

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**THE PREPARATION AND UTILIZATION OF EDUCATIONAL
MANAGEMENT INFORMATION
SYSTEM IN ETHIOPIA: PROBLEMS AND PROSPECTS**

KASSAW ALI

MAY, 2001

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**THE PREPARATION AND UTILIZATION OF EDUCATIONAL
MANAGEMENT INFORMATION
SYSTEM IN ETHIOPIA: PROBLEMS AND PROSPECTS**

BY
KASSAW ALI

MAY, 2001

**THE PREPARATION AND UTILIZATION OF EDUCATIONAL
MANAGEMENT INFORMATION
SYSTEM IN ETHIOPIA: PROBLEMS AND PROSPECTS**

**A Thesis Presented to
the School of Graduate Studies of
Addis Ababa University**

**In Partial Fulfillment
of the Requirements for the Degree
of Master of Education in Educational
Planning and Management**

By

Kassaw Ali

May, 2001

**THE PREPARATION AND UTILIZATION OF EDUCATIONAL
MANAGEMENT INFORMATION SYSTEM
IN ETHIOPIA: PROBLEMS AND PROSPECTS**

**BY
KASSAW ALI**

**A Thesis Submitted to School of Graduate Studies of
Addis Ababa University in Partial fulfillment of the
Requirement^s for the Degree of Master of Education
in Educational Planning and Management**

Approved by Board of Examiners

Girmay Berhe

**Chairman, Department of
Graduate Committee**


Signature

Nebiyo Taddese

Advisor

Nebiyo Taddese
Signature

M. JOSEPH BASTIAN

External Examiner

M. J. Bastian
Signature

Seign M. Teferm

Internal Examiner

Seign M. Teferm
Signature

ACKNOWLEDGEMENT

I wish to express my sincere and heartfelt gratitude to Dr. Nebiyu Taddesse, who advised me throughout my work. His comments and constructive suggestions helped me in working out this thesis.

I would also like to express my deepest appreciation to the school record officers, directors; Woreda, Zone and Regional Education Statistics Officers who contributed to the results of this thesis by making information easily available, participating in interviews and discussion. Besides this, they assisted me in the dissemination and collection of the questionnaire to and from schools.

My special thanks go to BESO project for the financial assistance they provided me in undertaking this study.

I also wish to acknowledge my indebtedness to supervisors in MoE for their support in the collection of the data used throughout this thesis.

Last, but most important, very special thanks is reserved for the morale support, and every sort of assistance I received from my spouse Tekabe Work Asseffa, in the preparation of this thesis.

TABLE OF CONTENTS	Page
ACKNOWLEDGEMENT	i
TABLE OF CONTENTS	ii
LIST OF TABLES	iv
ABBREVIATIONS	vii
ABSTRACT	viii
CHAPTER ONE	1
1. INTRODUCTION	1
1.1 THE PROBLEM AND ITS APPROACH	1
1.1.1 Statement of the Problem	4
1.1.2 Significance of the Study	5
1.1.3 Delimitation of the Study	5
1.1.4 Research Methods, Source of Data and Procedures	6 6
• Research Methods	6
• Source of Data	7
• Sampling procedures	9
1.1.5 Data Collection Instruments	10
1.1.6 Data Analysis	10
1.1.7 Definition of Technical Terms	10
1.1.8 Organization of the Study	
CHAPTER TWO	11
2 LITERATURE REVIEW	11
2.1 Significance of Educational Management Information System	11
2.2 Factors that Gave Rise to High Interest in EMIS in Developing Countries	15

2.3	Major Problems of EMIS and their Underlying causes	18
2.4	Possible Remedies for the Problem of EMIS	22
2.5	Problems of Utilization of EMIS for Planning and Decision Making in Developing Countries	27
2.6	Procedures to be Followed for the Successful Operation of Educational Management Information System	30
2.7	Historical Perspectives of EMIS in Ethiopia	33
2.7.1	The Origin and Development of Modern Education in Ethiopia	33
2.7.2	The Emergence of Statistical Information Needs in Ethiopia	35
2.7.3	Origin of the Organizational Structure and the Establishment of EMIS for the Education Sector in Ethiopia	37
2.7.4	Current Status of EMIS in Ethiopia	38
	CHAPTER THREE	40
3	ANALYSIS AND INTERPRETATION OF DATA	40
3.1	Characteristics of the Population	40
3.2	Analysis and Interpretation of Data	44
	CHAPTER FOUR	89
4	SUMMARY, CONCLUSION AND RECOMMENDATION	89
4.1	Summary and Conclusion	89
4.2	Recommendation	96
	BIBLIOGRAPHY	100
	APPENDIX	107

LIST OF TABLES

	Page
Table 1 Number of sample Zones selected for the study	8
Table 2 Number of sample Woredas selected for the study	8
Table 3 Number of sample schools selected for the study	9
Table 4 Characteristics of Respondents at School Level	40
Table 5 Characteristics of Respondents at Woreda, Zone, Region and Ministry of Education Level	42
Table 6 Participation of the Regional Education Bureau Statisticians on the Preparation of Educational Statistics Collection Questionnaire at MoE	45
Table 7 Responses of Educators of the Federal Ministry of Education Concerning their Participation in the Design and Preparation of the Educational Statistics Collection Questionnaire	45
Table 8 The Level of Completeness of the Annual Statistical Abstract Prepared by the Federal Ministry of Education	47
Table 9 The Level of clarity of the Statistical Questionnaire to Fill in the Information at School Level	48
Table 10 School respondents view on the provision of orientation on how to complete the questionnaire	50
Table 11 Preparation of Additional Regular Educational Data Collection Questionnaire at Woreda, Zone, and Region Level	51
Table 12 Similarity of Information requested from schools by authorities from various Level of the Educational hierarchies	53

Table 13	The level of Statistical Data Request by Different Government and Non-Government Organizations at School Level.	54
Table 14	Respondents View Concerning the Level of Similarity of the Information Request By Various Government and Non-government Organisations	55
Table 15	Month in which the Annual Educational statistics questionnaire Reach to the Schools.	55
Table 16	Respondents View on the Amount of Time Given by Woreda Education Office to Complete the School Questionnaire	57
Table 17	Availability of School Register Book to be Used as a Source of Data to Complete the Questionnaires	57
Table 18	Availability of Manpower for the Activities of Educational Statistics at Woreda, Zone and Region Level	60
Table 19	Availability of Trained Manpower at Woreda, Zone and Region Level	63
Table 20	Problems associated with the level of Salary Scale of Statisticians	64
Table 21	The Problems Associated with the Level of Turnover of Statistical Officers	65
Table 22	Lack of Support from Higher Officials	66
Table 23	Data Inaccuracy Produced by Lower Level Hierarchies	68
Table 24	Shortage of Materials	70
Table 25	Shortage of Financial Resources	72
Table 26	Communication Problem	73
Table 27	In Congruence Between Demand and Supply of Educational Information	74

Table 28	Discussion Undertaking on the Observed Problems from the Aggregated Data at Woreda, Zone and Region Level	75
Table 29	Research Undertakings on Problems Identified from Aggregated Data	77
Table 30	School Level Respondents View Concerning the Undertaking of Research on Problems Identified from the Aggregated School Questionnaire	78
Table 31	The Status of Decision Makers in Utilizing Educational Information During Decision Making	80
Table 32	Availability of training at all levels of the data gathering hierarchies	81
Table 33	The Significance of the Regular School Questionnaire to Woreda Education Offices and Zone Education Departments for planning activities	83
Table 34	The Relevance of the Regular School Questionnaire for Human Resource Allotment	84
Table 35	The Significance of the Regular School Questionnaire for Budget Allotment	85
Table 36	The Significance of the Regular School Questionnaire in Satisfying the Needs of Internal and External data Users	86
Table 37	Availability of Statistical Booklets Produced by higher Level Administrative Hierarchies at School Level	87

ABBREVIATIONS

EMIS	Educational Management Information System
IDA	International Development Association
IIEP	International Institute for Educational Planning
MoE	Ministry of Education
SIDA	Swedish International Development Authority
SNNPRS	Southern Nations, Nationalities and Peoples Regional State
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

ABSTRACT

The purpose of this study was to investigate the problems and the underlying factors that hindered the smooth functioning of EMIS at all levels of the education sector.

In order to achieve the purpose of this study, basic questions were raised regarding the current organizational structure of EMIS, availability of manpower both in quantity and quality, factors which prevent the timely distribution and collection of data to and from educational institutions and on the accuracy of the information produced to the consumers.

The study was carried out in 119 primary and secondary schools. At school level the respondents were school directors and record officers (if any). The second type of respondents were Woreda Statistics Officers, Zone Statistics Officers and Planning Heads, Region Statistics Officers and Planning Heads and at MoE level Department Heads, Panel Heads, experts and Statisticians were inquired. Generally, the total respondents were 209. Questionnaires and interview were data collection instruments. Documents at all levels were also investigated. The data gathered through these instruments were analyzed using chi-square, weighted mean and percentage.

The findings have indicated that, in the under served regions no manpower was assigned in all the data gathering hierarchies. In other Regions where there is statistical officers, adequate training was not given. The initial salary scale given at every level was incompatible with the burden of workload. In the preparation of the EMIS questionnaire, data consumers were not considered. Due to the absence of manpower, training and instruction was not given on how to fill in the questionnaire, the data produced was inaccurate. Furthermore, the dissemination, collection and preparation of educational information was not timely.

Based on the findings and the conclusions drawn the following recommendations were given. New organizational structure should be set up at all the data collection hierarchy, adequate training should be given, information needs of users should be assessed, the questionnaire should consist of detailed instruction on how to fill in the data, and finally, there should be trustful collaboration between the various links of the data gathering chains for the timely delivery of educational statistics.

CHAPTER ONE

1. INTRODUCTION

1.1 THE PROBLEM AND ITS APPROACH

The Ministry of Education (MoE) including all its administrative hierarchies has had Educational Management Information System (EMIS) for quite a number of years under different structures and regimes. At the federal level it is currently operating as a Panel under the Planning and Project Department of the Ministry of Education as per the responsibility entrusted to MoE in proclamation No 4/1994, article 12 of The Federal Negarit Gazette of the Federal Democratic Republic of Ethiopia, which was proclaimed to define the authority and duties of the ministry that read as : “collect, compile and disseminate information on education.”

When we go down to the lower educational data collection hierarchies that is, Regions, Zones, Woredas and finally to schools; the organizational structure of the unit varies.

Nonetheless, EMIS has been unable to fulfill its responsibility for different reasons. One of its shortcomings is that the statistical report of EMIS published yearly has little or no analysis beyond calculations of standard indicators, i.e. gross and net enrollment rate, and student teacher ratio (Tekeste, 1990:68 and Destefano, 1992:32).

Likewise, Abera Mekonen (1993:28) has also indicated that: “EMIS provides very limited information which lacks accuracy and does not reach consumers on time”

Annual publication of educational statistics usually comes out in August end of the academic year. This situation is not at all convenient to planners and decision makers. Preparation of plan of action at MoE is carried out

during the period between January and March every year. However the information to be used for planning purposes was not available up to June. To cite example, the 1999/2000 statistical abstract was published and distributed to the users in August 2000 after the evaluation of the current year performance and the preparation of the coming year plan of action. The 2000/2001 educational statistical abstract is not yet prepared; this is expected to come out in August 2001. As a result, preparation of plan of action in all departments of MoE is not based on timely information.

Valdin and Wort, (1996:9) have also commented on the crude data production of EMIS without in-depth analysis of educational information.

Similarly, the Ethiopian Education Sector Development Plan (ESDP) found that: "The current instrument of EMIS fail to address the totality of information needs, and efficient communication between producers and consumers, and is not up to standard" (MoE, 1998:71).

The instruments used by EMIS for educational data collection are conventional. They are not revised periodically taking into account the information needs of the users. The type of data collected is not based on the assessment of the functional needs of the departments and units in the different hierarchical levels of the Ministry of Education. Even the collected data are not analyzed to create convenience for the activities of decision makers, planners, and other educational information users.

The other problem observed at all levels is that various departments, organizations, institutions, units, etc. Starting from MoE up to Woreda level individually request and collect the same data from the same sources (that is, schools) at different times in a year. This creates inconsistency and redundancy of the educational data of the education sector.

The problems of EMIS identified through the aforementioned studies of different Government, non-governmental foreign organizations, professional

educators and by higher officials of the Ministry of Education are the following:

- Absence of timely educational information,
- Data inconsistency,
- Crude data without in depth analysis,
- Redundancy
- Inaccuracy of educational data,
- Data, which does not meet the functional needs of the Ministry of Education and other internal and external users.

However, none of them tried to study the problem in detail and identify the underlying factors, which have hindered EMIS to perform its activities effectively and efficiently.

Therefore, this research is prepared to study the major factors and the associated causes for the occurrence of the above-mentioned deficiencies and try to give recommendations to higher officials, which might be useful to undertake measures so that EMIS could accomplish its task effectively and efficiently.

1.1.1 STATEMENT OF THE PROBLEM

This study aims at investigating the major problems and its causality to the proper functioning of EMIS. In view of this, the investigation of the problems and the underlying causes' demand answers to the following questions.

1. Is the existing EMIS Structure at all levels appropriate to collect and prepare accurate educational information for the needs of planners and decision-makers?
2. Are there adequate and trained personnel, which can carryout, the functions of EMIS in all administrative hierarchies from the school level via to the Ministry of Education?
3. Does the educational data collected annually satisfy the information demand of all educators at all levels of the education sector?
4. What are the major factors that hinder the timely distribution, collection, preparation, publication and dissemination of educational information to the users?
5. What are the factors that cause the inaccuracy of educational data collected and produced by EMIS annually?

1.1.2 SIGNIFICANCE OF THE STUDY

The study is important for the following reasons.

1. It may create awareness on the part of the education officials at various levels on the existing problems of EMIS and the underlying causes.
2. Possibly, it may forward feasible recommendations to the officials as to what measures should be taken to tackle the prevailing severe problem of EMIS.
3. It may help to lay the ground for more detailed and in-depth study of the problems and its underlying causes that hinders the proper functioning of EMIS.

1.1.3 DELIMITATION AND LIMITATION OF THE STUDY

An examination of the problem of EMIS and its underlying causes involves all Regional States of Ethiopia. However, without under estimating the importance of these regions, the study is delimited to Amhara, Oromia, Addis Ababa, and Benishngul Gumuz due to shortage of time and financial resources. The four regions are selected because they constitute slightly less than half (49.2 per cent) of the Zones, 61.2 per cent of the Woredas, 68.1 per cent of the total primary schools and 67.1 per cent of secondary schools of Ethiopia. Furthermore, these regions are selected by taking in to consideration their high population and coverage of large geographical areas, state of urbanization, availability of manpower both in quantity and quality and representation from under-served regions.

In terms of level of education, primary and secondary schools are selected because in these levels of the educational system, record offices are not assumed to be available especially in the newly established schools.

Therefore, representative data for the study is expected to be available to get appropriate answers for the basic questions.

The other levels, especially Technical and Vocational Schools, Teacher Training Institutes, Colleges and Universities are not included in this study, because, they have relatively better personnel assigned to the job and available resources to perform the record keeping task.

Finally, the study is delimited to educational statistics collected annually to serve policy makers, planners and other internal and external educational data users.

1.1.4 RESEARCH METHODS, SOURCES OF DATA AND PROCEDURES

Research Methods

According to Ayalew Shibeshi and Seyoum Teferra (1988:7), Surveys are studies in which a large variety of data related to the subject are collected, and is undertaken in a wide magnitude rather than studies in-depth.

Hence, the nature of the problem calls for survey research as the coverage of this study is fairly large.

Sources of Data

The major sources of data include:

- Primary and secondary school directors and school record officers, if any,
- Woreda Education Office Planners and Statisticians,
- Zone Education Planners and Statisticians,
- Regional Education Bureau Planning Heads and Statisticians,

- Ministry of Education Department Heads, Panel Heads, Experts, EMIS Head and Statisticians.

Sampling Procedures

The sampling procedure involved several processes and stages of selection beginning from Regional States to the school level. At regional level, all the nine regions, Addis Ababa city administration and Direedawa Administrative council are all covered in the study.

While information needed at regional level was obtained from all regions and administrative states, data from Zones were collected on sampling basis. For the selection of sample Zones five sample regions (Addis Ababa, Amhara, Benishangul Gumuz, SNNPR and Oromia) were chosen on the basis of purposive sampling from non-probability sampling techniques. The sample regions were chosen for the following reasons:

- The majority of Zones, Woredas, and schools are located in these regions,
- Benishangul Gumuz was assumed to represent the under-served areas of Afar, Somali and Gambella. Moreover, their organizational structure of the education sector is almost the same and has poorly developed transportation and communication systems.
- For the regions of Direedawa and Harari, Addis Ababa was chosen as all of them are not affected by distance and communication problems and almost all of them have urban characteristics.
- Amhara, SNNPR and Oromia regions are selected because it is assumed to represent Tigray, in terms of similarity of their constituency of high population with large number of students and schools, large geographical areas, and urban and rural schools.

The Sampling techniques employed to select Zone and Woredas from sample regions are simple random sampling; because almost all of them have similar characteristics.

The sampling techniques used in the selection of sample schools was stratified sampling. The reason for the selection of this sampling technique is due to the characteristics of the population under study, which were primary and secondary schools located in urban and rural areas. In this case, all the Zones and Woredas located in all regions were not selected; rather, the following sample Zones were selected.

Table: 1 Number of Sample Zones Selected for the Study

Regions	Number of Zones in the Region	Number of Sample Zones Selected
Addis Ababa	6	5
Amhara	11	7
Benishangul Gumuz	3	1
Oromia	12	5
SNNPR	12	5
Total	44	23 (52.3 %)

Table: 2 Number of Sample Woreda Selected for the Study

Region	Number of Zones selected in the Region	Number of Woredas in the selected Zone	Number of sample Woredas
Addis Ababa	5	26	5
Amhara	7	59	12
Benishangul Gumuz	1	8	2
Oromia	5	62	11
SNNPR	5	34	6
Total	23	199	36 (18.1 %)

The number of schools selected on the basis of school type and level are shown on the table below.

Table: 3 Number of Schools Selected for the Study

Region	No. of Wordas selected	No. of Primary Schools		No. of Secondary Schools (9-12)	
		Urban	Rural	Urban	Rural
Addis Ababa	5	24	-	5	-
Amhara	10	14	14	10	-
Benishangul Gumuz	2	2	3	2	-
Oromia	11	19	16	11	-
Total	28	59	33	27	-

Summing up: 11 Regions, 23 Zones, 36 Woredas, 59 urban primary schools, 33 rural primary schools, and 27 urban secondary school, and 20 respondents from MoE served as the data base for this study.

1.1.5 DATA COLLECTION INSTRUMENTS

Instruments used in the study were closed and open ended questionnaire, unstructured interview items and documents.

The questionnaire was originally prepared in English and then translated into Amaharic to create convenience to the respondents. It was also pre-tested in the field to refine confusing and other problematic questions of the questionnaire. After the necessary revisions were made, the questionnaires were distributed to the sample respondents.

The unstructured interview was conducted with officials and statisticians at MoE level and planning head of the sample Regions and Zones. This instrument is selected because, follow-up questions could be asked immediately from the responses given from the interviewee.

Information from documents served to investigate the contents, the presentation of the questionnaire, the published statistical abstract, the amount of money allocated, the number, qualification, and salary of personnel assigned at every level of the educational organization. To find out what has been written regarding the problem, a survey of the related literature was also made.

1.1.6 DATA ANALYSIS

After collecting and organizing the data analysis was made using percentage, weighted mean and chi-square.

1.1.7 DEFINITION OF TECHNICAL TERMS

Educational Management Information System - A communication process in which information (input) is recorded, stored and retrieved (processed) for decisions (output) on planning, operating and controlling (Hanson, 1985:138)

Data - facts and figures as are generally collected and stored in an organization which are a general nature (UNESCO, 1980:7)

1.1.8 ORGANIZATION OF THE STUDY

The study has four parts. The first part deals with problems and its approach. The second one treats the related literature reviews, while the third part consists of the analysis and interpretation of the data of the study. The last part deals with summary, conclusions and recommendation of the study.

CHAPTER TWO

2 . LITERATURE REVIEW

2 . 1 SIGNIFICANCE OF EDUCATIONAL MANAGEMENT INFORMATION SYSTEM

In the information age of today, one can hardly dispute the indispensability of educational management information system to decision makers, planners, researchers and a wide range of other beneficiaries in all sectors and walks of life.

Likewise, Educational Management Information System (EMIS) is a system in-built to an educational system to acquire quantitative and qualitative information on its various components, which will be consumed at different levels and by various stakeholders.

Information nowadays is considered as a resource on the level of money, material facilities and people (Kanter, 1998:8). Therefore, information has come to be recognized as an increasingly valuable commodity required by management to plan and control the operation of an organization effectively. Menou, (1993:90) indicated that information must be managed, beginning at the level of the individual, proceeding to the group level, the organization and institution, the country, the region, and finally the international and the global level.

As rightly recognized by Cleland and King (1983: 421) All the planning, analysis and implementation activities depend intimately on a single common commodity: information. Their description goes on to assert that information in this context, means data that have been evaluated to be useful to support decision-detected problem.

A brochure issued by the Ministry of Education of Ethiopia (1996:1) underscores the importance of information for education as follows:

An educational system devoid of in-built mechanism of obtaining information about the various aspects of its programmes is as a person walking blind-folded with no stick in his hand to direct him in that unfortunate situation.

