you think of the following information is to headmasters for school management purposes.

1 = Very important
2 = Somewhat important
3 = Not important

	1	2	3
(a) Enrollment	_____	_____	_____
(b) Number of teachers	_____	_____	_____
(c) Number of classes	_____	_____	_____
(d) Teacher absentees	_____	_____	_____
(e) Student absentees	_____	_____	_____
(f) Repeaters	_____	_____	_____
(g) Examination results	_____	_____	_____
(h) Physical condition of schools	_____	_____	_____
(i) Supplies and equipment availability	_____	_____	_____
(j) Other (Specify)_____	_____	_____	_____

APPENDIX L

24. To whom do you send the annual statistical questionnaire when it is completed?

(a) REO _____

(b) DEO _____

(c) Central administration _____

(d) Other (Specify)_____ _____

• • • •

Appendix M

APPENDIX M

(check)_____ REO_____ DEO

Information Survey for REO/DEO

General Information

1. Name _____

2. Male_____ Female_____

3. Region _____

4. District _____

5. Highest level of education completed (Check only one)

(a) University Degree _____ 1 yr._____ 2 yrs._____ 3 yrs._____

(b) Teacher Training Diploma _____

(c) Secondary School Certificate _____

(d) Other (Specify)_____ _____

6. Number of years you have been an REO/DEO _____

Data Distribution/collection

7. What equipment is available to you for data collection and reporting (check any that apply)

(a) Calculator _____

(b) Adding machine _____

(c) Other (Specify)_____ _____

(d) None _____

8. What questionnaires were you asked to distribute during this school year? (check all that apply)

(a) Annual statistical questionnaire _____

(b) Yearly report of teachers _____

(c) Special survey _____

(d) Other (Specify)_____ _____

(e) None _____

APPENDIX M

IF THE REO/DEO DID NOT RECEIVE ANY QUESTIONNAIRES DURING THIS SCHOOL YEAR, SKIP QUESTIONS 9 - 10.

9. To whom do you distribute questionnaires?

(a) DEO _____

(b) Headmaster or Principal _____

(c) Teachers _____

(d) Other (Specify)_____ _____

10. For each type of questionnaire which you received during this school year, state what you think was the purpose of the questionnaire.

Type of Questionnaire	Purpose
(a) Annual statistical questionnaire	_____
(b) Yearly teachers' report	_____
(c) Other (Specify)	_____
	_____

Annual Statistical Questionnaire

QUESTIONS 11 -20 REFER TO THE ANNUAL STATISTICAL QUESTIONNAIRE. IF THE REO/DEO DID NOT RECEIVE THE ANNUAL STATISTICAL QUESTIONNAIRE DURING THIS SCHOOL YEAR, SKIP QUESTIONS 11 - 20.

11. How do you distribute questionnaires?

(a) By Transport _____

(b) Other (Specify)_____ _____

12. How do you collect the questionnaires?

(a) By Post _____

(b) By Transport _____

(c) Other (Specify)_____ _____

APPENDIX M

*13. What type of training is provided to survey respondents in filling out the questionnaire?

(a) Group training workshop _____

(b) Individual face-to-face instructions _____

(c) Written instructions _____

(d) Other (Specify)_____ _____

(e) None _____

Data Processing

14. What proportion of the figures on the teacher's yearly report and statistical questionnaire did you have an opportunity to check before you sent it in? (Check only one)

(a) All _____

(b) Some _____

(c) None _____

*15. How do you check the figures reported to you? (Check all that apply)

(a) Verifying calculations _____

(b) On-site visits _____

(c) Comparing with previous year records _____

(d) Other (Specify)_____ _____

*16. After the data have been collected, how do you summarize the information? (Check all that apply)

(a) Regional-level _____

(b) District-level _____

(c) School-level _____

(d) Grade-level _____

(e) Class-level _____

(f) Teacher information _____

(g) Student information _____

(h) Other (Specify)_____ _____

(i) Do not summarize information _____

APPENDIX M

*17. For what purposes do you use the data collected in the Annual Statistical Questionnaire? (Check all that apply)

(a) Regional administration _____

(b) Placement and transfer of teachers and other staff _____

(c) Distribution of textbooks and materials _____

(d) Calculating school dropout and transfer _____

(e) Other (Specify)_____ _____

(f) Do not use statistical data _____

18. How useful do you find the information collected in the Annual Statistical Survey? (Check only one)

(a) Extremely useful _____

(b) Very useful _____

(c) Somewhat useful _____

(d) Not useful (state why)_____ _____

19. What problems have you had in collecting and summarizing the information on the Annual Statistical Survey? (Check all that apply. For each category that you check, list the question number, where applicable.)