In justifying the significance of EMIS, Koory and Medley (1987: 225) also pointed out that "Information is the basis for planning, management and knowledge. The importance of information has grown to such an extent that modern computer - oriented societies are described as information societies." This obviously indicates that the level of utilization of information technology can be used to measure the developmental stage of a given society or country.

UNESCO (1997:1) has also supported this idea as follows:

Other than permanent peace, it is possible that nothing contributes more to achieving the goals of developing societies, the less industrialized countries and to making this world a better world to live in than an effective transfer of scientific and technological information.

The management of the education system has become complex due to the expansion of the sector. As a result, planning functions and decision making responsibilities now-a-days are carried out at all levels starting from schools to the Ministry of Education level. These responsibilities and activities in turn demand accurate, relevant, timely and adequate information system. The major objective of EMIS is therefore, to supply the most relevant information for efficient and effective functioning of the education system.

The need for efficient and effective utilization of available resources in the education sector is becoming more important than ever, as resources are scarce and human needs are unlimited. Hence, one of the necessary conditions for achieving improvement in the education sector is to have improved database, which is properly collected and analyzed to help decision- makers and planners to make better use of existing educational resources both with respect to efficiency and effectiveness.

Sound and effective educational planning and decision making depend very much on the educational information available. The planners will not be able to work out a good strategy unless appropriate and timely educational information is at hand.

The lack of information on key aspects of educational development and often poor quality of available information are serious problems both to the producers and consumers. A prerequisite for improving decision-making and planning capacities in the field of education is, therefore, to improve the collection and analysis of data related to the activities of the educational sector.

According to Psacharopoulos (1980:115) educational information gives a concrete picture of the educational condition at a given time, shows the relationship between aspects of the educational situation, and hence, brings to light any anomalous condition requiring special attention, traces the line of educational development with changes that have taken place, suggest probable directions and enrollment rates in the future and enables the measurement of plan and policy realization in precise terms.

With the above-mentioned functions, educational information can, therefore, serve as a foundation and framework for sound and effective educational planning, as well as a guide to policy decision and action.

According to Chapman (1990:5) educational information could be used to improve the quality of education by providing data that are used directly to secure allocated recourses, constraining bad decisions and detecting inefficient use of resources.

Educational information can also be used as a tool to evaluate and monitor the present status of the education sector and device mechanisms for future development. It therefore, can be used for description of the stock and flow of pupils, administration and teaching personnel, equipment and facilities, comparison of educational provision and

performance between different institutions and population groups, making predictions on the likely results of alternative choices for planning purposes and undertaking educational research in order to investigate the causal relationships between factors inside and outside the educational system. (UNESCO, 1980:8)

Welsh (1990: 95) also unequivocally states that:

An EMIS is a mechanism that will hopefully reorient the information structure in a way that will avoid the expansion of irrelevance within the education system and the consequent waste of resources and human potentials.

Hence, up-to-date, reliable and adequate information is essential to monitor current development within the education sector, as well as to understand how the sector works to be able to plan for the future.

Windham, Levin and Bathory (1990:79-82) identify the following groups of people who need to have access to educational information vis-à-vis their respective areas of concern. These groups of people are parents, teachers, school principals, officials at different administrative levels and all members of the society at large. Each of these groups of people has a stake in the educational system and hence is affected by the decisions that are made.

According to these writers, parents will be concerned with the educational performance of their children while teachers and other school staff will be concerned with curriculum, working conditions, community support and career opportunities. School principals will have similar concern with parents and teachers as well as the level of resources and school performance. State and national officials will be concerned with efficiency in the use of educational resources and fairness in the distribution of the available resources. Finally, all members of the society will have interest in the degree to which the educational system delivers opportunities to all students. They also expect educational institutions to produce responsible

citizens who share a common culture and can be productive in the household, work place and their civic roles. Thus, it is imperative that a well-organized Education Management Information System that is capable of providing relevant, accurate, and timely information to each of these groups is a top priority and area of concern to any educational system. (Windham, Levin and Bathory (1990:83-84)

Educational management information system is therefore, bound to provide information services to the various groups of people concerned with improving education. Hence, there is a need to give high priority to the study of users' needs and preferences including cost benefit studies of different ways of meeting these needs, and to evaluate the effectiveness of the information service, programs and products.

A UNESCO publication on this issue underscores that:

The availability of the right type of information can trigger new vision in research, development, and managerial action. Inversely, any barrier to the access of information will prevent proper communication and information flow, causing problem to the user (UNESCO, 1979:11).

Indeed educational management information system is the most essential tool for managerial effectiveness that rests heavily on information.

2.2 FACTORS THAT GAVE RISE TO HIGH INTEREST IN EMIS IN DEVELOPING COUNTRIES

The necessity for having EMIS has a historical origin in developing countries. According to Chapman and Mahlck (1993:3-5) the major factor that gave rise to the need of EMIS in developing countries was the deterioration of educational quality that followed the relatively rapid expansion of education in the 1970s and 1980s. During this period, many developing countries witnessed an unprecedented expansion in their education system that was attributed to rapid population growth and increased participation rate of school age children. In response to this

high social demand for education, governments recruited and assigned a large number of unqualified and under-qualified teachers and administrative personnel to schools. The rapid growth of the teaching force exerted great strain to the meager educational budget of the countries. Consequently, governments were not only forced to reduce budget for textbooks, instructional materials, school construction, maintenance, and supervision, but teachers' salaries also fell behind the rate of inflation caused by persistence economic crisis. These constraints eventually led to the decline of the quality of education. As a result, parents began to question the value of education for their children, and consequently, the participation of students began to decrease.

In response to this situation, governments began to re-examine the problem. Moreover, different organizations began to initiate studies that focused upon the identification of the root causes for the deterioration of the quality of education in developing countries. Accordingly, the findings of these studies revealed that the absence of training on the part of the educational managers and lack of timely, accurate information on the various components of the education system were the two major problems that led to the decline of the quality of education. As a result, the predominance of quantitative expansion over qualitative improvement led to the designing of the data collection instrument to serve on quality issues. (Chapman, 1993:5; Aziz, Boediono, et.al., 1990:35-37)

Highlighting these findings Champan and Mahleck (1993:4) wrote:

The benefits of training were lost if education managers, once trained, did not have the data they need to support improved planning and management practices, along with training them, improving the information available to decision makers was identified as a key element to improving educational management and in turn the efficiency of the education system.

Moreover, the International Conference on Education, convened by the United Nations Educational, Scientific and Cultural Organization in

Geneva from 30 August to 8 December 1977 identified EMIS as a key factor in improving the quality of education in third world countries and underlined the need for strengthening of mechanisms for the exchange of significant scientific and technological information as a key component in the process of transfer and adaptation of technologies appropriate to the needs of developing countries (UNESCO, 1979:403).

The conference also forwarded quite a number of recommendations as to what practical measures should be taken at national, regional, and international level to promote educational information and thereby to improve the quality of education.

Kemmerer (1993:60) indicates that EMIS in developing countries emerged as a response to donors' requests for information. Similarly, Chapman and Mahlck (1993:5) identified the following two factors that contributed to the growing interest for better information as an input to more effective educational planning and management. The first was a growing pressure on donors themselves to be more accountable for the development of funds they spent, besides believing that education ministries needed better information to guide their decision process. The second factor was the appearance of inexpensive, powerful and portable microcomputer, which made it possible to handle more data in a cost effective manner.

According to Windham (1997: 173) the development of EMIS was attached to the rapid expansion in the physical size and geographical coverage of educational systems, the increased complexity of educational activities with their number and the variety of outcomes pursued, the heightened pressure for more efficient use of resources and greater accountability requirements, and the availability of relatively improved and low cost technologies for dealing with larger data sets.

2.3 MAJOR PROBLEMS OF EMIS AND THEIR UNDERLYING CAUSES

In the world of today, the indispensability of educational information has become so obvious that most countries have one form of EMIS or another. Thus, the cardinal problem, as Kemmerer (1994:45) correctly put it, "is not establishing an EMIS but rather identifying the deficits and their sources"

A study conducted in this light examined the type of educational data in some forty developed and developing countries and highlighted the general trends of the current practices associated with the collection and use of educational information.

Kemmerer (1994: 46-50) summarized the most serious problems pinpointed by the study into the following four categories.

- Redundancy: more than one unit in the ministry collects the same data.
- Inaccuracy: The quality of the data is seriously compromised by poor definition of what is to be reported. Reports from inappropriate or untrained personnel, poor instrumentation, mathematical errors in aggregation, under or over reporting.
- Irrelevance: excessive emphasis is placed on the ease of data collection rather than on the needs of users. This results in too much useless and too little of the right kind of data and the use of a set of indicators that has little relevancy to planning needs.
- Lack of timeliness: educational data are not available when needed or are not available in a form that is useful to decision makers.

Kemmerer further traces the problems of relevance and timelines to be a function of what data are collected and why, whether the data are made

accessible to the appropriate personnel in the format required at the time when they are needed, whether administrators have an incentive to use the data and often, more data are collected than can be usefully analyzed and the data that are collected are not by themselves, those of most interest to policy makers and managers.

Ackoff as cited in Higgins (1980:81) contends that “management critically needs more relevant information” whereas he argues “they suffer more from over abundance of irrelevant information”. And hence, he underlined the importance of “filtration and condensation of information”.

The first issue to be decided before any data are collected, is the scope of the data collection. This is an initial decision that must be taken with respect to the question “information about what?” (Ross, Postlethwait, et.al. 1990:100).

The two researchers on the other hand identified the factors that causes for the aforementioned problems to be the following:

- Head masters do not give much importance to completing the form in an accurate or timely way and do not understand why and what type of data are being requested,
- Several countries have found that errors were introduced when data from the school were summarized at district or regional levels, often by poorly trained staff working without the benefits of calculators or computers.
- Closely related problems occur within the central ministry itself when several units of the same ministry collect the same type of data, leading to multiple sources of discrepant information.

According to Walsh (1993: 96) the rule of relevance of data defines the criteria used to sort out which to be included - excluded, made operative or inoperative, and sets the proprieties derived from the valuing system.

A study undertaken by UNESCO (1983: 19-22) indicates that the major problems faced by those in charge of EMIS in developing countries are the following: (a) The low priority given to EMIS has resulted in a correspondingly low allocation of resources to the collection and analysis of educational data which is meant lack of staff and equipment. Furthermore, this has often led information producers to have poor working conditions, lower pay and, limited promotion possibilities than those who are employed in prestigious sectors. (b) Due to lack of trained and qualified staff at all levels, errors commonly found in educational data are committed at the source, or during the compilation and consolidation of data at the next higher level which is very difficult both to trace and correct at the central level. (c) A high turnover of staff among those working with educational information is common to developing nations due to low payment and absence of prospect for promotion compared to other sectors. (d) Lack of cooperation and support from schools as well as other units within the organization.) The very poor communication problem complicates the transmission of school questionnaires to and from the schools to rectify errors as well as the collection of supplementary information to fill in the gap.

Chapman and Mahlick (1993:244) have also listed three primary treats to data quality when information is processed. These are, error and omission in reporting data, error in transferring and summarizing data and lack of consensus about data definitions.

According to the study made on educational information problems and issues and strategies to solve them by National Institute for Educational Research (NIER) (1983: 18-22) the problems of EMIS were the wide variation of regions in their development, lack of trained personnel, the geographic features of the country which make it difficult to communicate with the different regions, lack of coordination among various government agencies in dealing with educational information, inaccurate educational

statistics, lack of support from administrators and high level decision makers, shortage of well-qualified staff to manage information preparation and dissemination, insufficient facilities and equipment, financial constraint, and limited access to information due to language problem.

According to Aziz and Boediono (1990: 54-61) current problems associated to data collection are multiple agencies of data collection, Control of and access to data, inadequacies in data collection, the problem of too many data, financial issue such as lack of diversity in finance and lack of incentives, perennial gaps in information, under utilized information, inappropriate information and unanalyzed information.

Alawat and Bellech (1997:277) indicated the problem of EMIS to be the level at which data are collected, analyzed, and reported which largely determines the quality and usefulness of database.

Kemmerer in Chapman and Mahlick (1993: 60) have found the problems of EMIS to be crude data without analysis and the presence of significant gap in the data available for decision-making.

Kemmerer (1994:46-47) has found that the problems of redundancy, inaccuracy, relevance and timeline stemming from the demand of external agencies requiring aggregate information on the sector, sub sector or institution to justify to lending or aid programmers and or for international comparison. On the other hand internal departments also require data for internal accounting purposes. As a result, EMIS could not keep pace with the growing demand of information. Hence, individual ministerial units began collecting their own data. This in turn has resulted in the collection of similar data involving potentially serious wastage of time and other scarce resources. Furthermore, such practice promotes poor quality data due to inconsistency.

To sum up what has been presented in this section, it should be underscored that planned, consistent, reliable, relevant and adequate

information that is communicated through appropriate channels is indispensable. the availability of such information will help for the efficient and effective running of any education system in general and for the successful execution of the decision-making, planning, and research activities within the system in particular. On the contrary, inadequate, unreliable, and out of date information arising from poor and inaccurate database will lead to inappropriate decisions and consequently have an adverse effect on educational resources. Therefore, the establishment of EMIS or the mere collection of educational data in itself may mean nothing and is wastage of resources if it does not come up with accurate and timely data that can be used for decision making, planning and research purposes. Thus, consistent effort should be made to identify the deficit of EMIS and it's underlying causes and to take corrective measures to ascertain effectiveness and efficiency.

2 . 4 POSSIBLE REMEDIES FOR THE PROBLEM OF EMIS

The first step in improving the database is to clarify the purposes of data collection because gathering educational data is expensive. It is therefore, uneconomical and wastage of resources to collect data without having a reasonably clear idea of the purposes they are intended to serve.

One of the main criteria for data collection is that the information shall be user related. This can only be achieved through a close cooperation between the producers, planners, decision- makers and other user groups.

Grisay and Lahlck (1991: 61) have pointed out that an improvement in the collection, processing and the communication of information may contribute to better quality of education, provided the information collected, processed or received by each of the agent is really the information that he needs to give his decisions at his operational level.

Windham, Levin and Bathory (1990: 82) also reached to a similar conclusion that in the design of information and collection instruments,

points to be considered are: the pertinent decision makers should be identified according to the type of information they require from the educational system, an appropriate type of information should be identified so that decision makers can make informed decision, an appropriate system of measurement, data collection, compilation and distribution should be developed and finally the system should be implemented in a manner that will deliver accurate and timely information.

Ross, Postlethwait and et.al., (1990:99-100) have also pinpointed the consideration that should be done before embarking on collecting information as follows:

Initial decisions have to be taken with respect to what data should be collected, and this needs to be supported by why these data are to be collected, and how these data are to be collected, prepared, analyzed, and then used by decision makers operating at various planning levels in the educational system.

Accordingly, EMIS should ask the following questions before trying to collect data on the education system. These questions are: "who are the decision makers?" "What interest in the education system do they have?" "How these interests be satisfied by the information?" (Windham, Levin And Bathory, 1990: 79)

Precise decisions about the content of educational information systems need to be made only after comprehensive analysis of the information requirement of decision makers.

According to Aziz, Boediono, et. al., (1990: 62) in terms of the kind of information to be collected, there is an urgent requirement for research to decisions concerning what information should be collected in order to construct useful educational information system, the ways in which overlaps and redundancies associated with data collection can be removed

and the techniques that would be appropriate for identifying and addressing important gaps in data collections.

Kroenke (1989: 101) has also identified the following three dimensions of EMIS: the why dimension concerns the benefits of information on systems to the organization, work group, and individuals; the what dimension concerns the components of information system at every level and the how dimension concerns the activities required to create information systems.

According to Postlethwaite, Hallak and Ross (1990: 159) the need for collecting educational information has to raise the following questions before the collection process takes place: which data are actually being used by decision makers from the information that are collected, summarized and published in a series of statistical Yearbook? and which key questions associated with planning do decision makers require information about?

According to Menu (1993:91) the assessment of the impact of information cannot be self-contained and one time exercise. On the contrary, it should be based upon the assessment of beneficiary or user need and clearly identify from the outset the audiences.

Ross and Mahlck (1998: 11-12) have indicated that educational planners need to assist decision makers operating at all levels of an educational system in articulating important policy related questions, in defining the information required to address these questions, and designing the format and scope of data collection and analysis in order to deliver appropriate information.

Likewise, Levin (1990:67) pointed out that the development of an educational system requires decision on the relative emphasis on data continuity and ease of collection versus the information needs of the users, whether to focus on information requirements for educational policy-making, planning or practice.

Therefore, information producers should maximize the utility of information to decision makers and planners by undertaking a thorough study of the users' needs.

It should also be noted that the more accurate and relevant the information, the more likely the decision will be in accordance with the educational policy preferences and improves the efficiency of the educational system as a whole.

The World Education Forum that was held in Dakar, April 2000, adopted the Dakar framework for action by assessing the reports and findings of the six regional conferences in 1999 and 2000 towards the achievements of the goals of Jomtien, 1990s World Declaration of Education for All. Accordingly, in each of the regional conferences, the need for increasing quality of EMIS to be utilized for planning, monitoring, evaluation and decision-making purposes was given due emphasis.

Among the six regional conferences, one was the Sub-Saharan Africa Regional Framework for Action, which was held in Johannesburg, South Africa, December 1999. The participants of this conference committed themselves to develop institutional capacity and human resources in the area of statistical and management information systems and research for informed policy formulation, implementation and evaluation. (UNESCO, 2000:28)

The regional conference also recognized the responsibility of governments to facilitate partnership at all levels with various organizations and individuals for decision making, management and teaching. To achieve this new form of partnership, the need for "collaboration in developing adequate data collection and information systems to help in assessing the status and trend within the respective sub-sectors" was one of the important points, which was a priority area of focus (UNESCO, 2000:29).

With regard to the improvement of the quality and relevance of education, the conferences also passed a resolution to “develop reliable education management information system to improve analysis and decision-making” (UNESCO, 2000:28).

In promoting and supporting of Africa-based educational research, the conference also identified “the continued lack of relevant data” to be a major problem. Thus, decision was passed by the participants to prepare joint strategies for research and statistics by researchers and statisticians and finally submit their report to the national EFA consultative council to find solutions. (UNESCO, 2000:30)

Similarly, the Asian and Pacific Regional Conference on Education For All (EFA) were held in Bangkok, Thailand, January 2000. The conference also identified the major challenges to EFA, to be “lack of reliable data and statistics”. As a result the conference proposed the need for increased emphasis on the development of enhanced and comprehensive EMIS, which provides timely, relevant, accurate and valid information as well as access to the latest information for decision-makers. This strategy is assumed to lead to greater accountability and transparency in the allocation and utilization of resources with increased emphasis on decentralization of the management of the education system (UNESCO, 2000:57-61).

Furthermore, the Dakar framework for action where the regional EFA framework was part of this document underpins the importance of improving EMIS, to achieve EFA goals. The conference pointed out that getting “reliable statistics, desegregated and based on accurate census data, are essential if progress is to be properly measured, experiences shared, and lessons learned”. In order this to happen, the conference indicated that governments should truly be committed to educational outcomes, recognize the fundamental importance of statistics and the need for credible and independent institution to produce them. The World

Education Forum 2000 assessment identified the existence of important data gaps. Hence, the participants reaffirmed the need to increase capacity to fill these gaps and to produce accurate and timely data both quantitative and qualitative for analysis and feedback to policy makers and practitioners. The necessity of paying due attention to collecting desegregated data at lower levels of the system both to identify areas of greatest inequity and to provide data for local level planning, management and evaluation were also emphasized (UNESCO, 2000:21).

In order to progress towards meeting EFA goals and targets, the conference also recognizes the need for better data available at national and international level which will allow governments, civil society and other agencies to gain a clearer understanding of progress towards the goals, to identify regions, countries and sub-national levels where there is a particular success or difficulty and then to make appropriate action (UNESCO, 2000:21).

2.5 PROBLEMS OF UTILIZATION OF EMIS FOR PLANNING AND DECISION-MAKING IN DEVELOPING COUNTRIES

Chapman and Mahlck (1993: 238) have clearly put the problem of centralization of educational system in developing countries as follow.

Education system in nearly all third world countries operates as steep hierarchies. Steep hierarchies are based on the assumption that 'thinking' will be done at the top of the organization, doing at the bottom. Middle level staff are expeditors, their role is to summarize information for top management to instruct, monitor and control subordinates.

Such practice also influences the production, dissemination and utilization of educational information for planning and decision making purposes. However, the goals of information system in education will not be realized unless more thought is given to ways of improving information

flows so as to better practice, particularly practice at the school level, where the real activities of education occur.

When stressing the importance of grass-root level practice, Alawat and Billech (1997:270) noted:

It is the school level practice and within each school, it is what goes on in the classroom, that finally determines the efficiency, effectiveness, excellence or equity of the whole system.

They have also pointed out that the problems in analysis and reporting of data at higher levels restrict the users' ability to affect school and classroom practice. That is, if reporting were done at national level or regional level, it would be extravagant to collect data at class, teacher or student level (1997:277).

McGinn and Welsh (1999:66) clearly demonstrate the disadvantages of centralized management by stating; "management by remote control is a sure path to inefficiency" provided the local decision makers are competent. It will require training and provision of timely information to improve the performance of the education system.

Chapman and Mahlck (1993: 1) came to a similar conclusion in which they characterized the design and operation of the information system in developing countries to be mainly appropriate for central ministry planning. Conversely, less consideration is given to make EMIS convenient to the lower levels of decision makers of the education system.

Grisay and Lahlck (1991:66-75) pointed out the importance of provision of information at the school and classroom levels and suggested that there should be two types of information supply to encourage teacher to modify their practice effectively. These are Communication of average scores (by school and district) making it possible for the institution to see where they stood with respect to other schools in the same district, and for districts to compare themselves with other districts. The same is true to regional and

national government level and analytic comments on the results from certain poorly answered questions, accompanied by concrete advice to the teachers.

The process of information utilization at all levels can only bear fruit if intelligent guidance given to decision makers to understand how they must use information for their responsibilities to improve their working performances.

According to Chapman (1997:163) in many countries more data is collected than analyzed or used and information-gathering efforts are often duplicative and there is generally, a lack of coordination among data gathering activities. The lack of technical expertise also causes a very limited interpretation of the masses of data that are being collected. Apart from the amount of information that should be generated, another important issue is the amount of such information effectively transmitted to the appropriate decision maker and the degree to which it is used in decision making and planning.

A major constraint of effective educational decision-making is the information distance that exists between the educational reality and the decision maker. This distance does not only involve physical distance and time, but it also incorporates the inevitable abstraction involved in the use of summary statistics or trends (Winham, 1993:29).

Hence, he underlines decentralization of educational authority, which reduces the degree of abstraction in fitting resources to needs by clarifying the line of accountability, which also applies to the specific case of decentralized information use.

Decision making and planning at every level requires different kinds of information to be presented at different levels of aggregation. In order for information to be employed in educational planning, the format and

delivery of the information had to be analyzed to the specific needs of the different decision making levels. (Ross and Mahlck, 1990: 32)

Thus, the type of decision at each decision making level will generally be quite different and therefore, the type and format of information required at each level will also often be quite different.

2.6 PROCEDURES TO BE FOLLOWED FOR THE SUCCESSFUL OPERATION OF EDUCATIONAL MANAGEMENT INFORMATION SYSTEM

Windham (1997:173-177) identified four major steps involved in the operation of a successful EMIS.

- Needs identification through a survey of decision makers to determine what data they currently use and the additional data they would like to have. Besides this, specification of the key components and relationships most critical aspects of the management decision-making processes. Once the needs are identified, it must be judged with the criteria of relevance, accuracy, and timelines in collection, affordability, and understandability for decision makers and planners.
- Data collection from various sources depending on the identified needs through sample, census or day-to-day recording of the operation of the education system.
- Data processing and analysis should basically be parallel to the conceptual framework upon which the EMIS data collection was based.
- Provision of information in a manner appropriate to the users (appropriate to the capacities and responsibilities of the users)

- Information utilization -The information provided may be extensively used to evaluate existing policy and practice and to compare alternatives for future implementation. The information may also be selectively applied to support those policies or practices, which is utilized as a decision justification base.

Similarly, UNESCO (1979: 89-127) vividly portrays the flow of operations and responsible institutions in a national information system as follows:

- Determining the needs of the users through the study of the organizational chart of the institution, its function, activities, annual reports, project reports, and other publications,
- Survey of users requirements using questionnaires, interviews, attending seminars in which users participate, observing users at their work place, personal informal contacts, meeting users in small, preferably homogenous groups periodically, and searching for all existing information service rendered.
- Acquiring missing information,
- Storing missing information,
- Consolidating all information available, and finally disseminating information to the users.

The heart of management information system is its database, which consists of information used in the decision making process by managers at various levels, and hence, the database should be as complete and accurate as possible. In fact, all management functions that is planning, organizing, leading and controlling rely on information about what is happening at and beyond an organization.

Managers at all levels are finding information systems to be valuable sources of information, which are necessary for effective operation of their

organizations. Consequently, they are rapidly becoming indispensable for planning, decision-making and control. How quickly and accurately managers receive information about what is going right and what is going wrong largely determines how effective the control system is. For this reason it has become crucial for managers to understand how information systems should be designed, implemented, and managed.

To achieve the above-mentioned benefits Kinard, 1988:613-614 further noted that information should be evaluated by the following four factors:

- Information quality- The more accurate the information and the higher its quality, the more securely managers can rely on it when making decision.
- Information timeliness- for effective control, corrective action must be applied before there has been too great a deviation from the plan or standard. Thus the information provided by an information system must be available to the right person at the right time for appropriate action to be taken.
- Information quantity- managers can hardly make accurate and timely decisions without sufficient information. However, managers are often faced with the problem of obtaining irrelevant and useless information. If they receive more information than they can productively use, they may overlook information on serious problems.
- Information relevance - the information that managers receive must have relevance to their responsibilities and tasks.
- The availability of EMIS on accurate and timely basis helps to facilitate the decision making process and enable the organizations' planning, control, and operational function to be carried out effectively. The system provides information about the

past, present and projected future and about relevant events inside and outside the organization (Stoner, Freeman and Gilbert, 1998:615).

Sack and Saidi, (1997: 44-68) have pointed out that EMIS can be characterized by; the quantity of information it produces, the quality of that information, the availability of the information to the concerned people inside and outside the ministry, and the time it takes for the information to become available and used.

They further, go on to elaborate that, the quality of the information means assessing the validity and reliability of statistics and indicator, measures of educational outcomes, as well as the value of research results. Validity refers to whether the statistics indicators measure what they purport to measure. Reliability means that statistics/ indicators for any given time and place are comparable to those for another. Thus, collection of information has to be done systematically. Knowing what information are required means knowing the topics on which information is to be collected (the object of the information), where to find the information and what constitutes valid and reliable information.

2 . 7 HISTORICAL PERSPECTIVES OF EMIS IN ETHIOPIA

2 . 7 . 1 THE ORIGIN AND DEVELOPMENT OF MODERN EDUCATION IN ETHIOPIA

Although missionaries made efforts to introduce modern education in Ethiopia, they were far less successful in achieving their goals due to the strong opposition from the Orthodox Church circle.

The first significant step to lay the foundation of modern education in Ethiopia was taken in the first year of the twentieth century, when Emperor Minilk established a primary school at his palace. (Rosen as cited in Bender, 1976:315)

A few years later the Emperor imported teachers from abroad and in 1906 some ten Copts of Egypt arrived at Addis Ababa. After two years, the first government operated modern school; Minilik II was opened in October 1908 (Tekeste 1990:1). The Ethiopian church, which up to this time was having a virtual monopoly on education, strongly opposed the establishment of the secular school.

The Emperor also established Ethiopia's first provincial school in Harar. During the reign of Minilik, about hundred private schools sprang up in the capital Addis Ababa, and a large number of children were taught to read and write (Bender, 316-317). However, due to the opposition from the side of the clergy and the nobility, provincial schools were closed and even Minilik II school was weakened until 1925 (Ayalew, 2000:14). Regent Teffari Makonen, later Emperor Haile selassie opened Teferi Mekonen school which was the second government operated school in Addis Ababa in 1925 (Tekeste, 1990:2)

According to Ayalew (2000:15), Emperor Haile selassie appointed a director general of public education in 1928 and established the Ministry of education and Fine Arts in 1930. However, much is not known as to its organizational structure. During the Italian occupation of Ethiopia (1936-1941), government schools were closed down and in many cases converted for the schooling of the Italian children and barracks for the Italian militaries. At this time even mission schools, with the exception of the Roman Catholics, were ordered to be closed (Ayalew 2000:16). When the Italians left in 1941, government began to lay down the educational foundation in the absence of human, material, and financial resources.

The Ministry of Education was reestablished in 1942 and schools started functioning with teachers and materials from Britain. The first post war school was opened in 1942, with inadequate number of teachers and textbooks. (Tekeste 1990:3)

The number of teachers and administrative staff working in the eleven government-operated elementary schools at this time were 73 and the total monthly salary of these employees amounted to Birr 5, 653(MoE, 1978:45). From 1942 until 1955 the Ethiopian government was engaged in the expansion of the education system.

The expansion of the education system brought about the planning needs. This in turn required useful educational information designed to serve decision makers and planners.

2.7.2 THE EMERGENCE OF STATISTICAL INFORMATION NEEDS IN ETHIOPIA

According to available documents the need for the establishment of educational statistics was associated with the emergence of the overall national planning in the country.

There is a documentary proof that planning in Ethiopia was introduced in 1945 when a ten-year programme for industrial development was elaborated (TFYP, 1961:28).

The rapid changes in Ethiopia after World War II brought about the need for planning in different sectors for varying duration. This plan was prepared for agriculture, transport and communication, education and water resource development (MoE, 1972: II-2).

However, planning for the nation's integrated development started only with the first five years development plan in 1958, which covered the years 1958-1963. Goals were set with respect to investment in many economic sectors. This plan brought about the need for improvement in governmental planning procedures; and the importance of statistics became apparent. As a result an important step was taken with the establishment of the Central Statistics Office (CSO) originally under the Ministry of Commerce and Industry to

develop and improve the demographic and economic database (TFYP, 1961: 23-24).

The subsequent growth of statistical services, as well as the eventual establishment of autonomous Central Statistical Office owes much to this widespread awareness of the vitality of statistics to planning (TFYP, 1961:24)

The first five years plan had eight objectives. Notable among these objectives was improving the statistical organization and standards of all government agencies (TFYP, 1961:147).

In 1958, there was a proclamation defining ministerial powers and responsibilities, and the creation of the Ministry of Planning and Development. This brought about an increase in the status of planning. The second five-year plan (1963 through 1968) called for the establishment of planning and programming unit in every developmental ministry or agency to improve co-ordination in plan development and implementation (MoE,1972:I-3).

For the first time the Ministry of Education established a long term planning committee in November 1953 consisting of 21 expatriates and five Ethiopians chaired by the then Vice Minister of Education and Fine Arts, Ato Akalework Habtewald. The committee designed a " Ten- year Plan for the Controlled Expansion of Ethiopian Education (MOEFA 1955:x-x111).

This long-term plan covered the period between 1955 to 1965. It served as a basis for the first Five-year plan (1957-1961) for education. The second five-year plan was from 1962 to 1966 and the third five-year plan extended from 1967 to 1971 (Ayalew 2000:33).

As part of the aid package deal made by the government of Ethiopia and USA, the Americans began to shape the Ethiopian educational policy through an Educational Advisory Group-assimilated in the long-term

planning committee under the chairmanship of Vice Minister of Education (Tekeste, 1990:6).

Until 1968, educational planning in the Ministry of Education had been entrusted to an ad-hoc body appointed when it became necessary to formulate educational plans and programmes. Then, the Education program, Planning and Research Department was instituted in 1968. The department began to serve as a permanent body responsible for the planning and programming activities of the Ministry of Education (MoE, 1968:18). This was the point where both educational and population data became available in 1967-68 (MoE 1983:2-1)

2.7.3 ORIGIN OF THE ORGANIZATIONAL STRUCTURE AND THE ESTABLISHMENT OF EMIS FOR THE EDUCATION SECTOR IN ETHIOPIA

Although, the exact year of establishment of an educational statistics unit in the organizational structure of the Ministry of Education is not yet known, available documents investigated, indicate that in 1952 /1953 there was no division or unit responsible for the collection and dissemination of educational data. The reason might be that during this time, the number of government primary and secondary schools was only 372 with 56,000 students and 2,000 teachers excluding private, community, mission and other religious schools of which data was not available (MoE, 1978:160).

It was in 1957 the "Research and Statistics Bureau" was indicated in the organizational structure of the Ministry of Education. The bureau was directly accountable to the Vice Minister (MoE, 1978:172-195). At the end of 1957 another organizational structure was implemented. In this organizational structure, a "Central Research, Plan and Statistics Main Division" was organized under the Education Department. In 1967 it was Plan and Statistics Division and was organized under the department of Program, Plan and Research.

planning committee under the chairmanship of Vice Minister of Education (Tekeste, 1990:6).

Until 1968, educational planning in the Ministry of Education had been entrusted to an ad-hoc body appointed when it became necessary to formulate educational plans and programmes. Then, the Education program, Planning and Research Department was instituted in 1968. The department began to serve as a permanent body responsible for the planning and programming activities of the Ministry of Education (MoE, 1968:18). This was the point where both educational and population data became available in 1967-68 (MoE 1983:2-1)

2.7.3 ORIGIN OF THE ORGANIZATIONAL STRUCTURE AND THE ESTABLISHMENT OF EMIS FOR THE EDUCATION SECTOR IN ETHIOPIA

Although, the exact year of establishment of an educational statistics unit in the organizational structure of the Ministry of Education is not yet known, available documents investigated, indicate that in 1952 /1953 there was no division or unit responsible for the collection and dissemination of educational data. The reason might be that during this time, the number of government primary and secondary schools was only 372 with 56,000 students and 2,000 teachers excluding private, community, mission and other religious schools of which data was not available (MoE, 1978:160).

It was in 1957 the "Research and Statistics Bureau" was indicated in the organizational structure of the Ministry of Education. The bureau was directly accountable to the Vice Minister (MoE, 1978:172-195). At the end of 1957 another organizational structure was implemented. In this organizational structure, a "Central Research, Plan and Statistics Main Division" was organized under the Education Department. In 1967 it was Plan and Statistics Division and was organized under the department of Program, Plan and Research.

From 1974 to 1982 it was organized under Planning and External Relations Service and was called Educational Information and Statistics Service.

Since 1993 EMIS has been organized under Planning and Project Department.

2.7.4 CURRENT STATUS OF EMIS IN ETHIOPIA

The Ministry of Education (1983:2-2) pointed out that as a result of the growth in size of the system between 1960 and 1974, the task of compiling and consolidating data from nearly 600 Woredas, 106 Awrajas and 15 Administrative regions was only marginally possible by manual methods, and as a result, the MoE embarked on a project for computerized data processing which was initiated with the 1982/1983 data. Hence, the initial proposal for computerization programmed dated back to 1982 and was connected with UNESCO's short-term consultancy mission, which suggested that microcomputers be used for the processing of enrollment, financial and personnel data. This suggestion was incorporated into the IDA Six Project and fund became available.

In 1984, for the purpose of budget planning, a systematic survey of the information processing needs of MoE was undertaken with SIDA's assistance. Based upon this comprehensive study, a more realistic picture of the situation emerged.

By 1985 some computers were delivered to MoE and statisticians began to receive training on data entry.

In the mean time, the training provided and the computer facilities available at that time increased the productivity and efficiency of the statistical data processing. Consequently, the delay in data processing and reporting of annual education statistics has been cut down from three years to one year. Although several measures have been taken to speed up the collection of the

annual educational statistics, manual tabulation remains tedious and time consuming and leaves no room for much needed analysis (MoE, 1988:9).

Subsequent to the introduction of microcomputers, only data on enrollment and teachers have been processed manually. This alone took about 18 to 24 months from the time when the questionnaires were sent to the schools to the time when the data were compiled in a reference table format for further analysis. To process the whole questionnaire would have taken up to 3 to 4 years with the manual procedure (MoE, 1988:10).

Currently MoE, Regional Education Bureaus and most of the Zone Education Departments have introduced computerization programme which encompasses several mutually supporting projects financed by different sources, such as SIDA, USAID, FINIDA, and GTZ. They are assisting EMIS at every level to increase its competence and capacity of providing educational information for efficient planning, evaluation, monitoring and management of the education sector.

CHAPTER THREE

3. ANALYSES AND INTERPRETATION OF DATA

This part of the study deals with characteristics of the sample population and analysis of the data obtained from the respondents. The respondents were primary and secondary school directors and record officers, Woreda, Zone, Region and Federal Ministry of Education statisticians, Department heads and experts. The total number of respondents were 209.

3.1 CHARACTERISTICS OF RESPONDENTS

Table 4: Characteristics of Respondents at School Level

Characteristics		Respondents		
		Record officers	School Directors	Total n= 119
Sex	Male	22	73	95
	Female	16	8	24
Total		38	81	119
Level of Education	12 th Grade	-	-	-
	12 th Grade complete	24	6	30
	T.T.I Graduate	19	42	61
	12+1 year Collage Graduate	1	-	1
	Diploma	4	19	23
	Bachelor Degree	-	4	4
	Post Graduate Degree	-	-	-
Total		48	71	119
Service Year total	1-3 years	20	42	62
	4-6 years	11	27	38
	7-9 years	3	6	9
	10-12 years	1	5	6
	13-15 years	1	1	2
	16 and above	2	-	2
Total		38	81	119

The first group of respondents were record officers and school directors as indicated in table 4. The number of schools were 119 of which 92 (77.3 per

cent) were primary schools. From the sample primary schools, fifty nine (64.1 per cent) were located in urban areas and 33 (35.9 per cent) were from rural areas. The second group of respondents were 27 (22.7 per cent) secondary schools located in urban areas. From the total 119 schools, 103 (86.6 per cent) were government schools and the remaining 16 (13.4 per cent) were public, private, church and mission schools.

The great majority of the respondents 95 (79.8 per cent) were males and 28 (30.4 per cent) were females with the largest percentage of samples ranging from one to three years of service in school statistical activities. Of the total 92 primary schools 21 (22.1 per cent) have record officers. These were schools where the number of students and teaching staff was very high and located in urban areas. The remaining 64 (69.6 per cent) did not have record officers, so the responsibility of filling in the questionnaire was left to school directors. From the 27 secondary schools, the majority 20 (74.1 per cent) have record officers while for the remaining 7 (25.9 per cent), school directors were responsible to fill in the questionnaire accordingly.

Table 5: Characteristics of Respondents at Woreda, Zone, Region and Ministry of Education Level

Characteristics		Respondents			
		Woredas N=36	Zones N=23	Regions N=11	MoE* N=20
Sex	Male	34	18	11	15
	Female	2	5	-	5
Total		36	23	11	20
Level of Education	Below 12 th Grade	1	-	-	-
	12 th Grade Complete	2	2	-	-
	T.T.I. Graduate	29	8	-	-
	12+1 year College Graduate				
	Diploma	4	9	2	-
	Bachelor Degree	-	4	7	19
	Post Graduate Degree	-	-	2	1
Total		36	23	11	20
Service Year in the present Position of Educational Statistics	1-2 years	7	5	6	1
	3-4 years	5	3	2	-
	5-6 years	8	6	2	-
	7 and above	11	6	1	1
	No response	5	3	-	-
Total		36	23	11	2
Other Services Rendered	1-5 years	6	3	2	-
	6-10 years	8	8	3	3
	11-15 years	10	4	1	5
	16-20 years	11	4	-	10
	21-25 years	1	1	1	2
	26-30 years	-	-	1	-
	31- and above	-	1	-	-
	No Response	-	2	3	-
Total		36	23	11	20

* Ministry of Education

Table 5 illustrates the characteristics of respondents at Woreda, Zone, Region and Federal Ministry of Education Level.

Accordingly, the first group of respondents were Woreda Education Office Statistical officers assigned as per the organizational structure of the level or temporarily assigned from the Woreda education office support staffs to perform the activities. The numbers of respondents from sample Woredas were thirty-six (36). Of these, 34 (94.4 per cent) were males and the remaining two (5.6 per cent) were females. Their level of education ranged

from eleventh grade complete to diploma level where 29 (80.5 per cent) were twelve complete with a one year teacher training courses. All in all, 34 (94.4 per cent) of the respondents were assigned from primary schools. The majority of them 20 (55.5 per cent) have served in their present position of statistical activities from one to six years. The remaining 16(44.4 per cent) had seven and above years of service.

The second groups encompassed statistical officers at Zone Level assigned permanently as per the Zone Education Department organizational structure or temporarily assigned in addition to their regular responsibilities. At this level, the number of respondents were twenty three (23) of which most of them 18 (78.3 per cent) were males and 5 (21.7 per cent) were females. Their level of education ranged from twelve grades complete to a bachelor's degree. A good number of them 17 (73.9 per cent) were twelve plus teacher training institute graduates and diploma holders.

The remaining two (8.7 per cent) were twelfth grade completes and 4 (17.4 per cent) were bachelor degree holders. Most of the respondents 14 (60.9 per cent) had service year in statistical activities from one to six years. The service year for the remaining 9 (39.1 per cent) was seven years and above.

The third groups of respondents were Regional Education Bureaux statisticians where unfortunately all of them were males and there was no female representation. The number of these respondents were eleven (11) representing all the eleven regions of the country. A good number of them nine (81.8 per cent) were bachelor and postgraduate degree holders. The remaining two 2 (18.2 per cent) are diploma holders. From the eleven respondents 5 (45.5 per cent) were specialized in mathematics and statistics. The remaining six respondents (54.5 per cent) were specialized in other areas. Their service year in their present position of statistics ranged from one to eight years. Of the eleven respondents six (54.5 per cent) had service year from one to two years. The remaining five 5(45.5 per cent) had above two years' services.

The last groups of respondents consisted of statisticians from the panel of Educational Management Information system, department head, panel heads and experts from the Ministry of Education. These groups of respondents were two statisticians, six department heads, six panel heads and six experts. They were a total of 20 respondents of which five of them were females. The majority of them had more than ten years service at the office of the Federal Ministry of Education. All of them had an educational level of bachelor degree and above. Thus, the analysis is made of the data obtained from these 209 respondents.

3.2 ANALYSIS AND INTERPRETATION OF DATA

Decision making and planning in the education sector will be successful if supported by information, which emanates from properly designed educational data collection questionnaire.