		Question Number(s)
(a) I don't understand the questions	_____	_____
(b) Headmasters don't understand the questions	_____	_____
(c) Question do not apply to your situation	_____	_____
(d) Questionnaire is too long	_____	_____
(e) Other (Specify)_____	_____	_____

20. What questions should be added that are not currently asked?

_____

_____

_____

General Data Collection

IF THE RESPONDENT IS A DEO, SKIP QUESTIONS 21 - 22

21. Do you publish an annual regional statistical summary?

Yes_____ No_____

APPENDIX M

22. If yes, to whom do you distribute the report?

(a) DEOs _____

(b) Headmasters/Principals _____

(c) Central Administration _____

(d) Other regional authorities _____

(e) Other (Specify)_____ _____

23. How many staff members do you have available for collecting and summarizing information?

_____

24. Is the number of staff members available for collecting and summarizing information sufficient?

Yes_____ No_____

*25. What type of assistance do you receive from central administration in collecting and summarizing data?

(a) Transport _____

(b) Training _____

(c) Advising _____

(d) Collecting information _____

(e) Other (Specify)_____ _____

(f) Do not receive assistance _____

26. What recommendation do you have for improving data collection?

_____

_____

_____

_____

_____

*Note to interviewer: Do not read the choices to the respondents for questions 13, 15, 16, 17 and 25.

ANNOTATED BIBLIOGRAPHY

Annual Reports/Five-Year Plans

1. Ministry of Education, Planning Department, *Five-Year Educational Development Plan*, 1962.

   This document lays out the goals and objectives of the Ministry of Education for a five-year period. It contains statistics about the current educational condition and projects future needs. It forms the basis for all MOE activities.

2. Ministry of Education, Planning Department, *Statistical Abstract*, 1971-1988.

   Each year since 1971, the MOEC Planning Department has published an educational statistics abstract, comprised of detailed information about school enrollments, teachers, school facilities, classrooms, and expenditures. It also includes trend analyses across years. This document forms the basis of most reports using educational statistics.

3. Ministry of National Planning, Central Statistics Department, *Analytic Volume, Census of Population*, January 1984.

   This document contains the results of the 1984 census survey. It includes a small section on education.

4. Ministry of National Planning, *Annual Development Plan*, 1971-1988.

   This is a planning document produced by the MNP each year, starting in 1971 and continuing through to the present. It consists of economic and social background data, as well as planned expenditures in each sector for the next fiscal year.

Special Reports/Publications

1. EDSR/ILO/WED, *Ten Years of Women's Education in Somalia*, 1975-85.

   This document describes the history of women's educational programs in Somalia. It contains summary statistics about male and female enrollments, teacher/pupil ratios, the proportion and distribution of female teachers, as well as recommendations for future action.

2. GTZ, *Summary of Findings and Recommendations of an Assessment and Development of Technical and Vocational Training in the Somalia Democratic Republic*, June 1986.

   This study was undertaken by GTZ following technical assistance to Vocational and Technical schools in Somalia. It attempts to determine the impact of technical and vocational education.

3. IEES/USAID/MOEC, *Enhancement of School Quality in Somalia*, August 1985.

   The Somali School Quality Enhancement Study was conducted as a result of the Somalia governments' concern over the declining quality of education. It was a follow-up to the *Somalia Education and Human Services Sector Assessment* (1983). The study is comprised of historical background, a statistical overview of the Somalia education system, an examination of priorities for improving quality, and recommendations for action.