Attempts in preparing educational data collection instruments, on the other hand, should be based on identifying clients' needs and as much as possible involve them in the designing process. Therefore, consumers of educational information should get the chance in deciding what information is relevant and appropriate as a base for planning, decision making and to undertake research activities.

In Ethiopia since 1992, the system of the government in the area of planning and management of education has shifted to decentralized management system. However, the educational management information system was not redesigned to collect data based on the requirement of every Regional Education Bureaux and its lower hierarchies up to the school level.

Regional Education Bureau statisticians were asked on whether they were participant in the preparation of the annual educational statistics collection questionnaire or not. Their response is indicated in the following table.

Table 6: Participation of the Regional Education Bureau Statisticians on the Preparation of Educational Statistics Collection Questionnaire at MoE

Region	Responses		No Response
	Not Participated	Participated	
Addis Ababa	1	-	-
Afar	1	-	-
Amhara	1	-	-
Benishangul Gumuz	1	-	-
Diredawa	1	-	-
Gambella	1	-	-
Harari	1	-	-
Oromia	-	-	1
SNNPR	-	-	1
Somalia	1	-	-
Tigray	1	-	-
Total	9 (81.8%)	-	2 (18.2 %)

The above table shows that nine (81.8 per cent) of the Regional Education Bureau respondents indicated that they did not participate in the reparation of the questionnaire for the collection of educational statistics, while two (18.2 per cent) of the Regional Education Bureau Statisticians did not respond to the question.

Table 7: Responses of Educators of the Federal Ministry of Education Concerning their Participation in the Design and Preparation of the Educational Statistics Collection Questionnaire

Respondents	Response		Total
	Yes	No	
Department Heads	1	5	6
Panel Heads	-	6	6
Experts	-	6	6
Total	1	17	18

It can be noted from table 7 that five out of six department heads have depicted that they did not participate in both the designing and preparation

of the educational statistics collection questionnaire. Neither did all the panel heads and experts.

This indicates that in Ethiopia, the educational information needs of the various departments, units, organizations at all levels of the sector were not assessed before instruments are designed to collect data to be used for planning, decision making and to undertake research. EMIS unit at the Federal Ministry of Education level conventionally designs the questionnaire. Hence, the unit seems to be guided by traditions rather than articulating the demands of the users to satisfy their information needs.

The main method of obtaining educational data from schools in Ethiopia is the annual statistical questionnaire prepared by the panel of Educational Management Information System of the MoE, and dispatched to the schools and other higher educational institutions annually.

Accordingly, one comprehensive camera-ready printout is prepared for primary and secondary schools for the collection of educational data. There are also three separate questionnaires prepared to collect data directly from higher educational institutions and for technical and vocational schools including kindergarten through the various Regional Education Bureaus.

The Regional Education Bureau publishes the questionnaire based on the number of schools available in their respective region. Then, the questionnaire will be sent to schools through Zone Education Departments, Woreda Education Offices and finally to schools. Filled out questionnaires are collected from schools along the reverse path checked and aggregated at the level immediately above that at which the data are produced.

Table 8: The Level of Completeness of the Annual Statistical Abstract
Prepared by the Federal Ministry of Education.

Respondents	Responses					Weighted Value	Weighted mean
	F.S	M.S	P.S	R.S	N.S		
Department heads	-	1	4	1	-	18	
Panel heads	-	2	1	3	-	17	
Experts	-	1	1	4	-	15	
Total	-	4	6	8	-	50	2.8

Note

F.S- Fully Satisfy

P.S - Partially Satisfy

N.S - Not Satisfy

M.S- Mostly Satisfy

R.S - Rarely Satisfy

Table 8 shows the level of the annual statistical abstract to satisfy the information requirements of MoE officials, panel heads and other potential educational data users. Due to the absence of participation in the design and preparation of school statistical data collection questionnaire, the level of completeness of the annual statistical abstracts prepared from the collected questionnaire was less satisfactory for the consumers. The table demonstrates that 44.5 per cent of the respondents have noted that the statistical abstract rarely satisfies their information needs. For the remaining 33.3 percent and 22.2 percent of the respondents the annual statistical abstract partially and mostly satisfy their information requirements respectively. The weighted mean for the responses is 2.8 where this figure indicates that the level of completeness of the annual statistical abstract is slightly less than the scale value given to partially satisfy the information demands of the users at the Ministry of Education level.

The absence of participation in the designing and preparation of the educational data collection instrument entails the various hierarchies at every level of the education sector, to prepare their questionnaire to get information from educational institutions in a format and type of data they

need. This makes Regional Education Bureaus, Zones, Woredas and educational institutions dissatisfied and sometimes prefer to ignore the request. Such practices have negative impact on the accuracy of the regular annual statistical questionnaire. The instruments prepared by the various departments and units of the Federal Ministry were not also systematically designed. Instead of requesting on the missed information from the annual questionnaire they include similar information request, which were collected through the annual statistical questionnaire and they usually increase the volume by attempting that if someone needs it will be helpful sometimes. This entails redundancy of information collection procedures and is tiresome and boring for schools.

Table 9: The Level of Clarity of the School Statistics Questionnaire to Fill in the Information at School Level

Responses	Scale value	Frequency	%	Weighted value	Weighted mean
Always Clear	5	21	17.6	105	
Mostly Clear	4	40	33.6	160	
Partially Clear	3	47	39.5	141	
Rarely Clear	2	10	8.4	20	
Not Clear	1	1	0.8	1	
Total		119	100	427	3.6

Table 9 illustrates the level of clarity of the questionnaire at school level. The table demonstrates that for 39.9 per cent of the respondents, the questionnaire was partially clear and for the remaining 8.8 per cent and 0.8 per cent it was rarely clear and not clear respectively. Generally, for 48.7 per cent of the respondents the clarity of the questionnaire was average and below average. This implies that there was a problem in understanding the questionnaire to fill in the required information accordingly.

A closer look at the questionnaire prepared by EMIS of the Federal Ministry of Education indicates that explanatory notes and definitions for various data items were not supplied for those completing the questionnaire. Such practice may tend to pose a problem on the reliability of the data obtained

from schools, because instructions were not given on how to fill in the questionnaire and on the definitions of the various variables incorporated into it. Hence, the quantities might be filled out by the schools on the assumption that what is provided is possibly what is wanted.

School respondents were asked to explain the problem of the clarity of the questionnaire if their response was “partially clear”, “rarely clear” and “not clear”. The responses given were the following:

- Higher level authorities request information where the data is not available at school level. For example; concerning teacher's salary, level of education, date of birth, date of employment etc., the information is kept from personnel files on individual teachers at Woreda level because when teachers are assigned to the schools, date of birth, service year, level of education and the like are not indicated in the letter sent from Woreda Education Offices to school. However, schools in this case may provide current status of seniority so long as the data are kept regularly up-to-date.
- The questionnaire was not also prepared in a separate form for primary and secondary schools. This makes the questionnaire not to have a convenient size and above all makes the school to fill in the information in inappropriate table.
- Language problem was another factor regarding the clarity of the questionnaire. In Oromia region the questionnaire was prepared in Oromiffa. Some Zones in the region do not know some of the terms used. There was also a problem to schools where instruction was given in Amharic. As a result, respondents were unable to understand and answer the question in the same way as requested due to the absence of standardization and clarification. Hence, obtaining accurate data in such a condition is a problem.

- There was also a problem in the preparation of summary tables to aggregate school data at Woreda and Zone Level. For example, in Oromia, the summary table was prepared without enough space to fill in the data. This in turn has brought about mathematical errors and mistakes that are usually done when transferring data from Woreda aggregate to Zone aggregate. Due to this problem, the 1999 and 2000 data were not aggregated at Zone level except some Zones having computer facilities.
- Similarly schools are requested to fill in the questionnaire on budget allotted for the year before its approval by higher officials. Furthermore, data related to finance was not available at school level because schools now-a-days do not get in cash, rather they are provided in kind.
- Teachers working in pedagogical centers were not considered as teachers by some schools. Teachers who graduated from teacher training institutes are sometimes considered as twelve plus one year college education.

Table 10: Respondents View Concerning the provision of orientation on how to complete the School Questionnaire

Response	Frequency	%
Yes	76	63.9
No	43	36.1
Total	119	100

Table 10 shows respondents view on the provision of orientation on how to fill in the questionnaire. Thus, 63.9 per cent of the respondents receive orientation on how to fill in the questionnaire. The remaining 36.1 per cent of the total respondents did not get orientation.

From the responses that the respondents gave on the provision of orientation on how to complete the questionnaire, we can make an inference that even if the significant number of schools receive orientation, those who did not get orientation may have a negative effect on the accuracy of data provided by these group of respondents.

Due to the absence of orientation, some schools may or may not include teachers who are on long term release for in-service training or study leave, teachers who are absent for short courses, sick leave, maternity leave as well as teaching staff assigned to do non-teaching duties like administration, librarianship etc. without being involved in the regular teaching function.

In Addis Ababa short orientation is given to government schools annually on how to complete the questionnaire. However, public, private, mission and religions schools are not willing to participate. In these schools the school questionnaire is filled out by one of the teachers or administrative personnel assigned when the schools receive the questionnaire from Woreda education offices.

Table 11: Preparation of Additional Regular Educational Data Collection Questionnaire at Woreda, Zone, and Region Level

Responses	Frequency					
	Woreda Level	%	Zone Level	%	Region Level	%
Yes	13	36.1	10	43.5	10	90.9
No	23	63.9	13	56.5	1	9.1
Total	36	100	23	100	11	100

As can be seen from the table, 36.1 per cent of the Woreda, 43.5 per cent of Zones and 90.9 per cent of the Regions prepare their own educational data collection instruments with the centrally prepared annual questionnaire. This practice has created a great deal of overlap of data collection by various units without realizing that other sections are collected the same kind of data or information. Such an approach of redundantly requesting schools become a challenging task and create confusion for school directors and record officers. Furthermore, duplication of data collection activity is also unfortunate and creates wastage of time, money and labour due to multiplicity of efforts.

Besides the questionnaire for collecting the annual educational data, schools are also required to report monthly student's attendance, which are not

analyzed at all since the amount of work involved in compiling the data is enormous, and exceeds by far existing staff resources.

On the other hand, the annual educational data collection questionnaire do not incorporate important variables like teachers out flow due to death, transfer, resignation, dismissal due to various reasons, temporary withdrawal etc., which is a useful variable to plan teachers supply and for the approval of recurrent expenditure for salaries. As a result, its utility towards planning human power requirements and assignments is insignificant. Data concerning employees at Woreda, Zone and Region level are not also included in the questionnaire. The questionnaires do not also indicate government and non-government teachers, participation in non-formal education and on special education.

Numbers of teachers by subject of specialization for senior secondary schools, age, length of service year are not also available which is one of the useful variable for planning teachers demand and supply by subject area for secondary schools.

There is also the absence of information on unit expenditure, which is a useful indicator to measure educational expenditure per student and level of education.

All these problems are the results of the absence of consultation when the questionnaire is prepared. For this reason, regions, Zones and Woreda are forced to prepare additional school questionnaire to be used for their respective levels.

The problem observed in the preparation of the questionnaire is the absence of coordination to systematize the request. For example, various sections in the regional education bureau request Zones similar educational data instead of investigating the regional aggregated educational statistics or uniformly prepare the questionnaire. The Zone again sends the questionnaire to the Woredas, similarly the Woreda education offices send to

the school. The burden finally rests on school. Due to such practice schools these days started to write a letter to Woreda to refer to the information previously reported from the school concerning their request.

Table 12: Similarity of Information requested from schools by authorities from various Level of the Educational Hierarchies

Responses	Scale value	Frequency	%	Weighted Value	Weighted Mean
Always similar	5	75	63.0	375	
Mostly similar	4	23	19.3	92	
Partially similar	3	16	13.5	48	
Rarely similar	2	4	3.4	8	
Not similar	1	1	0.8	1	
Total		119	100	524	4.4

Table 12 presents the level of similarity of information demanded by various levels of the education sector. According to the table, the weighted mean 4.4 depicted the presence of high level of similarity. The major defect observed in this case is that, educational data are requested without realizing the availability the required information in the annual publication of the statistical abstract which is an indication to the presence of communication gap between the producer of educational information and the users. Hence, at the outset there should be investigation of available data already collected to minimize redundancy of data collection activities, which is wastage of time finance and human resource. This practice is applicable from the Federal Ministry of Education to the level of Woreda Education offices.

Instead of using previously sent data, officials and experts request schools similar data available at their respective level. For example, at Woreda level, supervisors, division heads and support staff request schools similar data differently instead of collectively prepare and send the questionnaire to schools. This practice is true to Zone, Region and MoE employees. The information sent from schools is also asked instead of trying to get from archives.

The other point portrayed in this case is that the educational statistics collection questionnaire as well as the annual statistical abstract does not constitute all the information needs of the users. Thus, there should be improvement with the changing and developing needs of the users and those needs should also be assessed before data are collected. The other factor to get due consideration when preparing a questionnaire is that, information currently collected to be satisfactory on various variables of the education sector may not fully be useful for tomorrow or after. This is because the information needs of the clients do not always remain constant, but changes with the educational development and professional experience.

TABLE 13: The level of Statistical Data Request of Different Government and Non-Government Organizations at School Level.

Response	Scale	Frequency	%	Weighted Value	Weighted Mean
Enormous Request	3	54	45.4	162	
To a Certain Extent	2	49	41.2	98	
No Request	1	16	13.4	16	
Total		119	100	276	2.3

Table 13 indicates the extent of statistical data request by government and non-government organizations other than the education sector at school level. Accordingly, 54(45.4 per cent) of the respondents indicated that there was enormous request, while 49 (41.2 per cent) depicted that there was to a certain extent educational data request by the above-mentioned organizations. The remaining 16 (13.49 per cent) of the respondents noted that there was no request at all. The weighted mean calculated (2.3) regarding the level of data request by government and non-government organizations out side the education sector indicates that the request is slightly above average.

Table 14: Respondents View Concerning the Level of Similarity of the Information Request By Various Government and Non - government Organizations

Responses	Frequency	%	Weighted Value	Weighted Mean
Fully Similar	20	16.8	100	
Mostly Similar	42	35.3	168	
Partially Similar	45	37.8	135	
Rarely Similar	12	10.1	24	
Not Similar	-	-	-	
Total	119	100	427	3.6

Table 14 provides respondents view concerning the level of similarity of information request of government and non-government organizations. Accordingly, it can be noted that 12 (10.1 per cent) depicted that the level of data requested was to a certain extent similar, whereas a great majority of the respondents 107 (89.9 per cent) have noted that the level of similarity was average and above average which means that most of their annual data request is similar. What is clear from this response is that if schools have pre-collected the data required by the above organization together with the data to be filled out for school questionnaire it will possibly reduce the redundancy and the tiresome practice of providing data when requested by the organizations separately.

TABLE 15: Month in which the Annual Educational Statistics Questionnaire Reach to the Schools.

Responses	Frequency	%
September	19	16
October	80	67.2
November	16	13.4
December	4	3.4
Total	119	100

A closer look at the above table revealed that there is a large variation on the month in which the annual educational statistics questionnaires reach to the schools. According to the table, the time at which the annual educational

statistics questionnaires reach to the school ranges from September to December.

The table shows that 67.2 per cent of the respondents receive the questionnaire on October and 16 per cent on September. The remaining 16.8 per cent receive on November and December. In the extreme case, in Afar region by the year 2000 school data collection questionnaire was distributed to school in June at the end of the academic year.

This implies that, the time variation in the delivery of the questionnaire will have a significant effect on the completeness of the data provided by the schools since the number of pupils and teachers normally changes during the school year. Enrollments at the beginning of the year always tend to be higher than those observed at about the middle of the year. At the beginning of the year there are students who leave the school, there are also new entrants to be registered some times up to the end of October.

In rural schools particularly in areas where the spread of malaria is high and the rescue of malaria infection is a serious problem, students register up to the end of November. Hence the school questionnaire in this case will be late or incomplete. This greatly reduces the reliability of data filled out by schools.

Table 16: Respondents View on the Amount of Time Given by Woreda Education Office to Complete the School Questionnaire

Response	Scale	Frequency	%	Weighted Value	Weighted Mean
Ample Time	3	26	21.8	78	
Partially Sufficient	2	12	10.1	24	
Never Sufficient	1	81	68.1	81	
Total		119	100	183	1.5

Table 16 demonstrates that 81 (68.1 per cent) of the respondents have depicted that sufficient time is not given by Woreda education offices to fill in the questionnaire while 12 (10.1 per cent) and 26 (21.8 per cent) noted that the time given to complete the questionnaire is partially sufficient and ample time is given by the Woreda education offices respectively. The inadequate time given to the schools to fill in the questionnaire has negative effect on the completeness of the information provided. For example in Addis Ababa, at school level, after completing the school questionnaire at the end of September; mission, private and religious schools register students up to the mid of November. On the other hand, some Woredas allow students to be registered up to the end of November to increase enrollment rate especially at primary school level. As a result, school data will not be complete at the time it is required. Hence, the data completed earlier will not be reliable and timely provision of data is also difficult.

Table 17: Availability of School Register Book to be used as a Source of Data to Complete the Questions

Responses	No of Respondents	%
Yes, available	52	43.7
Not available	67	56.3
Total	119	100

Table 17 indicates that 52 (43.7 per cent) of the schools have register books while the rest 67 (56.3 per cent) of the schools do not have it.

The quality of school statistical recording system is the other fundamental priority area of concern to get accurate and reliable data to be used for planning and decision making purposes at all levels of the education hierarchies.

Hence, schools should uniformly be provided with school register book for data collection works. This will help them in the data collection, compilation and aggregation procedures. If this document is prepared and available at each and every school, the data collected from schools will apply uniform format and all schools will follow standard-working procedures and finally schools can produce their own statistical abstract for their own use.

Moreover, the document is very essential as the school record officers and school directors are changed very often because of various reasons. The availability of this document therefore, serves as a readily available and more reliable source document that can be used to fill in the annual school questionnaire and to prepare other necessary reports timely by any person if he/she reads the instruction properly.

School registered book used to collect necessary data to be used both for filling in the annual school statistics collection questionnaire and to produce school statistics abstract for consumption at school level is therefore indispensable.

However, due to the absence of such guiding document, each and every school tries to prepare its own data collection instrument, which might not be convenient to perform the activities mentioned above.

As a result when schools are requested to complete the questionnaire annually they requests data that they consider appropriate to get the required information. For example, data on teachers' characteristics such as age, level of education, salary, specialization etc., are completed by the teachers themselves some times by preparing a form to fill in the information. This in turn has an adverse effect on the accuracy of data,

because some teachers do not exactly remember their date of birth, date of employment or for the reason that not to be pensioned or with the assumption that no body could be able to investigate their level of education and there by get promotion or salary increment.

Concerning data on the age, repetition, and dropout of student's data are completed through homeroom teachers by asking the students to tell or fill in their age on a form prepared. Information on repetition, dropouts or new entrants was obtained by inquiring students themselves. Students in this case will not tell their exact age, will not also fill in the form as they were repeaters and dropouts, students particularly at primary level do not know their age unless documents are referred. Similarly, concerning data on school finance, facilities and teaching materials are completed by the school administrator or school directors, store keepers and laboratory technicians where available, without prior preparation of documents to fill in the information on the amount and availability of the above items.

Therefore, uniformly prepared school register book will help to fill in the data for annual statistical questionnaire and is used as a source of data where data are readily available at hand at the time the instrument was to be filled out. It is also useful for internal and external researchers to respond to their information requirements timely.

Table 18: Availability of Manpower for the Activities of Educational Statistics
at Woreda, Zone and Region Level

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	14	38.9	8	34.8	6	54.5		
Serious Problem	10	27.8	7	30.4	4	36.4		
Partially Serious Problem	4	11.1	4	17.4	-	-		
Minor Problem	5	13.9	2	8.7	-	-		
No Problem	3	8.3	2	8.7	1	9.1		
Total	36	100	23	100	11	100	4.62	15.5

Note:

W.L - Woreda Level

R.L - Region Level

Z.L - Zone Level

Table 18 shows the responses on the availability of personnel at Woreda, Zone and Region level. The table illustrates that the responses given from partially serious problem to very serious problem accounts to be 77.8 percent at Woreda level, 82.6 per cent at Zone level and 90.9 per cent at Region level.

The chi square distribution with eight degrees of freedom at .05 significance level shows that $X^2 = 4.62$ is far below the critical value $X^2 = 15.5$. Thus there is no significant difference between the expected and the observed frequency distribution. This implies that concerning the shortage of manpower, Woreda, Zones and Regions do not have significant difference in their responses.

According to responses given by the respondents the reasons for the shortage of man power at the three administrative hierarchies are:

- At secondary school level, most of the record officers are not assigned permanently; rather, they are primary school teachers temporarily working due to medical reasons, marriage and other related problems without having sufficient training. Besides this, they are not beneficiaries of teachers' career structure since they are outside of the teaching learning process. This instance has created resentment on the part of the teachers.
- At Woreda level manpower for educational statistics was not approved by higher officials. This instance is true to under served regions of Benishangul Gumuz, Gambella, Afar and Somalia. Similarly Diredawa administrative council and Harari do not have Woreda in their organizational structure. In Oromia, the level of education and experience required to hire Woreda statistics officers is 12 complete plus technical school graduate or 12 complete and four years of experience in related fields or 12 plus one year college education for a monthly salary of Birr 347. Hence, the salary could not be able to attract employees and in most Woreda the unit is vacant. In Addis Ababa, it is recently approved to hire Woreda statistics officers but not yet recruited.
- At Zone level for under served areas, manpower was not approved in their organizational structure. The same is true to Diredawa Administrative council and Harari. Surprisingly, in Addis Ababa the initial salary for Zone statistics officer is Birr 420 while for Woreda statistics officers it is Birr 500. In this condition, leave alone to get better and qualified personnel for the unit, even the existing employees are working until they get better opportunities in other sectors.
- At Region level Benishangul Gumuz, Afar, Somalia, Gambella, Diredawa and Harari do not have approved personnel in their organizational structure of the education sector.

Due to this, it is a normal practice to most of the regions to assign teachers of primary and secondary schools at all data gathering hierarchies where it can have a negative impact on the shortage of teachers in schools. Moreover, these teachers do not have adequate training on data collection, organization, and analysis. They are assigned on one hand, for the advantage of getting transfer from rural schools to relatively better areas. On the other hand, they were expecting to get better salary than they were earning. However, for most of the regions the approved initial salary for the place is very less compared to their current salary. As a result, most of them are not comfortable in their present position. For example; in Oromia salary for support staff at Woreda level is Birr 710 and for statistics officers with the same level of education and experience it is Birr 347. Thus, they do not feel responsible for the accuracy and timelines of the educational data they produce. These conditions forced most of the teachers to apply for the officials to return to their previous teaching post.

The other problem regarding the availability of personnel at Zone and Region level is absence of assistants and clerks. In the extreme case in Addis Ababa only two employees are working in the whole area of data collection, compilation, analysis and publication of school statistics at Region Level.

Table 19: Availability of Trained Manpower at Woreda, Zone and Region Level

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	14	38.9	5	21.7	4	36.4		
Serious Problem	12	33.3	5	21.7	2	18.2		
Partially Serious Problem	5	13.9	9	39.2	1	9.1		
Minor Problem	1	2.8	2	8.7	-	-		
No Problem	4	11.1	2	8.7	4	36.4		
Total	36	100	23	100	11	100	13.70	15.5

Table 19 refers to the availability of trained personnel at the above-mentioned three levels. Most of the respondents 86.1 percent, 82.5 percent and 63.7 percent of the Woreda, Zone and Region level respondents in that order noted that the problem of trained manpower at their respective level ranged from partially serious to very serious problem. The level of the problem eventually increases as one goes down from Regions to Zones and then to Woreda.

The computed chi square value $X^2 = 13.70$ is below the critical value $X^2 = 15.5$ with eight degrees of freedom at .05 significant level. Hence, there is no significant difference in the response of Woreda, Zones and Regions regarding the absence of trained manpower at their respective level.

The reasons most commonly given to explain shortcomings in the analysis of educational data collected from schools at all levels of the hierarchies are lack of trained staff and shortage of qualified statisticians working in this field. The shortage of trained and well-qualified staff is mostly attributed due to poor working conditions in terms of pay and career possibilities than statisticians employed outside the education sector. Hence, employees

especially at the Federal and regional level use their present position as a staging post for the opportunity to look around for other more remunerative employment.

Table 20: Problems Associated with the Level of Salary Scale of Statisticians_

Responses	Frequency						Compute d Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	14	38.9	18	78.3	4	36.4	16.18	15.5
Serious Problem	9	25	3	13	5	45.5		
Partially Serious Problem	5	13.9	2	8.7	2	18.2		
Minor Problem	6	16.7	-	-	-	-		
No Problem	2	5.5	-	-	-	-		
Total	36	100	23	100	11	100	16.18	15.5

Table 20 presents findings on the level of the problem related to salary scale approved for Woreda, Zone and Region level statistics officers. The table portrayed that for 77.8 percent of the Woreda respondents, 100 per cent of Zones, and 100 percent of the Region respondents have noted that regarding the problem of low salary scale at their respective level is a serious problem. The remaining 16.7 percent of the Woreda respondents noted that, there is minor problem and 5.5 per cent of the respondents described that there is no problem concerning the salary approved for statistics officers.

The computed chi square value $X^2 = 16.18$ is slightly larger than the tabled value $x^2 = 15.5$ at a significant level of .05 with eight degrees of freedom. This implies that there is a significant difference among the responses of Woreda, Zone and Region level respondents concerning the problem associated with salary scale at their respective level. The difference is on the level of

seriousness of the problem at Woreda level as may be seen by inspecting the table. However, the problem is common to Zone and Region level administrative hierarchies.

Table 21: Problems Associated with the Level of Turnover of Statistical Officers

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	8	22.2	6	26.1	5	45.5		
Serious Problem	7	19.4	2	8.7	4	36.4		
Partially Serious Problem	5	13.9	8	34.8	1	9.1		
Minor Problem	13	36.1	5	21.7	1	9.1		
No Problem	3	8.3	2	8.7	-	-		
Total	36	100	23	100	11	100	12.20	15.5

Table 21 shows the problem associated with the level of turnover of statistical officers at Woreda, Zone and Region level. The table depicted that 55.5 percent of the Woreda, 69.6 percent of the Zone and 91 Percent of Region respondents noted that the level of seriousness of the problem ranges from partially serious to very serious problem. According to the tables the level of turnover of statistical officers eventually increases as one moves up to the region level. This may be due to the opportunity of getting at least basic training on how to use computer applications. On the other hand, as one moves up to the higher hierarchies, the statistical officers level of education is relatively better than the lower hierarchies. Hence, after getting the necessary experience, they will begin to look for better pay scale in other government and non-government organizations. This low level of salary scale at Federal and Regional level results to lose many of the best statisticians

and fail to attract people. Furthermore, even the existing statisticians are waiting to enrich their curriculum vitae with the necessary experience and get vacant places in other sectors where the pay scale is better than they are working currently.

The computed chi square value $x^2 = 12.20$ is less than the tabled value $x^2=15.5$ at .05 significant level with eight degree of freedom. This implies that there is no significant difference between Woreda, Zone and Region level respondents concerning the level of the problem associated with turnover of statistical officers at their respective levels.

Table 22: Lack of Supports from Higher Officials

Responses	Frequency						Compute d Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	6	16.7	13	56.6	1	9.1		
Serious Problem	15	41.7	4	17.4	2	18.2		
Partially Serious Problem	8	22.2	4	17.4	6	54.5		
Minor Problem	1	2.8	1	4.3	-	-		
No Problem	6	16.7	1	4.3	2	18.2		
Total	36	100	23	100	11	100	19.68	15.5

Table 22 shows the level of the problem regarding support given from higher officials to statistical activities. The table demonstrates that, the majority of the respondents i.e. 80.6 percent of Woredas, 91.3 percent of Zones and 81.8 percent of Regions viewed that the level of the problem regarding the absence of support from higher officials ranges from partially serious to very serious problem.

The computed chi square value $\chi^2 = 19.68$ is larger than the critical value $\chi^2 = 15.5$ at significant level .05 with eight degrees of freedom. Hence, there is a significant difference between the expected and the observed frequency distribution. This implies that, significant difference is observed in the responses regarding the level of the problem due to the absence of support from higher officials.

The respondents (Woreda, Zone and Regions) claim that the statistical activities lack the necessary support from higher officials at their respective level. At all level, the officials also lack appreciation regarding the importance of data collected through the annual statistics questionnaire. They do not also understand the value and the details of the job. As a result, financial and material supplies to the unit are inadequate. Statistics on education seems to have been given a much lower priority than other units in the education sector. This low level of attention paid hinders the production and provision of reliable and timely information to the beneficiaries.

Table 23: Data Inaccuracy Produced by Lower Level Hierarchies

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%1	R.L	%		
Very Serious Problem	13	36.1	5	21.7	2	18.2		
Serious Problem	8	22.2	3	13.1	3	27.3		
Partially Serious Problem	11	30.6	5	21.7	1	9.1		
Minor Problem	4	11.1	6	26.1	1	9.1		
No Problem	-	-	4	17.4	4	36.3		
Total	36	100	23	100	11	100	17.32	15.5

Table 23 illustrates the level of data inaccuracy at School, Woreda and Zone level. The respondents were Woreda statistics officers who gave their opinion on the level of data accuracy produced at school level. The Zone statistics officers gave their view for Woreda level aggregated data and heads of educational statistics at region level are the once who gave their view for Zone level aggregated data. Accordingly, 36.1 percent of Woreda statistics officers responded that the problem of data inaccuracy at school level is very serious problem. According to the Woreda respondents in Addis Ababa City Administration, Private schools are suspicious in telling the right number of students, teachers salary and the total amount money collected annually by assuming that enrollment data may be used for taxation if the government declares private schools to be taxed. This is also true to government schools regarding night school students. This has a negative effect on the effort to improve the collection of accurate and reliable data. At Zone level 21.7 percent of the respondents have viewed that the problem of data inaccuracy aggregated at Woreda level is very serious problem. A region level

respondent, which accounts to be 18.2 percent, noted that school data aggregated at zone level is a very serious problem.

Generally 88.9 percent of the Woreda, 56.5 percent of the Zone and 54.6 percent of the Region respondents depicted that the level of educational data inaccuracy problem is average and above average. The remaining 11.1 percent of the Woreda, 43.5 percent of the Zones and 45.5 percent of the Region respondents perceived the level of the problem ranges from minor to the extent of no problem.

The computed chi square value $\chi^2 = 17.32$ exceeds the critical value $\chi^2 = 15.5$ at .05 significant level with eight degrees of freedom. This means that there is a significant difference between the observed and the expected frequency distribution among categories. Thus, this implies that respondents of Woreda, Zones and Regions differently view concerning the level of the problem related to data inaccuracy at their respective level.

This may be seen by inspecting the table that the level of school data inaccuracy in the collection and aggregation process decreases as one moves up to the next higher hierarchy. The reason seems to be that errors in educational data collected at school level are checked at all stages of data collection hierarchies. Therefore, at higher levels at least errors in compilation and arithmetic are highly reduced. Thus the problem of data inaccuracy at Region and Federal level is not that much visible.

Table 24: Shortage of Materials

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	3	8.3	7	30.4	3	27.3		
Serious Problem	11	30.6	5	21.7	1	9.1		
Partially Serious Problem	10	27.8	9	39.1	3	27.3		
Minor Problem	7	19.4	2	8.7	2	18.2		
No Problem	5	13.9	-	-	2	18.2		
Total	36	100	23	100	11	100	11.22	15.5

Table 24 highlighted the level of the problem of EMIS regarding the shortage of materials required for the unit to function properly. Out of the total Woreda respondents 66.7 per cent noted the presence of serious problem regarding material availability. Similarly, 91.2 percent of Zone level respondents and 63.7 per cent of Region level respondents indicated that shortage of material for statistical activities at their respective level ranges from partially serious to very serious problem.

The chi square value $\chi^2 = 11.22$ is less than the critical value $\chi^2 = 15.5$ at .05 significant level with eight degrees of freedom. This implies that there is no significant difference between the observed and the expected frequency response distribution among the Woreda, Zones and Region respondents.

Regarding the type of materials required, one of the questions inquired to the Zone and Region respondents were on the availability of computers.

They responded that resource constraints as computers at Zone level are a sever problem to establish and develop educational information in a usable

form. At this level only the slowest computers are available for data entry and hence, the application run slowly. In spite of this problem, the statisticians spent much of their time waiting for the system to process entries. On the other hand, sufficient training on computer utilization for analytical purposes is not given to the employees. In some Zones due to the absence of trained manpower computers are kept without being utilized. Even in regions where training is given, training needs assessment and the availability of the program at the level where the trainees are located is not initially considered. For example, in Amhara region training on Geographical Information System (GIS) was given to the Zone statisticians. However, the required software (the computer program) to be used for this purpose was not available or was not provided by the regions.

The second problem, which was given emphasis by the respondents, was lack of awareness on the part of the officials. Accordingly, in many of Zone Education Departments and Education Bureaux, up to date computers with high capacity and modern soft ware programs are given to secretaries while the statistics unit with a bulk of school data is facing a problem with old and slow computers. In some other Zone Education Departments and Education Bureaux, whenever new computers are bought or granted by various international organizations it will be kept at the office of the officials without being trained to utilize the computer. Generally, officials usually gave priority for the automation of their secretaries work while the statistics officer assigned for statistical activities (usually one person at Zone level) is aggregating bulk of information manually or by using old computers.

Table 25: Shortage of Financial Resources.

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	13	36.1	5	21.7	3	27.3		
Serious Problem	8	22.2	5	21.7	3	27.3		
Partially Serious Problem	7	19.5	11	47.8	4	36.3		
Minor Problem	5	13.9	2	8.7	1	9.1		
No Problem	3	8.3	-	-	-	-		
Total	36	100	23	100	11	100	8.04	15.5

Table 25 reviewed that the level of the problem related to supply of financial resource for the activities of EMIS at the above three levels. As can be seen from the table, 77.8 percent of the Woreda, 91.2 percent of the Zone and 90.9 percent of the Region respondents have indicated that the level of the problem caused by the inadequate supply of financial resources to their respective level is a serious problem.

The computed chi Square $x^2=8.04$ is far below the tabled value $x^2=15.5$ at .05 significant level with eight degrees of freedom. Thus, this implies that, there is no significant difference between the observed and the expected frequency distribution of the responses given by Woreda, Zone and Region level respondents.

Table 26: Communication Problem

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	19	52.8	7	30.4	3	27.3		
Serious Problem	6	16.7	9	39.1	5	45.5		
Partially Serious Problem	3	8.3	1	4.3	-	-		
Minor Problem	1	2.8	-	-	-	-		
No Problem	7	19.4	6	26.1	3	27.3		
Total	36	100	23	100	11	100	8.57	15.5

Table 26 refers to the problem of communication (telephone, post office and availability of public transport) facing Woreda, Zones and Regions for the timely and accurate educational data delivery. As the table indicates 77.8 Percent of the Woreda, 73.8 percent of Zones and 72.8 percent of the Region level respondents viewed the level of the problem regarding communication is a serious problem for the timely distribution and collection of school questionnaires to and from their respective lower hierarchies. The level of the seriousness of the problem increases as one moves from region to Woreda level.

The calculated chi square value $\chi^2=8.57$ is far below the critical value $\chi^2=15.5$ at .05 significant level with eight degrees of freedom. This indicates that there is no significant difference between the observed and the expected frequency distribution of responses among the Woreda, Zone and Region level respondents.

Communication problem is very serious for the under served regions of Afar, Benishangul, Somalia and Gambella. The schools in these under served areas are almost all spread over larger inaccessible areas. Travel by road is

often impossible, phone communication is not available for most of the areas and mail is slow and unreliable. Further, school directors often lack the ability needed to adequately collect data. Data completed by these inaccessible school directors is difficult to rectify and correct the mistakes observed on time. For example in Somalia, due to communication problem, they assign the regional education bureau experts and administrative staff to various schools for a certain number of days to collect school data annually.

Hence, this is one of the major problems for the timely provision of information for decision makers, planners and other internal and external researchers.

Table 27: In Congruence Between Demand and Supply of Educational Information

Responses	Frequency						Compute d Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	3	8.3	3	13.0	2	18.2		
Serious Problem	7	19.4	4	17.4	5	45.5		
Partially Serious Problem	11	30.6	9	39.1	2	18.2		
Minor Problem	9	25.0	3	13.0	2	18.2		
No Problem	6	16.7	4	17.4	-	-		
Total	36	100	23	100	11	100	7.69	15.5

Table 27 refers to the level of the problem regarding the information produced in satisfying the demand of the users. As can be seen from the table, 58.3 percent of Woreda respondents, 69.9 percent of the Zone and 81.9 percent of Region respondents have noted that the imbalance of demand and supply of information is a serious problem at all the three levels.

The computed chi square value $\chi^2=7.69$ is smaller than the tabled value $\chi^2=15.5$ at .05 significant level with eight degrees of freedom. This shows that there is no significant difference between the observed and the expected frequency distribution of responses among the respondents of Woreda, Zone and Region statistical officers. This problem is mainly attributed by the absence of request of users needs of data to be collected from schools.

Table 28: Discussion Undertaking on the Observed Problems from the Aggregated Data at Woreda, Zone and Region Level.

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Very Serious Problem	9	20.0	4	17.4	5	45.5		
Serious Problem	8	22.2	9	39.1	2	18.2		
Partially Serious Problem	5	13.9	2	8.7	1	9.1		
Minor Problem	7	19.4	2	8.7	2	18.2		
No Problem	7	19.4	6	26.1	1	9.1		
Total	36	100	23	100	11	100	6.72	15.5

Table 28 presents findings on the present level of discussion undertakings on the observed problems from the aggregated data at Woreda, Zone and Region level. It can be noted from the table that at Woreda level 38.8 per cent of the respondents have depicted that the level of discussion undertaking is below average, whereas 61.2 per cent have indicated it is average and above. The majority of the respondents at this level have noted that officials do not usually act on problems observed but they are interested on the overall enrollment compared to the previous years' achievement.

At Zone education department level, 34.8 per cent of the respondents viewed that the level of discussion done on the basis of the findings of Zone aggregated school data is below average while for the remaining 65.2 per cent of respondent it is average and above average.

At Regional level, a great majority of them, which accounts to be 72.8 per cent of the respondents have replied that the level of discussion done from the findings of the annual aggregated educational data is average and above average, while 27.2 per cent have indicated it is below average.

Generally, the table indicates that the level of discussion undertakings on problems identified from aggregate data slightly increases as one moves up to the administrative hierarchy. The reason might be the level of training, qualification of officials and statistics officers as well as the availability of facilities like computers, which is progressively better than the lower level hierarchies.

The computed chi square value $\chi^2=6.72$ is smaller than the critical value $\chi^2=15.5$ at .05 level of significance with eight degrees of freedom. Thus, this indicates that there is no significant difference between the respondents view concerning the level of discussion undertakings at Woreda, Zone and Region level because the discussions undertaken at all levels are average and above average.

Table 29: Research Undertakings on Problems Identified from Aggregated Data

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Regularly	2	5.6	-	-	1	9.1		
Mostly	6	16.7	4	17.4	1	9.1		
Partially	7	19.4	5	21.7	5	45.5		
Seldom	12	33.3	8	34.8	-	-		
Never	9	25.0	6	26.1	4	36.4		
Total	36	100	23	100	11	100	12.78	15.5

Table 29 depicted that 41.7 per cent of the Woreda, 39.1 per cent of the Zone and 63.7 percent of the Regional Education Bureau respondents viewed that studies are undertaken to identify factors which cause problems observed from the aggregate school data at their respective level. While 58.3 per cent of Woreda, 60.9 per cent of Zone and 36.3 per cent of Region respondents (below average) have perceived that studies have seldom or never undertaken. From the regional bureau respondents; Afar, Benishangul Gumuz, Somali and Gambella have replied that studies have never been undertaken on problems indicated from school data collected annually. The reason given to this problem was that personnel for statistics are not approved in the organizational structure of the education sector from school up to region level.

Although discussions are made on problems observed from the aggregated data, in-depth study is not undertaken at the majority of Woredas and Zones to propose solutions and reach to decisions. Circulars are only passed to schools to correct problems.

At Woreda level, besides the annual statistics data, schools send monthly reports on students attendance and other related problems. Furthermore, they are closer to the schools so that they can trace each and every school

problems. It seems the reason that they show slightly better performance than Zone education departments in studying the factors for the causes of the problems to propose alternative solutions for decision-making.

The computed chi square value of $X^2 = 12.78$ is less than the tabled value $X^2=15.4$ at .05 significant level with eight degrees of freedom. This indicates the absence of variation of responses in the level of research undertaking among Woreda, Zones and Regions.

Table 30: School Level Respondents View Concerning the Undertaking of Research on problems Identified from the Aggregated School Questionnaire

Response	Scale	Frequency	%	Weighted Value	Weighted Mean
Yes, Always	3	8	6.7	24	
Yes, Sometimes	2	18	15.1	36	
No, Never	1	93	78.2	93	
Total		119	100	153	1.3

Table 30 presents findings on whether research is undertaken by teachers and administrative personnel on problems identified from the completed annual educational statistics questionnaire at school level. As can be noted from the table a great majority of the respondents 93(78.2%) have depicted that they have never done any research based on the problems identified from the completed school questionnaire. The reasons given were, that the majority of teachers do not know the school questionnaire. The second reason was that such practice was not yet known by the school directors, teachers and administrative personnel to identify research problem from school statistics questionnaires. The third reason given by the respondents was that the questionnaire is not conveniently prepared to be utilized by the schools. It was rather prepared to satisfy the needs of higher-level educational hierarchies. The last reason was that teachers individually or collectively try to undertake research on problems related to education.

However, nobody tries to read and motivate them. Hence, they are not interested to devote their time for such activities.

If school directors motivate teachers and administrative personnel to improve at least the internal efficiency by undertaking research on the observed problems from the school questionnaire based on their local environment they could be able to provide a good foundation for further studies to improve the quality of education, since they are the key factors in an attempt to improve the teaching learning process.

If school level research was undertaken by teachers, which is more specific and focuses on examining ways to improve the conditions in specific setting in this case schools, it enables teachers to look on the current situation and ask what could be done to make it better and possibly better solutions could be proposed as they are very close to the problem.

However, school directors and teachers are traditionally accustomed to provide educational data to the higher authorities and not try to generate information on qualitative aspects of the teaching learning process.