4. IEES/USAID/MOEC, *Incentives for Primary Teaching in Somalia - Draft Report*, October 1986.

   The purpose of this report is to provide relevant data, background information, systematic procedures, policy recommendations and analysis of alternatives so that policy makers in the Ministry of

Education and Culture can select and implement appropriate strategies to strengthen the teachers incentives system to achieve improved recruitment, increased retention, and effective instruction, and thereby improve the quality of education in Somalia's Schools.

5. IEES/USAID/MOEC, *Somalia Civil Service Study*, July 1984.

Based on recommendations made in the *Somali Education and Human Services Sector Assessment*, (January 1983) the Ministry of Labour and Social Affairs decided to assess the constraints upon and opportunities for improvement of the civil service system. This report is based largely upon investigations carried out specifically for this purpose. The study contains information about:

1) the economic and historical context of the civil service;
2) organization and development of the civil service;
3) the personnel management system;
4) civil service examination and staffing;
5) staff training and development; and
6) policy recommendations.

Information on the education sector includes statistics on appointment of university graduates to government employment; civil service employees by education and assignments of secondary school leavers.

6. IEES/USAID/MOEC, *Somalia Country Plan, 1985-86*, July 1985.

The country workplan outlines an action plan for IEES assistance in Somalia during 1985-86. This document describes the history of educational development in Somalia and identifies current trends, problems, and possible solutions.

7. IEES/USAID/MOEC, *Somalia Country Plan, 1986-87*, July 1987.

This document updates statistics in the previous country workplan and outlines the 1986-87 IEES Plan of Action.

8. IEES/USAID/MOEC, *Somalia Country Plan, 1987-88*, July 1988.

This document updates statistics in the previous country workplan and outlines the 1987-88 IEES Plan of Action.

9. IEES/USAID/MNP, *Somalia Education and Human Resource Sector Assessment*, January 1984.

The assessment of the education and human resources sector (EHR) in Somalia was the first such study to address comprehensively the nation's education and training system in light of national goals, constraints, and opportunities. It was coordinated by the Ministry of National Planning, in cooperation with USAID/IEES. The education sector assessment is comprised of the following:

a) an economic and financial analysis of human resource development;

b) an assessment of the formal education system, encompassing primary, secondary, vocational and technical, teacher and higher education; as well as Koranic schools;

c) an examination of nonformal education, including health education, agriculture and livestock education, and adult education.

10. IEES/USAID/MOEC, *The Integrated Strategy for Improving the Primary Education in Somalia*, January 1987.

This strategy, building on the work of different ministry departments, stressed integration of preservice and inservice education; teacher training, teacher guide and textbooks, textbook development, printing, and distribution; teacher training and supervision and teacher incentives; and textbooks,

teacher guides and classroom supplies. It documents existing resources and proposes a plan for ensuring that inputs reach the field.

11. Institute of Inservice Teacher Training (IITT), *Primary Education for Refugee Children and Training of Teachers in Somalia: Current Situation and Future Prospects*, June 1985.

This report consists of a description of the program of in-service teacher training, the supervisory system, the production unit, school education and curriculum enrichment. It also includes information about the schools, communication and transport, collecting statistics, and future prospects of refugee settlement schools.

12. Michael Kiernan, (Educational Advisor, Danida), *CDC Report: Progress and Progress and Prospects 1982-86*, July 1986.

This report attempts to carry out the following objectives;

a. To describe activities of CDC during period 1982-86, within the context of general educational development in Somalia;

b. To provide an analysis of each department of CDC, thus serving as a guide for monitoring future activities;

c. To provide proposals for the future development of CDC and to indicate potential donor inputs;

d. To provide staff, advisers and consultants with an overview of CDC's activities, achievements, and constraints.

13. Ministry of Education, *Current Statistical Trends in Somalia*, 1971.

This report examines the existing educational conditions in Somalia and traces enrollment trends from previous years.

14. Ministry of Education, Department of Planning, Yusuf Sheikh Mohammed, *Education Plan in Non-Formal Education*, July 1986.

This document forms the basis for the planning of nonformal education activities in Somalia.