At the school level there is a possibility to study factors such as causes for repetition, drop out, and even to the extent of external factors, which affect the teaching learning process and the like could be collected analyzed and finally planning could take place to reduce the negative side, which reduces the quality of education, and increase the positive aspect of it.

Table 31: The Status of Decision Makers in Utilizing Educational Information During Decision Making

Responses	Frequency						Computed Chi square value	Critical Value
	W.L	%	Z.L	%	R.L	%		
Regularly	7	19.4	4	17.4	1	9.1		
Mostly	4	11.1	1	14.3	2	18.2		
Partially	14	38.9	12	52.2	4	36.4		
Seldom	9	25.5	3	13.0	-	-		
Never	2	5.6	3	13.0	4	36.4		
Total	36	100	23	100	11	100	12.38	15.5

Table 31 illustrates that the level of utilization of educational information during decision-making is average and above average at all levels. The table demonstrates that 69.4 per cent of the Woreda, 73.9 per cent of Zone and 63.7 per cent of the Region respondents perceived that decision makers at their respective level utilize educational information during decision making at an average and above average level.

The computed chi square value is $X^2 = 12.38$ while the tabled value is $X^2 = 15.5$ which is smaller than the critical value. Hence, there is a no significant difference between the expected distribution and the observed distribution among categories of respondents (significant at the .05 level with eight degrees of freedom). Hence, the respondents view concerning the level of utilization of educational information by decision makers is not significantly different.

Accurate, timely and reliable data which is responsive to the clients needs is not likely to exist in the absence of trained personnel at every successive level of the education hierarchy.

This simple fact, however, seems to be forgotten in the education sector. This can clearly be observed from the following table.

Table 32: Number Training Given to Schools, Woreda, Zones and Regions on
Data Collection, Organization and Analysis for the Last Five
years

Number of Training Given	School Level training	%	Woreda Level Training.	%	Zone Level Training	%	Region Level Trainin g	%
No Training	115	96.7	21	58.3	13	56.5	-	-
1-2 times	3	2.5	14	38.9	10	43.5	6	60
3-4 times	1	0.8	1	2.8	-	-	1	10
Five and above	-	-	-	-	-	-	3	30
Total	119	100	36	100	23	100	10	100

As the table indicates at school level a great majority of them (96.7 per cent) did not get any training concerning data collection, Organization and analysis. The absence of training particularly in the under served regions of Somalia, Gambella, Afar and in some parts of Benishangul Gumuz where primary schools are staffed with teachers inadequately trained for the teaching learning activities and overburdened with the work and ill-supplied with facilities, the data produced from these schools will not accurately be completed.

Similarly 58.3% of Woreda, and 56.5% of Zones had no training while none of the Regional Education Bureau statisticians are without training. Generally, as one moves from the schools to the Woreda and then to Zones and finally to Regions, the frequency of training given increases and the reverse is true as one moves down from Regions to the lower hierarchies of the education sector.

Training for collecting, analyzing and interpreting data are required for use of every hierarchy in the education sector. This will help them for comparison of their results and methods. It is necessary for schools to have a fairly clear idea of the uses to which these statistics may be used.

However, the work carried out by the lower hierarchies is generally crucial to the quality of a country's educational statistics. This seems to be one of the reasons that many of the errors commonly found in educational statistics are observed at the source.

Woreda education offices are the second administrative level above the school in the formal structure of the education system and educational data are summarized at each successive level of the administrative pyramid. Hence, at Woreda level, the schools are the unit of analysis.

At Zone level, Woredas are the basic units. At region level the unit of analysis are Zones, finally at national level Regions are the basic units for analysis. However, it is usual to most of the Woreda to simply collect the questionnaires from the schools and transmitting them to the Zone Education Departments. Similarly, most of the Zone Education Departments also passes it to the Region Education Bureaux. It is at this level of education data are aggregated and finally published to be distributed to the users in Regions where there is the availability of personnel both in quality and quantity.

Currently the task of Woreda level statisticians seems to be checking and consolidating school level questionnaire to send to Zone level statisticians. At Woreda level there is no further analysis for the utility of Woreda level planning and decision-making purposes.

At all levels, low level aggregation is important to undertake qualitative research to sufficiently identify the factors and infer by observing condition to recommend alternative solutions to reach to a decision. However, due to the absence of training, this practice reduces as one moves to the lower hierarchies.

Table 33: The Significance of the Regular School Questionnaire to Woreda Education Offices and Zone Education Departments for Planning Activities

Level of Significance	Frequency				Computed Chi Square value	d.f	Critical value
	Woreda Level	%	Zone Level	%			
Fully significant	10	27.8	2	8.7			
Mostly significant	13	36.1	-	-			
Partially significant	8	22.2	10	43.5			
Rarely significant	5	13.9	2	8.7			
Never significant	-	-	9	39.1			
Total	36	100	23	100	27.30	4	9.5

At the out set, data requirements at different levels should be examined to assure that the statistical base needed for planning and decision making is available.

In order for information to be employed in educational planning, the format and delivery of the information should be adjusted to the specific needs of the successive level of decision-making bodies.

Respondents were invited to give their view on the significance of the regular school questionnaire to the various levels of the education hierarchies for planning and decision making activities. As can be seen from the table, 31 (86.1 per cent) the highest number of statistics officers at Woreda level had responded that the regular school questionnaire serves for most of the planning activities at Woreda level. The remaining 13.9 percent viewed as the questionnaire rarely serves for Woreda planning activities.

At Zone level, a little more than half of the respondents (52.2 per cent) have perceived the partial relevance of the questionnaire for planning activities. The remaining 47.8 per cent have noted that the significance of the questionnaire is below average.

The computed Chi square value $X^2 = 27.30$ is highly greater than the tabled value $X^2 = 9.5$ at .05 significant level. This indicates that there is a significant difference between the respondents view concerning the significance of the regular school questionnaire for planning at Woreda and Zone level.

Table 34: The Relevance of the Regular School Questionnaire for Human Resource Allotment

Level of Significance	Frequency			%	Computed Chi Square value	d.f	Tabled Value
	Woreda level	%	Zone level				
Fully significant	17	47.2	-	-			
Mostly significant	5	13.9	1	4.4			
Partially significant	6	16.7	5	21.7			
Rarely significant	6	16.7	5	21.7			
Never significant	3	8.3	8	34.8			
Total	36	100	23	100	21.35	4	9.5

The next item of the questionnaire inquired was on the relevance of the regular school questionnaire for human resource allotment. Accordingly, table 34 demonstrates that 61.1 per cent of Woreda respondents have replied that the relevance of the questionnaire for human resource allotment is above average. While only 56.7 per cent of the Zone respondents have viewed it to be below average.

The chi square value $X^2 = 21.35$ is greater than the critical value $X^2 = 9.5$ at 0.5 significant level. This indicates that there is a significant difference in the respondents' opinion among Woreda and Zones regarding the relevance of the school questionnaire for human resource allotment.

Table 35: The Significance of the Regular School Questionnaire for Budget Allotment

Level of Significance	Frequency			%	Computed Chi square value	d.f	Critical value
	Woreda level	%	Zone level				
Fully significant	1	2.8	-	-			
Mostly significant	10	27.8	10	43.5			
Partially significant	9	25.0	2	8.7			
Rarely significant	5	13.9	1	4.3			
Never significant	11	30.6	10	43.5			
Total	36	100	23	100	5.58	4	95.5

Table 35 shows the significance of the school questionnaire for budget allotment at Woreda and Zone level. According to the table, 55.6 per cent of the Woreda and 52.2 percent of the Zone respondents have noted that the significance of the questionnaire for budget allotment is average and above average while the remaining 44.4 percent of Woreda and 47.8 percent of Zone statistics officers responded to be below average.

The computed chi square value $\chi^2=5.58$ is smaller than the tabled value $\chi^2=9.5$ at .05 significant level. Hence, this implies that there is no significant difference between the expected and the observed frequency distribution of responses on the level of significance of the school questionnaire for budget allotment among Woreda and Zones respondents.

Table 36: The Level of Significance of the Regular School Questionnaire in Satisfying the Needs of Internal and External Data users

Level of significant	Frequency			%	Computed Chi square vale	d.f	Critical Value
	Woreda level	%	Zone level				
Fully significant	7	19.4	-	-			
Mostly significant	17	47.2	-	-			
Partially significant	10	27.8	8	34.8			
Rarely significant	2	5.6	6	26.1			
Never significant	-	-	9	39.1	34.01	4	95.5
Total	36	100	23	100			

Table 36 refers to the level of the significance of the regular school questionnaire in satisfying the information needs of internal and external educational data users. Most of the Woreda respondents i.e. 94.4 per cent perceived that the level of the school questionnaire in satisfying the needs of the users is average and above average. However, at Zone level only 34.8 percent of the respondents have viewed that the regular school questionnaire partially satisfies the needs of the users. The remaining 5.6 percent of Woreda respondents and the majority of Zone respondents (65.2 per cent) have noted that its level of satisfaction in fulfilling the demand of the users is below average.

The Chi square value $\chi^2 = 34.01$ is larger than the tabled value 9.5 at .05 significant level. This indicates that there is a significant difference between the expected and the observed frequency distribution of the respondents. This implies that there is a difference in opinion on the level of significance of the regular school questionnaire in satisfying the needs of internal and external data users between Woredas and Zones.

Table 37: Availability of Statistical Booklets Produced by Higher Level Administrative Hierarchies at School Level

Item	Response	Frequency	%
Availability of Statistical Booklets at school level	Yes	3	2.5
	No	116	97.5
Total		119	100

As indicated in table 37 schools receiving statistical booklets accounts to be 2.5 percent while the great majority 97.5 percent do not get statistical booklets at school level.

Schools in every Regional states of Ethiopia have no access to educational data aggregated at Woreda, Zone, Region and Federal level. The only data accessible to school is the results of national examination, especially those used for university selection. Apart from this data, schools do not have access to most of the educational data used for planning and policy making purposes. As a result they only collect too many school data and pass it to Woreda Education offices. They are not aware of the use of accurate data and do not also know as to why and for what purpose school data are collected because of the absence of the results of the data after the collection process is undertaken.

School directors most of the time performs routine administrative tasks such as providing statistical information at the expense of their supervisory activities of the teaching learning process. Teachers also resist collecting data, which demands their time and energy from their normal activities, which they value to be the most important. Above all, teachers and even school directors do not sufficiently understand why educational data from each school is collected.

Teachers are the initial source of educational information and its accuracy depends on their understanding and motivation to collect the information.

Accuracy is therefore, possible when teachers understand its utility, feel secure with the provision of the data and accept it as their own.

However, higher level authorities from Woreda level via to MoE once they receive the required statistical information from every school they will not send a copy of statistical booklet to schools. In this condition, teachers and even school directors do not dare to produce accurate information to the higher-level officials.

CHAPTER FOUR

4 . SUMMARY, CONCLUSION AND RECOMMENDATION

4 . 1 SUMMARY AND CONCLUSION

The major purpose of this study was to look into the problems of EMIS and the underlying factors, which contribute to the absence of timely and accurate educational information as well as on the redundancy of data collection by various decision levels of the educational hierarchy. An attempt was also made to show whether the annually collected educational data satisfies the information demands of potential users of the education sector.

In order to achieve the purpose of this study, basic questions were raised regarding the existing EMIS structure, availability of adequate and trained manpower at all levels availability of financial and material resources for the preparation and dissemination of educational information, factors which hinder the timely distribution, collection, preparation and publication of educational information to the users, as well as the redundancy and inaccuracy of data collected from educational institutions.

The study was carried out in 119 primary and secondary schools urban and rural areas. Non-government schools were also included in the study.

At school level the respondents were record officers and school directors. Respondents were also taken from Regional Education Bureau Statisticians, Zone Education Department and Woreda Education Office Statistics Officers. At the MoE level Department Heads, Panel Heads, Experts from various departments and statisticians from the panel of EMIS were inquired. The respondents were selected using purposive and

stratified sampling techniques. To select the particular schools, Woredas and Zones, random sampling technique was employed.

The data obtained were analyzed using percentage, the chi-square test and weighted mean.

Based on the basic questions raised and analyses made the findings and conclusion were the following.

1. The first requirement for producing accurate, reliable and detailed educational information on a timely basis is to establish an efficient and effective data collection machinery at all levels. However, the existing organizational structure of EMIS for the preparation and dissemination of educational information shows variation among regions. Hence, the following findings were obtained.

- In the under served regions of Benishangul Gumuz, Gambella, Somalia and Afar; manpower for educational statistics at all levels was not approved as well as indicated in the organizational structure of the education sector.
- Diredawa administrative council and Harari region are faced with the same problem as that of under served regions. In Addis Ababa City Administration personnel at Woreda level was recently approved but not yet recruited.
- In Ormomia region personnel was allotted in the organization structure of the education sector at all levels. However, due to low level of salary scale (Birr 347) and unbalanced requirement to be hired at Woreda level they could not be able to recruit employees.
- In the majority of the schools of all regions (69.6 percent) record officers were not permanently assigned. They were temporarily

working due to medical reasons, marriage and other related problems.

- The low level of salary scale at all levels' results in loss of many of the best statisticians and fail to attract trained and qualified people. As the finding indicated the level of the seriousness of the problem regarding turnover of statisticians especially at Region and Zone level ranges from partially serious to very serious problem that accounts to be 69.6 percent and 91 per cent respectively.
- In Amhara, SNNPR and Tigray regions, personnel at all levels of the administrative hierarchy are approved and are recruited with relatively better salary than the above mentioned regions.
- In general, due to the above problems, it is a normal practice to most of the regions to assign teachers at all the data gathering hierarchies without the provision of any training on data collection, organization and analysis. Hence, the organizational structure of EMIS at all hierarchies does not seem to be appropriate for the preparation and dissemination of educational information to the users.

2. Planning and decision making now-a-days are carried out at all levels starting from schools to the Ministry of Education level. This responsibility in turn demands collecting, organizing and analyzing educational information. Hence, provision of training at all levels is indisputable. However, the majority i.e., 96.7 percent of school record officers and directors, 58.3 percent of Woreda education office and 56.5 percent of Zone statistics officers had no training regarding data collection, organization and analysis to be utilized at their respective level. Usually, as one goes down to the lower data gathering hierarchy the less the statistical officers are trained. But the work carried out at

the lower hierarchy is generally crucial to the quality of data collected. Due to the absence of training, it is usual to most of the Woredas to simply collect the questionnaire from schools and directly transmit them to Zone Education Departments. Data in most cases was not analyzed at each successive level of the administrative pyramid.

As a result, the reasons most commonly attributed to the absence of data analysis is therefore, lack of trained staff and shortage of qualified statisticians.

3. In order to determine the type of data to be collected, it is necessary to work collaboratively with the consumers. (planners, decision makers, researchers etc.,) Because different levels of authorities of the education sector operate under quite different situations and require information in a quite different way. This is important activity that later on proves to be useful to the officials to reach to an informed decision responsibility.

The findings regarding this situation indicated that 81.8 percent of the region statistical officers, 94.4 percent of MoE department heads, panel heads and experts noted they did not participate both in the design and preparation of the educational statistics collection questionnaire.

This indicates that the educational needs of the various departments, units, organization etc., at all levels of the education sector were not assessed before instruments were designed to collect data to be used for planning, decision-making and to undertake research. EMIS unit at MoE level conventionally designed the questionnaire. The unit seems to be guided by traditions rather than articulating the information demand of the users.

Furthermore, the data collected through the questionnaire and the annual statistical abstract prepared is less satisfactory in fulfilling the

information demands of the users. The analysis of the data regarding this issue indicates that the calculated weighted mean (2.8) is slightly less than the scale value given to partially satisfy the information demands of the users.

The absence of participation in the design and preparation of the questionnaire entails the various hierarchies of the education sector to prepare their own questionnaire to get information from educational institutions and this in turn brought about redundancy and inaccuracy of data collection procedures which is tiresome, boring for schools and above all it is a wastage of time, labour, material and money.

4. Regarding the inaccuracy of educational data collected annually, the finding derived from the analysis of the data collected depicted that for slightly less than 48.7 percent half of the schools (48.7 per cent) the level of clarity of the questionnaire ranged from "partially clear" to "not clear". This implies that there were problems in understanding the questionnaire to fill in the required information accordingly. On the other hand, for 36.1 percent of the schools orientation was not given on how complete the questionnaire. We can therefore, make an inference from this finding that even through, the significant number of schools received orientation, Those who did not get may have a negative effect on the accuracy of data provided by these group of respondents.

A closer look at the questionnaire prepared by EMIS indicates that explanatory notes and definitions for various data items were not supplied for those completing the questionnaire. Hence the quantity may be provided by the schools on the assumption that what is provided is possibly what is wanted. According to the respondents some of the problems related to the absence of definitions, clarification and orientation are stated as follows.

- Requesting information where the data was not available at school level like teachers salary, level of education, date of birth, date of employment, etc. The right source of information in this case is Woreda education office where the personnel files are kept on individual basis. Most of the schools were not informed on the above variables when teachers are newly assigned to the schools.
 - The questionnaire was not prepared in a separate form for primary and secondary schools. Hence, schools may fill in the information in inappropriate table.
 - Language problem was another factor specially in Oromia region where the questionnaire was prepared in Oromiffa. Some of the terms were not known to some Zones and to schools where instruction was given in Amharic. Hence, obtaining accurate data in this case may not be possible.
 - Similarly schools were requested on budget allotted for the year before its approval by higher officials. Furthermore, data related to finance was not available at school level, since, schools now-a-days do not get the cash, rather they were provided in kind.
5. In order to maximize the potential utility of educational information it is very essential to collect and prepare it at the time when the users need it.

The findings from the analysis of the collected data revealed that:

- The majority of the schools (67.2 percent) received the questionnaire on October and 16.8 percent receive on November and December. This implies that the time adhered to collect the questionnaire indicated variation and results delay on the timely provision of educational data to the users.

- The absence of manpower assigned for the activity at all levels especially in the under served regions was another factor that hinders to timely distribution and collection of the questionnaire.
- Lack of support given from higher officials to distribute, collect, prepare and publish the educational information on time is another significant problem to the unit. Due to lack of appreciation as regards the importance of data collected, financial and material supply to the unit is inadequate. This low level of attention paid hinders the production and provision of timely information to the beneficiaries.
- Communication is another major problem for the timely dissemination and collection of the questionnaire to and from schools. The findings indicated that for 77.8 percent of the Woredas, 73.8 percent of Zones and 72.8 percent of the Regional Education bureaus, the level of the problem regarding communication is sever specially to under served regions of Afar, Benishangul, Somalia and Gambella where the schools are located over larger inaccessible areas. Furthermore, school directors lack the ability needed to collect data and was also difficult to rectify and correct mistakes observed on time. Hence, it was difficult to get timely provision of information for decision makers, planners and other internal and external researchers.

4.2. RECOMMENDATIONS

On the basis of the findings and conclusions drawn, the following recommendations are made.

1. In all the educational data collection hierarchy, new organizational structure with qualified and trained personnel should be set up if EMIS at every level of the education hierarchy is to function properly and collect educational data to the users. Improving staffing at all levels is therefore necessary condition for improving the quality of educational statistics.
2. In order to create well-qualified statisticians, training courses should periodically be arranged for staff from MoE to school level. Because EMIS at every level of the education hierarchy is in adequately staffed (both in quality and quantity). The training should be highly practical, directly related to the collection, processing and analysis of educational statistics. It is also desirable to organize short-term statistical courses for school directors and record officers in order to explain to them both how to complete the statistical questionnaire and the importance of information supplied.
3. When deciding to prepare the questionnaire and collect educational data the type and amount information should primarily be assessed in order to ensure that the data required by the users is properly incorporated. This can be done by:
 - Establishing a survey in the various departments and divisions at all levels of the education sector to identify their information requirements.
 - Collecting data on information repeatedly requested over time, which will help to design the questionnaire to fit the users needs, which also help to maximize the utility of the information for various management purposes.

- Creating feed back mechanism in order to know the information needs of the users.
- Inquiring potential users on their educational information needs to determine the type of data to be collected.

There should be a close coordination among departments in order to avoid duplication of work and wastage of resources. The statistics office at every level should be responsible for all data collection. This will be a step towards eliminating the over lap in data collection with in the ministry. This will insure that the requirements of the various users are met and the unnecessary duplication in data collection is avoided. Therefore, to maximize the potential utility of educational information to the users, it is necessary for those producers of information to have a clear idea of what users need, because the intention to produce it is to satisfy users needs at all levels.

4. In order to increase the accuracy of educational data collected from educational institutions:

- The educational statistical data collection questionnaire should be designed to ask recipients understand and answer the questions in the same way as requested.
- Detailed explanations, definitions and basic instructions or guidelines should be provided in a separate manual including examples to illustrate how to compels the questions. Besides these, short instructions should be printed related to each table on the appropriate place of the questionnaire.
- The preparation of the questionnaire for primary and secondary schools should be in a separate form to make it convenient to avoid confusion.

- To solve the language problems, use of standardized terminologies, provision of adequate orientation and making the questionnaire bilingual (Oromiffa and English) are better solutions.
 - Sight visit is also essential in sample schools, Woredas and Zones to check the accuracy of data filled out by schools and aggregated by Woredas and Zones.
5. In order to maximize the potential utility of information timely dissemination, collection, aggregation, preparation and publication of the educational information is essential. In order to achieve this:
- There should be a trustful collaboration between the various links of the data gathering chains for the timely delivery of educational statistics. To facilitate such cooperation, advantages must be taken of any meetings or seminars which bring together teachers and administrators to discuss on problems of data collections.
 - In order to fill in the questionnaire on time at school level.
 - Record-keeping personnel should be permanently assigned with enough skill in data collection and analysis.
 - Schools should keep complete records on school facts through the provision of register books uniformly prepared and distributed to all educational institutions.
 - Enough support should be given by higher officials in the provision of adequate material and money required to produce the information timely
 - It will be better if school census day is organized at national level at the end of October for one day, so that the teaching staff and administrative personnel are involved in providing and completing the required information in the questionnaire.

This will enhance the timely delivery of information to the users.

BIBLIOGRAPHY

- Abera Mekonen (1993) "Assessment of national Statistical Information System" Ministry of Education, Unpublished material.
- Ahlawat, k. and Billeh, v. (1997) "Decentralizing national education data to support local use: The Jordanian experience" In chapman, D.W. and Mahlck, L.O. and Simulders, A.H. (Eds.) From Planning to Action: Government Initiatives for Improving School Level Practice. France: UNESCO/ IIEP. Pergamon Press.
- Ayalew Shibeshi (2000) "Educational Policy and Management of Change, Module two". (Teaching material prepared for postgraduate distance education Students) Faculty of Education, Addis Ababa University. Unpublished.
- Ayalew Shibeshi and Seyoum Teferra (1980) Manual of Basic Educational Research Techniques, Faculty of Education, Addis Ababa University.
- Aziz, A., Boediono, et. al., (1990) " Current Practices, Problems, and Issues Associated with the Collection and Use of Information" In Ross, K.N. and Mahlck, L. (Eds.) Planning the quality of education: The Collection and Use of Data for Informed Decision- making. France: UNESCO/ IIEP. Pergamon Press.
- Bender, M.L., (1976) Language in Ethiopia. London: Oxford Printing Press.
- Chapman, D.W. and Mahlck, L.O. (1993) " Linking Data to Action" In Chapman and Mahlck (Eds.) From Data to Action: Information Systems in Educational Planning. France: UNESCO/IIEP. Pergamon Press.

- _____ (1993) (Eds.) "Improving Educational Quality Through Better Use of Information" In Chapman and Mahlck (Eds.) From Data to Action: Information Systems in Educational Planning. France: UNESCO/IIEP. Pergamon Press.
- _____ (1993) (Eds.) From Data to Action: Information Systems in Educational Planning. France: UNESCO/IIEP. Pergamon Press.
- Chapman, D.W. (1990) "The Role of Education Management Information System in Improving Educational Quality" In Chapman and Carrier (Eds.) Improving Educational Quality: A Global Perspective. Westport Conn: Greenwood Press.
- Cleland, D.I., and King, W.R. (1983) System Analysis and Project Management. Singapore: Mc Graw-hill International Book Company.
- Destefano, J. and Bernard, W. (1992) Ethiopia: Educational Sector Review USAID, Washington DC.
- Ginn, N.M. and Welsh, T. (1999) Decentralization of Education: Why, When, What and How? France: UNESCO/ IIEP. Sagim.
- Grisay, A. and Lahlck, L. (1991) Quality of Education in Developing Countries: A Review of Some Research Studies and Policy Documents. France: UNESCO/IIEP. Printice Shop.
- Higgins, J.C. (1980) Strategic and Operational Planning Systems: Principles and Practices. London: Printice- hall International Inc.
- Imperial Ethiopian Government (1961) Third five-year Development Plan (1968-1973) Addis Ababa, Ethiopia: Berhanena Selam Printing Press.

- Kanter, J. (1998) Managing with Information. New Delhi: Printice hall of India.
- Kemmerer, F. (1994) Utilization of Educational and Human Resource Sector Analysis. Paris: UNESCO/ IIEP.
- Kinard, J, (1988) Management. USA: DC Heath and Company.
- Koory, J.L. and Medley, D.B. (1987) Management Information System: Planning and Decision-making. Ohio: South Western Publishing Co.
- Kroenke, D. (1989) Management Information System. USA: MCGraw Hill.
- Levin, M., Winham, D. Bathory, Z. (1990) “ The Relationship Between Educational Information, Educational Management and the Quality of Education” In Ross, K.N. and Mahlck, L. (Eds.) Planning the Quality of Education: The Collection and Use of Data for Informed Decision Making. France: UNESCO/ IIEP. Pergamon Press.
- Ministry of Education and Fine Arts (1968) “General Information on Educational Policy, Legislation and Administration.” Department of Programme, Planning and Research. Addis Ababa. Unpublished material.
- ____ (1955) “A Ten year Plan for the Controlled Expansion of Ethiopian Education: Proposals Prepared by the long term planning committee of the Imperial Ministry of Education And fine Arts.” Addis Ababa. Unpublished Material.

Menou, M.J. (1993) Measuring the Impact on Information On Education. Johannesburg: International Development Research Center,

MoE (1998) "Education Sector Development Plan" unpublished Material.

____ (1990) Educational Statistics annual Abstract, Addis Ababa: Bole Printing Press.

____(1996) "Revitalizing School Records Management System in Ethiopia". Ministry of Education, Addis Ababa. Unpublished material.

____(1988) "The Ethiopian Information System for Educational Planning and Management". Planning and External Relations Service. Addis Ababa, Ethiopia.

____(1983) "Sector Study of Ethiopian education: The Growth of Learning Society". Volume one. Addis Ababa, Ethiopia.

____(1972) "Reports of the Education Sector Review: Education a Challenge to the Nation". Addis Ababa, Ethiopia.

National Institute for Educational Research (NIER) (1983) Educational Information: Problems, Strategies, for Resolving Them. Tokyo: Narita publishing Co.

Postlethwaite, T.N. Hallack, J. and Ross, K. (1990) " Fundamental Research and Training Needs: An Agenda for International Action " In Ross, K.N. and Mahlck, L. (Eds.) Planning the Quality of Education: The Collection and Use of Data for Informed Decision Making. France: UNESCO/ IIEP. Pergamon Press.

- Psacharopoulos, G. (1980) Information: Factor in Educational Planning and policy. Paris: UNESCO. Imprimeries.
- Ross, K., Postlethwaite, T.N. et. al. (1990) " Improving Data Collection, Preparation and Analysis Procedures: A Review of Technical Issue. " In Ross, K.N. and Mahlck, L. (Eds.) Planning the Quality of Education: The Collection and Use of Data for Informed Decision Making. France: UNESCO/ IIEP. Pergamon Press.
- Ross, K., and Mahlck, L. (1990) (Eds.) Planning the Quality of Education: The Collection and Use of Data for Informed Decision Making. France: UNESCO/ IIEP. Pergamon Press.
- Sack, R. Saidi, M. (1997) Fundamental Analysis (Management Audit) of the Organization of the Ministries of Education. Paris: UNESCO/IIEP
- Stoner, A. F., Freeman, R.E. and Gilbert, D.K. (1998) Management. New Delhi: Prentice Hall of India
- Taddesse Terefe (1964) " Problems and Prospects of Ethiopian Education" Ethiopian Observer, Vol. 8, No. 1
- Tekeste Negash (1990) The Crises of Ethiopian Education: Some Implications for Nation Building. Uppsala: Sweden.
- UNESCO (2000) World Education Forum: The Dakar Framework for Action. France: UNESCO
- _____(1997) Handbook for Information System and Services, France: Imprimerie de la Manutention

_____ (1983) Training Seminar on Educational Statistics: Basic Background Material. Book 3. Paris: Division of Statistics on Education, Office of Statistics.

_____ (1980) Basic Training Program in Educational Planning And Management, France: Offset Allbin, Poitiers

_____ (1979) International Conference on Education Recommendations (1934-1977), France: Imprimerie De La Manutention.

Valdlin, J. and Michael Wort (1996) "A Fresh Start for Swedish Educational Support in Ethiopia" Ministry of Education, unpublished Material.

Welsh, T. (1993) " The Politics of Valuing in Information System Construction" In Chapman and Mahlck (Eds.) From Data to Action: Information Systems in Educational Planning. France: UNESCO/IIEP. Pergamon Press.

Winham, D.M. et. al. (1997) " Linking information to incentives. " In Kemmerer and Windham. (Eds.) Incentive Analysis and Individual Decision Making in the Planning of Education. France: UNESCO/ IIEP. Imprimerie

_____ (1990) " Issues in the Design and Development of Educational Information Systems " In Ross, K.N. and Mahlck, L. (Eds.) Planning the Quality of Education: The Collection and Use of Data for Informed Decision Making. France: UNESCO/ IIEP. Pergamon Press.

Windham, D.M, Levin, H., and Bathory, Z. (1980) " The Collection and Use of Data for Informed Decision Making " In Ross, K.N. and Mahlck, L. (Eds.) Planning the Quality of Education: The

Collection and Use of Data for Informed Decision Making.
France: UNESCO/ IIEP. Pergamon Press.

ትምህርት ሚኒስቴር (1978) “የኢትዮጵያ ትምህርት ጥናታዊ ግምገማ የትምህርት
አሰተዳደር መዋቅርና ዕቅድ ጥናት” ቅፅ 2 ቁጥር 1 አዲስ አበባ።
ያልታተመ ዕቡፍ

Appendix - A

Questionnaire to be Completed by Regions

**ADDIS ABABA UNIVERSITY SCHOOL OF GRADUATE
STUDIES
DEPARTMENT OF EDUCATIONAL ADMINISTRATION**

**A QUESTIONNAIRE ON THE PREPARATION AND UTILIZATION OF
EDUCATIONAL MANAGEMENT INFORMATION SYSTEM IN ETHIOPIA**

GENERAL REMARK

The main purpose of this questionnaire is to identify the problems and their associated causes in the preparation and utilization of educational Management information System (EMIS) in Ethiopia. The information obtained may help to recommend plausible intervention measures to resolve problems related to EMIS in Ethiopia.

Hence, to identify problems and its associated causes of EMIS, your frank, timely and sincere response is highly appreciated, for it will contribute to the validity of the data obtained. For all questions in this questionnaire there are no right or wrong answers, and what is required is to show the level of your personal opinion to each item.

Your response will be kept confidential and writing your name is not needed.

Note

1. Mark your response in the space provided by putting “X” mark.
2. For any additional opinion or explanation, you are kindly requested to write briefly as much as possible in the space provided.

Thank you for your cooperation in advance.

A QUESTIONNAIRE TO BE COMPLETED BY EDUCATION

BUREAU STATISTICIANS

A. CHARACTERISTICS OF RESPONDENTS

1. Name of Region _____
2. Sex of the respondent
 - 2.1 Male ☐
 - 2.2 Female ☐
3. Years of service
 - 3.1 In the area of educational statistics _____
 - 3.2 In others _____
4. Educational qualification
 - 4.1 Grade 12 complete ☐
 - 4.2 12+ TTI ☐
 - 4.3 Diploma ☐
 - 4.4 Undergraduate degree ☐
 - 4.5 Postgraduate degree ☐
 - 4.6 If other, Please specify _____
5. Subject of specialization _____
6. Your present monthly salary _____
7. Number of Zones and Woredas available in the region
 - 7.1 Number of Zones _____
 - 7.2 Number of Woredas _____
8. Number of persons assigned at regional level to perform the regional educational statistics task.
 - 8.1 As per the structure _____
 - 8.2 Operating now _____
9. Number of persons assigned at Zone level to perform the Zonal educational statistics task.
 - 9.1 As per the structure _____
 - 9.2 Operating now _____

10. Number of persons assigned at Woreda level to perform the Woreda educational statistics task.

10.1 As per the structure _____

10.2 Operating now _____

11. Is there employee for statistical activities

11.1 at primary school level ?

Yes ☐

No ☐

11.2 at secondary school level ?

Yes ☐

No ☐

B. DETAILED INFORMATION

1. In the last five years for how many times has training on data collection, organization and analysis been given in an interrupted manner to:

1.1 Zone level statistics officers ?

1.1.1 No training was given ☐

1.1.2 Once ☐

1.1.3 Twice ☐

1.1.4 Three times ☐

1.1.5 Four times ☐

1.1.6 If any other, please state _____

1.2 Woreda level statistical officers ?

1.2.1 No training was given ☐

1.2.2 Once ☐

1.2.3 Twice ☐

1.2.4 Three times ☐

1.2.5 Four times ☐

1.2.6 If any other, please state _____

1.3 School directors or school record officers if any?

1.3.1 No training was given ☐

1.3.2 Once ☐

1.3.3 Twice ☐

1.3.4 Three times ☐

1.3.5 Four times ☐

1.3.6 If any other, please state _____

2. What is your opinion on the level of the contribution of the annual educational statistics questionnaire sent from the Ministry of Education to the planning activities and to satisfy of the needs of potential users of information at your region?

2.1 Fully serves ☐

2.2 Mostly serves ☐

2.3 Partially serves ☐

2.4 Rarely serves ☐

2.5 Never serves ☐

3. Is there another regular questionnaire prepared at the regional level other than the one sent from the ministry of Education?

3.1 Yes ☐

3.2 No ☐

7. Have you ever been participated in the preparation of the annual educational information collection questionnaire at the Ministry of Education?

7.1 Yes ☐

7.2 No ☐

8. What is your opinion on the availability of computer service used to organize and analyze educational information at your region?

11.1 Adequately available ☐

11.2 Partially available ☐

11.3 Available, but not satisfactory ☐

11.4 Not available ☐

**C. UTILIZATION OF EDUCATIONAL
INFORMATION AT REGIONAL LEVEL**

1. How often are discussions undertaken by decision makers at regional level on problems detected after the organization and analysis of the educational data are finalized?
 - 1.1. Regularly ☐
 - 1.2. Mostly ☐
 - 1.3. Partially ☐
 - 1.4. seldom ☐
 - 1.5. Never ☐
2. If discussion takes place regularly, mostly, partially or seldom how often are studies undertaken to solve the problems?
 - 2.1 Regularly
 - 2.2 Mostly
 - 2.3 Partially
 - 2.4 Seldom
 - 2.5 Never
3. What is your opinion on the level of utilization of educational information of higher officials while making decisions on educational matters?
 - 3.1 Fully utilize
 - 3.2 Mostly utilize
 - 3.3 Partially utilize
 - 3.4 Seldom utilize
 - 3.5 Never utilize
4. If your response for question number three is partially, seldom, or never utilize, what do you think are the reasons to be? _____

D. PROBLEMS ENCOUNTERED DURING THE PREPARATION OF EDUCATIONAL INFORMATION

Please mark “ X ” depending on the degree of the seriousness of the problems listed under here during the collection and the preparation of educational information in your region.

S.N	Problem Items	Very serious Problem	Serious Problem	Average Problem	Minimum Problem	No Problem
1	Distance of Zones from Region education bureau					
2	Communication problem (post, telephone, etc.)					
3	Data inaccuracy at school level					
4	Data inaccuracy when aggregating at Woreda level					
5	Data inaccuracy when aggregating at Zone level					
6	Absence of trained manpower at Woreda level					
7	Absence of trained manpower at Zone level					
8	Absence of manpower at Region level					
9	Shortage of manpower at Woreda level					
10	Shortage of manpower at Zone level					
11	Shortage of manpower at Region level					
12	Shortage of financial resources					
13	Shortage of materials (calculator, paper, computer) at all levels					
14	In-attention paid by higher officials to the job					
15	in congruence between the information collected and demand by potential educational information users.					
16	high turnover of employees					
17	Low salary scale at every level of the education sector					

Please mention if there were problems encountered in the preparation and utilization of educational information. _____

These being the questions, I thank you for your cooperation.

Appendix - B

A QUESTIONNAIRE TO BE COMPLETED BY ZONE

EDUCATION DEPARTMENT STATISTICIANS

A. CHARACTERISTICS OF RESPONDENTS

1. Name of Zone _____ Region _____
2. Sex of the respondent _____
 - 2.1 Male ☐
 - 2.2 Female ☐
3. Years of service
 - 3.1 In the area of educational statistics _____
 - 3.2 In others _____
4. Educational qualification
 - 4.1 Grade 12 complete ☐
 - 4.2 12+ TTI ☐
 - 4.3 Diploma ☐
 - 4.4 Undergraduate degree ☐
 - 4.5 Postgraduate degree ☐
 - 4.6 If other, Please specify _____
5. Subject of specialization _____
6. Your present monthly salary _____
7. Number of Woredas, schools, teachers and students available in the Zone
 - 7.1 Number of Woredas _____
 - 7.2 Number of schools _____
 - 7.3 Number of teacher _____
 - 7.4 Number of students _____

8. Number of persons assigned at Zone level to perform the Zone educational statistics task.

8.1 As per the structure _____

8.2 Operating now _____

9. Number of persons assigned at Woreda level to perform the Woreda educational statistics task.

9.1 As per the structure _____

9.2 Operating now _____

10. Are there employee assigned as per the structure for statistical activities

10.1 at primary school level ?

Yes ☐

No ☐

10.2 at secondary school level ?

Yes ☐

No ☐

B. DETAILED INFORMATION

1. In the last five years for how many times have training on data collection, organization and analysis been given to:

1.1 Zone level statistics workers ?

1.1.1 No training was given ☐

1.1.2 Once ☐

1.1.3 Twice ☐

1.1.4 Three times ☐

1.1.5 Four times ☐

1.1.6 If any other, please state _____

1.2 Woreda level statistical workers ?

1.2.1 No training was given ☐

1.2.2 Once ☐

1.2.3 Twice ☐

1.2.4 Three times ☐

1.2.5 Four times ☐

1.2.6 If any other, please state _____

1.3 School directors or school record officers if any?

1.3.1 No training was given ☐

1.3.2 Once ☐

1.3.3 Twice ☐

1.3.4 Three times ☐

1.3.5 Four times ☐

1.3.6 If any other, please state _____

2. What is your opinion on the level of significance of the regular educational statistics questionnaire sent from the Ministry of Education:

2.1 For planning activities

2.1.1 Fully significant ☐

2.1.2 Mostly significant ☐

2.1.3 Partially significant ☐

2.1.4 Rarely significant ☐

2.1.5 Never significant ☐

2.2 For human power allotment

2.2.1 Fully significant s ☐

2.2.2 Mostly significant ☐

2.2.3 Partially significant ☐

2.2.4 Rarely significant ☐

2.2.5 Never significant ☐

2.3 For budget allotment

2.3.1 Fully significant ☐

2.3.2 Mostly significant ☐

2.3.3 Partially significant ☐

2.3.4 Rarely significant ☐

2.3.5 Never significant ☐

2.4 To satisfy the needs of those who demand information

2.4.1 Fully significant ☐

2.4.2 Mostly significant ☐

2.4.3 Partially significant ☐

2.4.4 Rarely significant ☐

2.4.5 Never significant ☐

3. Is there another regular questionnaire prepared at the Zone level other than the one sent from the Ministry of Education?

3.1 Yes ☐

3.2 No ☐

4. What is your opinion on the availability of computer service used to organize and analyze educational information at your Zone?

4.1 Adequately available ☐

4.2 Partially available ☐

4.3 Available, but not satisfactory ☐

4.4 Not available ☐

5. How is the level of reliability of the information filled at the school and compiled at the Woreda level?

5.1 Fully reliable ☐

5.2 Mostly reliable ☐

5.3 Partially reliable ☐

5.4 Fairly reliable ☐

5.5 They are never reliable ☐

6. If your answer to question number nine is mostly, partially, fairly and are never reliable, what do you think are the reasons to be? _____

C. UTILIZATION OF EDUCATIONAL INFORMATION AT ZONE LEVEL

1. How often are discussions undertaken by decision makers at Zone level on problems detected after the organization and analysis of the educational data are finalized?

1.1. Regularly ☐

1.2. Mostly ☐

1.3. Partially ☐

1.4. seldom ☐

1.5. Never ☐

2. If discussion takes place regularly, mostly, partially or seldom how often are studies undertaken to solve the problems?

2.1 Regularly

2.2 Mostly

2.3 Partially

2.4 Seldom

2.5 Never

3. What is your opinion on the level of utilization of educational information of higher officials while making decisions on educational matters?

- 3.1 Fully utilize
- 3.2 Mostly utilize
- 3.3 Partially utilize
- 3.4 Seldom utilize
- 3.5 Never utilize

4. If your response for question number three is partially, seldom, or never utilize, what do you think are the reasons to be? _____

D. PROBLEMS ENCOUNTERED DURING THE PREPARATION OF EDUCATIONAL INFORMATION

Please mark “ X ” depending on the degree of the seriousness of the problems listed under here during the collection and the preparation of educational information in your Zone.

S.	Problem Items	Very serious Problem	Serious Problem	Average Problem	Minimum Problem	No Problem
1	Distance of schools from Wereda education office					
2	Communication problem (post, telephone, etc.)					
3	Data inaccuracy at school level					
4	Data inaccuracy when aggregating at Woreda level					
5	Absence of trained manpower at Woreda level					
6	Absence of trained manpower at Zone level					
7	Shortage of manpower at Woreda level					
8	Shortage of manpower at Zone level					
9	Shortage of financial resources					

10	Shortage of materials (calculator, paper, computer) at all levels					
11	In-attention paid by higher officials to the job					
12	in congruence between the information collected and demand by potential educational information users.					
13	high turnover of employees					
14	Low salary scale at every level of the education sector					

Please mention if there were problems encountered in the preparation and utilization of educational information. _____

These being the questions, I thank you for your cooperation.