15. Ministry of Education, Foundation Education Project, *Population and Education in Somalia*, (no publication date).

This paper consists of a historical review of the population and education in Somalia, as well as an overview of the current situation. In January 1981, a project proposal was signed by the government of Somalia and UNDF. A paper was prepared with the following objectives:

Immediate Objectives

a) To establish (within the Ministry of Edúcation) a population education section which will be responsible for planning, implementation, monitoring, and evaluation of population education programs.

b) To carry out feasibility studies on the incorporation of the objectives, concepts, contents, and methods of population and family life education in the educational system.

c) To integrate population and family life education into the curricula of primary secondary schools, as well as teacher training colleges.

d) To produce teaching materials on population and family life education for use in the primary secondary schools, as well as in teacher colleges.

e) To carry out training of primary, secondary, and teacher training tutors on the subject of population and family life education, and to supervise the introduction of these courses in the teachers training colleges.

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f) To publish a population education newsletter in the Somali language.

g) To organize a national seminar on population education in collaboration with other ministerial departments, and voluntary organizations.

h) To cooperate in population-related activities of other ministries, departments, and voluntary organizations (for example, in the rural development campaign, adult literacy and women's organizations).

16. Ministry of Education, Planning Department, *School Drop-out Assessment in Middle Shabelle Region*, October 1985.

This study analyzes school dropout rates in the Middle Shabelle Region. This was the first assessment of its kind carried out by the Ministry of Education and Culture. It examines factors such as socioeconomic conditions, type of construction, school enrollment, teachers' backgrounds, teachers' age group, school furniture, and office equipment by district and number of classrooms by district. The area covered included all four districts of Middle Shabelle, Jowhar, Belad, Adale, and Adan Yabal.

17. Ministry of Education, Planning Department, *School Drop-out Assessment in Lower Shabelle Region*, October 1985.

This school mapping study analyzes school dropout rates in the Lower Shabelle Region. It examines factors such as socioeconomic conditions, type of construction, school enrollment, teachers' backgrounds, teachers' age group, school furniture, and office equipment by district and number of classrooms by district.

18. Ministry of Education, Planning Department, *School Drop-out Assessment in Northwest Region*, 1986.

This study analyzes school dropout rates in the Northwest Region. It examines factors such as socioeconomic conditions, type of construction, school enrollment, teachers' backgrounds, teachers' age group, school furniture, and office equipment by district and number of classrooms by district.

19. Ministry of Education and Culture, *Workshop for Tutors of Hargeisa Teacher Training College*, June 23 - July 15, 1985.

This document describes the results of the teacher training at Hargeisa Teacher Training College.

20. Ministry of Labour and Social Affairs, Department of Manpower, *Guide to Educational Statistics*, 1980.

This document contains basic information about the education sector in Somalia.

21. Ministry of Labour and Social Affairs, *Strategy for Employment and Training Generation for Primary School Leavers*, January 1980.

This paper is an attempt to put into a more general framework the manpower, education, and training needs of the primary school leavers.

22. Ministry of Labour and Sports, *The Characteristics of Public Sector Employment and Key Issues of Manpower Development, Volume 1*, 1985.

The principal objectives of this survey were to update the 1979 manpower survey for the public sector. The aim of the original study was to examine the actual requirements of the existing professional, technical, and selected manpower as well as to provide a technical analysis of the extent of shortage of trained personnel in important occupations. It also attempted to describe the requirements of the Ministry of National Planning, including existing needs and future manpower requirements.

23. State Planning Commission, Central Statistics Department, *Statistical Abstract*, 1982.

This report summarizes socioeconomic data in Somalia. It includes a small section containing educational data.

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This document attempts to outline strategies and future directions for the education sector in Somalia.

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This document discusses the education sector of the Five-Year Plan of Development, 1982/86. It identifies the main objectives for educational development as follows:

- continued expansion of the primary system;
- improvement of the content of the program;
- increasing the effectiveness of the educational process;
- diversification of postprimary education; and
- increasing use of Arabic.

26. World Bank, *Toward Sustained Development: A Joint Program of Action for Sub-Saharan Africa: Statistical Annex*, August 1984.

This report covers a broad range of development issues, including the education sector.

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