Appendix - C

A QUESTIONNAIRE TO BE COMPLETED BY WOREDA EDUCATION OFFICE STATISTICIANS

A. CHARACTERISTICS OF RESPONDENTS

1. Name of Zone _____ Region _____ Woreda _____
2. Sex of the respondent _____
 - 2.1 Male ☐
 - 2.2 Female ☐
3. Years of service
 - 3.1 In the area of educational statistics _____
 - 3.2 In others _____
4. Educational qualification
 - 4.1 Grade 12 complete ☐
 - 4.2 12+ TIT ☐
 - 4.3 Diploma ☐
 - 4.4 If other, Please specify _____
5. Subject of specialization _____
6. Your present monthly salary _____
7. Number of schools, teachers and students available in the Word
 - 7.1 Number of schools _____
 - 7.2 Number of teacher _____
 - 7.3 Number of students _____
8. Number of persons assigned at Word level to perform the Word educational statistics task.
 - 8.1 As per the structure _____
 - 8.2 Operating now _____

9. Is there employee assigned as per the structure for statistical activities

9.1 at primary school level ?

Yes ☐

No ☐

9.2 at secondary school level ?

Yes ☐

No ☐

10. If there is no assigned personnel for statistical work at the word level, please indicate the body that organizes the statistical information. _____

B. DETAILED INFORMATION

1. In the last five years for how many times have training on data collection, organization and analysis been given in an interrupted manner to:

1.1 Woreda level statistics workers ?

1.1.1 No training was given ☐

1.1.2 Once ☐

1.1.3 Twice ☐

1.1.4 Three times ☐

1.1.5 Four times ☐

1.1.6 If any other, please state _____

1.2 To school directors or record officers if any ?

1.2.1 No training was given ☐

1.2.2 Once ☐

1.2.3 Twice ☐

1.2.4 Three times ☐

1.2.5 Four times ☐

1.2.6 If any other, please state _____

2. What is your opinion on the level of utility of the formal educational statistics questionnaire sent from the Ministry of Education:

2.1 For the woreda planning activities

2.1.1 Fully serves ☐

2.1.2 Mostly serves ☐

2.1.3 Partially serves ☐

2.1.4 Rarely serves ☐

2.1.5 Never serves ☐

2.2 For the Woreda human power allotment

2.2.1 Fully serves ☐

2.2.2 Mostly serves ☐

2.2.3 Partially serves ☐

2.2.4 Rarely serves ☐

2.2.5 Never serves ☐

2.3 For the Woreda budget allotment

2.3.1 Fully serves ☐

2.3.2 Mostly serves ☐

2.3.3 Partially serves ☐

2.3.4 Rarely serves ☐

2.3.5 Never serves ☐

2.4 To satisfy the needs of those who demand information at Woreda level

2.4.1 Fully serves ☐

2.4.2 Mostly serves ☐

2.4.3 Partially serves ☐

2.4.4 Rarely serves ☐

2.4.5 Never serves ☐

3. Is there another regular questionnaire prepared at the Word level other than the one sent from the ministry of Education?

3.1 Yes ☐

3.2 No ☐

C. UTILIZATION OF EDUCATIONAL INFORMATION AT WOREDA LEVEL

1. How often are discussions undertaken by decision makers at Woreda level on problems detected after the organization and analysis of the educational data are finalized?

1.1. Regularly ☐

1.2. Mostly ☐

1.3. Partially ☐

1.4. seldom ☐

1.5. Never ☐

2. If discussion takes place regularly, mostly, partially or seldom how often are studies undertaken to solve the problems?

2.1 Regularly ☐

2.2 Mostly ☐

2.3 Partially ☐

2.4 Seldom ☐

2.5 Never ☐

3. What is your opinion on the level of utilization of educational information by Woreda level officials while making decisions on educational matters?

3.1 Fully utilize ☐

3.2 Mostly utilize ☐

3.3 Partially utilize ☐

3.4 Seldom utilize ☐

3.5 Never utilize ☐

4. If your response for question number three is partially, seldom, or never utilize, what do you think are the reasons to be? _____

5. How is the level of reliability of the information filled at the school level?

9.1 Fully reliable ☐

9.2 Mostly reliable ☐

9.3 Partially reliable ☐

9.4 Fairly reliable ☐

9.5 They are never reliable ☐

6. If your response to question number nine is mostly, partially, fairly and are never reliable, what do you think are the reasons to be? _____

**D. PROBLEMS ENCOUNTERED DURING THE PREPARATION OF
EDUCATIONAL INFORMATION AT WOREDA LEVEL**

Please mark “ X ” depending on the degree of the seriousness of the problems listed under here during the collection and the preparation of educational information in your Woreda.

S.	Problem Items	Very serious Problem	Serious Problem	Average Problem	Minimum Problem	No Problem
1	Distance of schools from Wereda education office					
2	Communication problem (post, telephone, etc.)					
3	Data inaccuracy at school level					
4	Absence of trained manpower at school level					
5	Absence of trained manpower at Woreda level					
6	Shortage of manpower at Woreda level					
7	Shortage of financial resources					
8	Shortage of materials (calculator, paper etc.) at all levels					
9	In-attention paid by higher officials to the job					
10	In congruence between the information collected and demand by potential educational information users.					
11	high turnover of employees					
12	Low salary scale at every level					

Please mention if there were problems encountered in the preparation and utilization of educational information. _____

These being the questions, I thank you for your cooperation.

Appendix -D

A QUESTIONNAIRE TO BE COMPLETED BY SCHOOLS

A. CHARACTERISTICS OF SAMPLES

1. Name of Zone _____ Region _____ Woreda _____

2. Level of school

- 1-12
- 7-12
- 9-12
- 1-8
- If other, Please specify _____

3. Sex of the respondent _____

2.1 Male ☐

2.2 Female ☐

4. School type

- Government ☐
- Public ☐
- Religious organization ☐
- Private ☐
- Mission ☐

5. School Location

Urban ☐

Rural ☐

6. Responsibility of the respondent in the school

6.1 School director ☐

6.2 Record officer ☐

6.3 If other, please specify _____

7. Years of service

7.1 In the area of educational statistics _____

7.2 In other _____

8. Educational qualification

8.1 Grade 12 complete ☐

8.2 12+ TTI ☐

8.3 Diploma ☐

8.4 If other, Please specify _____

9. Subject of specialization _____

10. Number of teachers and students available in the school

Number of teacher _____

Number of students _____

B. DETAILED INFORMATION

1. In the last five years for how many times training on data collection, organization and analysis have been given manner to school directors or record officers if any ?

1.2.1 No training was given ☐

1.2.2 Once ☐

1.2.3 Twice ☐

1.2.4 Three times ☐

1.2.5 Four times ☐

1.2.6 If any other, please state _____

2. How clear is the annual statistics questionnaire to fill in the information requested?

2.1 Fully clear ☐

2.2 Mostly clear ☐

2.3 Partially clear ☐

2.4 Rarely clear ☐

2.5 Not clear ☐

- 3 If your response to question number two is partially , rarely or not clear , what are the problems you found while completing the questionnaire? _____

- 4 Have you ever been given orientation on how to complete the questionnaire?
- 4.1 Yes ☐
- 4.2 No ☐
- 5 When does the statistical questionnaire reach the school?
- 5.1 September ☐
- 5.2 October ☐
- 5.3 November ☐
- 5.4 December ☐
- 6 How many days does it take to fill in the questionnaire?
- 6.1 1-5 days ☐
- 6.2 6-10 days ☐
- 6.3 11-15 days ☐
- 6.4 16-20 days ☐
- 7 How many days on the average does the woreda education office give you to complete and return the questionnaire? _____
- 8 Is there any register book prepared earlier to complete the questions endorsed in the questionnaire?
- 8.1 Yes ☐
- 8.2 No ☐
- 9 From where do you get the information to complete the questionnaire?
- 9.1 Regarding students _____
- 9.2 Regarding teachers _____
- 9.3 Regarding the administrative staff _____
- 9.4 Regarding the income and expenditure of the school _____

- 9.5 Regarding the various school facilities _____
- 10 If your response to question number 7 were no, how do you complete the questionnaire? _____

- 11 If your response is yes to question number 7, who prepared the register?
- 11.1 By the school ☐
- 11.2 By the Woreda Education Office ☐
- 11.3 By the Zone Department of Education ☐
- 11.4 By the Regional Education Bureau ☐
- 11.5 By the Ministry of Education ☐
- 12 Does the school receive educational statistical booklet?
- 12.1 yes ☐
- 12.2 No ☐
- 13 If your response to question number fifteen is yes, who prepares the statistical booklet?
- 13.1 Ministry of Education ☐
- 13.2 Regional Education Bureau ☐
- 13.3 Zone Education Department ☐
- 13.4 Woreda Education Office ☐
- 14 Do other statistical information demands come from other organizations other than the annually sent regular questionnaire?
- 14.1 Yes, they come enormously ☐
- 14.2 Yes they come to a certain extent ☐
- 14.3 They never come ☐
- 15 If your response to question number seventeen is enormously or to a certain extent, please mention the offices and organizations that usually demand information.
- 15.1 _____
- 15.2 _____
- 15.3 _____

15.4 _____

15.5 _____

16 How similar every year are the demand for educational statistical information presented by the above offices and organizations?

16.1 Fully similar ☐

16.2 Mostly similar ☐

16.3 Partially similar ☐

16.4 to a certain extent similar ☐

16.5 Not similar ☐

17 Do different departments and panels in the education sector demand for similar piece of information at different times?

17.1 Yes, always ☐

17.2 Yes, mostly ☐

17.3 Yes, partially ☐

17.4 Yes, rarely ☐

17.5 No, never ☐

18 How is the degree of the demand for educational statistical information of other organizations?

18.1 Very high ☐

18.2 High ☐

18.3 Medial ☐

18.4 less ☐

18.5 No request ☐

19 After the annual educational statistical questionnaire has been completed by the school, do teachers and administrative personnel undertaken research on problems identified from the questionnaire and propose solution?

19.1 Yes, always ☐

19.2 Yes, sometimes ☐

19.3 No, never ☐

20 If your response were either sometimes or never, what do you think are the reasons

21 What is your opinion on the time given by Woreda education office to complete the annual educational statistics information collection questionnaire ?

21.1 Ample time is given ☐

21.2 Reasonably sufficient time is given ☐

21.3 It is never sufficient ☐

Please mention if there were problems encountered in the preparation and utilization of educational information. _____

These being the questions, I thank you for your cooperation.

Appendix - E

Communication Problem

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	19	7	3	29	14.91	9.53	4.56	1.12	0.67	0.53	2.32
Serious Problem	6	9	5	20	10.29	6.57	3.14	1.79	0.90	1.10	3.78
Partially Serious Problem	3	1		4	2.06	1.31	0.63	0.43	0.08	0.63	1.14
Minor Problem	1	0		1	0.51	0.33	0.16	0.46	0.33	0.16	0.94
No Problem	7	6	3	16	8.23	5.26	2.51	0.18	0.10	0.09	0.38
Total	36	23	11	70							8.57

Data Inaccuracy Produced by Lower Level Hierarchies

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	13	5	2	20	10.29	6.57	3.14	0.72	0.38	0.42	1.51
Serious Problem	8	3	3	14	7.20	4.60	2.20	0.09	0.56	0.29	0.94
Partially Serious Problem	11	5	1	17	8.74	5.59	2.67	0.58	0.06	1.05	1.69
Minor Problem	4	6	1	11	5.66	3.61	1.73	0.49	1.57	0.31	2.37
No Problem		4	4	8	4.11	2.63	1.26	4.11	0.72	5.98	10.81
Total	36	23	11	70							17.32

Absence of Trained Manpower

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	14	5	4	23	11.83	7.56	3.61	0.40	0.87	0.04	1.31
Serious Problem	12	5	2	19	9.77	6.24	2.99	0.51	0.25	0.33	1.08
Partially Serious Problem	5	9	1	15	7.71	4.93	2.36	0.96	3.36	0.78	5.10
Minor Problem	1	2		3	1.54	0.99	0.47	0.19	1.04	0.47	1.71
No Problem	4	2	4	10	5.14	3.29	1.57	0.25	0.50	3.75	4.51
Total	36	23	11	70							13.70

Shortage of Manpower

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	14	8	6	28	14.40	9.20	4.40	0.01	0.16	0.58	0.75
Serious Problem	10	7	4	21	10.80	6.90	3.30	0.06	0.00	0.15	0.21
Partially Serious Problem	4	4		8	4.11	2.63	1.26	0.00	0.72	1.26	1.98
Minor Problem	5	2		7	3.60	2.30	1.10	0.54	0.04	1.10	1.68
No Problem	3	2	1	6	3.09	1.97	0.94	0.00	0.00	0.00	0.01
Total	36	23	11	70							4.62

Shortage of Financial Resources

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	13	5	3	21	10.80	6.90	3.30	0.45	0.52	0.03	1.00
Serious Problem	8	5	3	16	8.23	5.26	2.51	0.01	0.01	0.09	0.11
Partially Serious Problem	7	11	4	22	11.31	7.23	3.46	1.65	1.97	0.09	3.70
Minor Problem	5	2	1	8	4.11	2.63	1.26	0.19	0.15	0.05	0.39
No Problem	3			3	1.54	0.99	0.47	1.38	0.99	0.47	2.83
Total	36	23	11	70							8.04

Shortage of Materials

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	3	7	3	13	6.69	4.27	2.04	2.03	1.74	0.45	4.22
Serious Problem	11	5	1	17	8.74	5.59	2.67	0.58	0.06	1.05	1.69
Partially Serious Problem	10	9	3	22	11.31	7.23	3.46	0.15	0.43	0.06	0.65
Minor Problem	7	2	2	11	5.66	3.61	1.73	0.32	0.72	0.04	1.08
No Problem	5		2	7	3.60	2.30	1.10	0.54	2.30	0.74	3.58
Total	36	23	11	70							11.22

Lack of Support from Higher Officials

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	6	13	1	20	10.29	6.57	3.14	1.79	6.29	1.46	9.54
Serious Problem	15	4	2	21	10.80	6.90	3.30	1.63	1.22	0.51	3.36
Partially Serious Problem	8	4	6	18	9.26	5.91	2.83	0.17	0.62	3.56	4.35
Minor Problem	1	1		2	1.03	0.66	0.31	0.00	0.18	0.31	0.49
No Problem	6	1	2	9	4.63	2.96	1.41	0.41	1.30	0.24	1.94
Total	36	23	11	70	19.68						

In congruence of Demand and Supply

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	3	3	2	8	4.11	2.63	1.26	0.30	0.05	0.44	0.79
Serious Problem	7	4	5	16	8.23	5.26	2.51	0.18	0.30	2.46	2.94
Partially Serious Problem	11	9	2	22	11.31	7.23	3.46	0.01	0.43	0.61	1.06
Minor Problem	9	3	2	14	7.20	4.60	2.20	0.45	0.56	0.02	1.02
No Problem	6	4		10	5.14	3.29	1.57	0.14	0.16	1.57	1.87
Total	36	23	11	70	7.69						

High turnover of Employees

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	8	6	5	19	9.77	6.24	2.99	0.32	0.01	1.36	1.69
Serious Problem	7	2	4	13	6.69	4.27	2.04	0.01	1.21	1.88	3.10
Partially Serious Problem	5	8	1	14	7.20	4.60	2.20	0.67	2.51	0.65	3.84
Minor Problem	13	5	1	19	9.77	6.24	2.99	1.07	0.25	1.32	2.63
No Problem	3	2		5	2.57	1.64	0.79	0.07	0.08	0.79	0.93
Total	36	23	11	70							12.20

Low Level of Salary Scale

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Very Serious Problem	14	18	4	36	18.51	11.83	5.66	1.10	3.22	0.49	4.81
Serious Problem	9	3	5	17	8.74	5.59	2.67	0.01	1.20	2.03	3.23
Partially Serious Problem	5	2	2	9	4.63	2.96	1.41	0.03	0.31	0.24	0.58
Minor Problem	6			6	3.09	1.97	0.94	2.75	1.97	0.94	5.67
No Problem	2			2	1.03	0.66	0.31	0.92	0.66	0.31	1.89
Total	36	23	11	70							16.18

**Preparation of Additional Regular Educational Data Collection Questionnaire
Other than the One Prepared by Ministry of Education**

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
yes	13	10	10	33	16.97	10.84	5.19	0.93	0.07	4.47	5.46
No	23	13	1	37	19.03	12.16	5.81	0.83	0.06	3.99	4.87
Total	36	23	11	70							10.34

Preparation of Annual Statistical Booklets at Woreda, Zone and Region Level

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Annually	1	3	10	14	7.20	4.60	2.20	5.34	0.56	27.65	33.55
Seldom	1	2		3	1.54	0.99	0.47	0.19	1.04	0.47	1.71
Never	34	18	1	53	27.26	17.41	8.33	1.67	0.02	6.45	8.14
Total	36	23	11	70							43.39

Discussion Undertakings on the Observed Problems

After Data has been Aggregated

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Regularly	9	4	5	18	9.26	5.91	2.83	0.01	0.62	1.67	2.29
Mostly	8	9	2	19	9.77	6.24	2.99	0.32	1.22	0.33	1.86
Partially	5	2	1	8	4.11	2.63	1.26	0.19	0.15	0.05	0.39
Seldom	7	2	2	11	5.66	3.61	1.73	0.32	0.72	0.04	1.08
Never	7	6	1	14	7.20	4.60	2.20	0.01	0.43	0.65	1.09
Total	36	23	11	70	6.72						

In-depth Study Undertakings on the Observed Problems

After Data has been Aggregated

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Regularly	2		1	3	1.54	0.99	0.47	0.14	0.99	0.59	1.71
Mostly	6	4	1	11	5.66	3.61	1.73	0.02	0.04	0.31	0.37
Partially	7	5	5	17	8.74	5.59	2.67	0.35	0.06	2.03	2.44
Seldom	12	8		20	10.29	6.57	3.14	0.29	0.31	3.14	3.74
Never	9	6	4	19	9.77	6.24	2.99	1.46	0.81	2.26	4.52
Total	36	23	11	70	12.78						

**The Position of Decision Makers in Utilizing Educational
Information During Decision Making**

Responses	Frequency			Total	Chi-square Statistics						Computed Chi-square Value
	Woreda Level	Zone Level	Region Level								
Regularly	7	4	1	12	6.17	3.94	1.89	0.11	0.00	0.42	0.53
Mostly	4	1	2	7	3.60	2.30	1.10	0.04	0.73	0.74	1.52
Partially	14	12	4	30	15.43	9.86	4.71	0.13	0.47	0.11	0.71
Seldom	9	3		12	6.17	3.94	1.89	1.30	0.23	1.89	3.41
Never	2	3	4	9	4.63	2.96	1.41	1.49	0.00	4.73	6.22
Total	36	23	11	70							12.38

**The Level of Significance of the Regular School Questionnaire
to Woredas and Zones Education Offices and Departments**

A. For Planning Activities

Level of Significance	Frequency		Total	Chi-square Statistics				Computed Chi-square
	Woreda Level	Zone Level						
Fully Significant	10	2	12	7.32	4.68	0.98	1.5	2.5
Mostly Significant	13	0	13	7.93	5.07	3.24	5.07	8.31
Partially Significant	8	10	18	10.98	7.02	0.81	1.27	2.08
Rarely Significant	5	2	7	4.27	2.73	0.12	0.19	0.32
Never Significant	0	9	9	5.49	3.51	5.49	8.60	14.09
Total	36	23	59					27.30

B. For Human Resource Allotment

Level of Significance	Frequency		Total	Chi-square Statistics				Computed Chi-square
	Woreda Level	Zone Level						
Fully Significant	17	0	17	10	7	4	7	11
Mostly Significant	5	1	6	3.66	2.34	0.49	0.77	1.26
Partially Significant	5	9	14	8.54	5.46	1.47	2.30	3.77
Rarely Significant	6	5	11	6.71	4.29	0.08	0.12	0.19
Never Significant	3	8	11	6.71	4.29	2.05	3.21	5.27
Total	36	23	59					21.35

C. Budget Allotment

Level of Significance	Frequency		Total	Chi-square Statistics				Computed Chi-square
	Woreda Level	Zone Level						
Fully Significant	1	0	1	0.6	0.4	0.2	0.4	0.6
Mostly Significant	10	10	20	12.20	7.80	0.40	0.62	1.02
Partially Significant	9	2	11	6.71	4.29	0.78	1.22	2.00
Rarely Significant	5	1	6	3.66	2.34	0.49	0.77	1.26
Never Significant	11	10	21	12.81	8.19	0.26	0.40	0.66
Total	36	23	59					5.58

D. For Satisfying the Needs of Internal and External Educational Data Users

Level of Significance	Frequency		Total	Chi-square Statistics				Computed Chi-square
	Woreda Level	Zone Level						
Fully Significant	7	0	7	4.27	2.73	1.74	2.73	4.47
Mostly Significant	17	0	17	10.37	6.63	4.23	6.63	10.86
Partially Significant	10	8	18	10.98	7.02	0.09	0.14	0.23
Rarely Significant	2	6	8	4.88	3.12	1.70	2.66	4.36
Never Significant	0	9	9	5.49	3.51	5.49	8.60	14.09
Total	36	23	59					34.01

DECLARATION

I here by declare that this thesis is my original work done under the guidance or Dr. Nebiyu Tadesse. All relevant sources used for this thesis are duly acknowledged.

Kassaw Ali

