Information resources: development strategies for Ethiopia

INFORMATION RESOURCES: DEVELOPMENT STRATEGIES FOR ETHIOPIA

BY

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DEDICATION

To my uncle Aberra Nigussie and to the memory of my late father and mother.

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ABSTRACT

The study aims to analyse library and information resource development problems in developing countries in general and that of Ethiopia in particular. It attempts to identify and adopt strategies useful for information resource development in Ethiopia. It proceeds with definitions and indentification of information resources and a description of Ethiopian history, geography, economy, politics, and other basic infrastructure relevant to the subject. Though the primary concern of the study is the issues involved in library and information resources, it discusses at length information generation, transmission and use aspects. So, the roles of oral traditions, media, printing and publishing activities and the role of professional associations, specialised institutions mainly committed to the generation, collection, organisation and dissemination of information in one way or another are given. The situation of library and information resources of the various government and non-government institutions in the country is highlighted. The study shows that information resources and development activities are under recognised due to economic constraints, political problems, policy, infrastructure and traditions of the country. Hence, strategies that may help to tackle some of these constraints are recommended. The recommendations call for national, regional and international co-operative arrangements and emphasise the need for a supportive national policy and infrastructure.

ABBREVIATIONS

AGRIS	International Information System for Agricultural Science and Technology.
BLDSC	British Library Document Supply Centre.
CAB	Commonwealth Agricultural Bureaux.
CD-ROM	Compact Disk Read Only Memory
ECA	Economic Commission for Africa.
EMPDA	Educational Materials Production and Distribution Agency.
ENA	Ethiopian News Agency.
EPRDF	Ethiopian Peoples Revolutionary Democratic Front.
ESTC	Ethiopian Science and Technology Commission.
FAO	Food and Agricultural Organisation of the United Nations.
HP	Hewlett Packard.
IDRC	International Development Research Centre.
ILCA	International Livestock Centre for Africa.
INFOTERRA	International Referal System for Sources of Environmental Information.
INRES	Information Referal System.
IT	Information Technology
M.A.	Master of Arts.
MEDLINE	Medlars On Line.
M.Sc.	Master of Science.
M.Sc.I.S	Master of Science in Information Science.
MINISIS	Mini Integrated Set of Information Systems.

OECD	Economic Co-operation and Development.
PADIS	Pan African Documentation and nformation System.
PANA	Pan African News Agency.
PC	Personal Computer.
Ph.D	Doctor of philosophy.
SISA	School of Information Science for Africa.
TCDC	Technical Co-operation among Developing Countries.
UNDP	United Nations Development Programmme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISIST	Intergovernmental Conference on Scientific and Technical Information for Development.
WPU	World Post Union.

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INTRODUCTION

The recognition that information is essential to social and economic development is increasingly gaining international acceptance (1). UNESCO's world wide declaration of information as a national resource is a strong affirmation of the importance of information to economic development. How true it is, indeed, that only those who know can estimate the cost of not knowing enough.

Information is believed to be one means by which developing nations can raise their gross national product, raise the standard of living for citizens and narrow the gap between themselves and developed nations (2). Much has further been said that closing the gap will depend on how well the accumulated store of scientific knowledge can be harnessed to help solve social and economic problems. To achieve social and technological development, existing scientific and technological knowledge must be accessed and must be well organised. As a resource, it has to be developed and utilised through articulated strategies for its worth to be realised.

This study aims to analyse information resource development activities and problems in developing countries and identifies and adopts strategies that are appropriate to the Ethiopian situation.

In order to set a meaningful context, the first chapter defines the meanings attached to the concepts " information resources" and " developing countries" in the context of this study and identifies the elements involved in information resource development activities for the purposes of this study. Selected research and thinking about the role information resources as economic resources and in the world economic order are presented as a general background for the subsequent discussion.

Chapter Two deals with the description of Ethiopia. It discusses geography, history, economics, politics and traditions of the society insofar as they impact on information resource development in the country. Transport, postal, telecommunication services and research and development infrastructures including education with especial emphasis on library and information science education are presented.

Chapter Three considers selected information resources and services in Ethiopia. It encompasses traditions of oral communication, media, publishing and specialised information services. Examination of library and information resources and services in Ethiopia is the basis for this study. Hence, the assessments are presented in Chapter three. Ethiopia is lucky to be a host for the headquarters of some regional and international organisations. Their library and information services and other facilities are greatly appreciated.

Chapter Four examines the potential of some on-going projects in library and information services centers and institutions in Ethiopia such as the the National Scientific and Technological Information and Documentation Centre (NASTIDC), of Ethiopia; Pan-African Documentation and Information System (PADIS), and the opening of the School of Information Science for Africa (SISA), as examples. In this chapter, an attempt is also made to identify some problems and the constraints on information resource development in the developing countries as an overview and discusses these with particular reference to Ethiopia.

Chapter Five examines information resource development strategies that may help to tackle the problems and constraints identified in Chapter Four and ensure the utilisation and maintenance of local and foreign information resources for overall socio-economic plans and development of Ethiopia.

In the conclusion, a summary and general recommendations as to how to implement the strategies already outlined in chapter Five are given.

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CHAPTER ONE

1. GENERAL OVERVIEW

1.1 DEFINITIONS

1.1.1 INFORMATION RESOURCES

The basic function of an information system is to match the information needs of the people with the information content of a document or any other carriers of information. The proper performance of this function requires the service of the staff and the provision of facilities, such as accommodation, equipment, and communication infrastructure. These in turn need the support of an infrastructure comprising administrative authority in the form of legislation, and organisational structure and adequate finance. In this study, therefore, all these elements - finance, organisation, authority, accommodation, and equipment, communication facilities, manpower and the collection of documents and other materials are considered to be information resources. The main emphasis of the work however, is on information workers, information sources, information technology and finance as identified in sections 1.2.1, 1.2.2, 1.2.3, and 1.2.4 respectively.

1.1.2. DEVELOPING COUNTRIES

For the purpose of this study " developing countries " are taken to comprise the wide range of socio-economic characteristics applicable to any nations other than those

of Western Europe, the United States of America, Japan, Australia, New Zealand, Canada the East European States, China and the Soviet Union (1).

1.2 IDENTIFICATION OF INFORMATION RESOURCES

1.2.1 INFORMATION WORKERS

Information workers cannot be easily distinguished from other professions. All occupations contain information activities as part of their work (2). Schement and Leverow found that 96.6 % of the titles from the dictionary of occupational titles meet the hypothesis that states that information work takes place in all sectors of the economy, and determined that 49.6 % of occupations in the service sector, 25.1 % of the industrial sector, and 26.1 % of the agricultural sector could be considered informational (3). Based on these findings, they identified five catagories of information workers: - information producers; information recyclers; information maintainers; information technology producers; and information technology maintainers. Similarly, the Expert Group at OECD attempted to construct a typology of information occupations utilising the 1968 International Standard Classification of Occupations by dividing information work into four groups:

- information producers,
- information processors,
- information distributers, and
- information infrastructure occupations (4).

Horne and Cronenwethers'(5) definitions of information professionals; job titles; professional categories; information functions also show such miscellanies of roles implied. The following role titles of professionals in the field evidenced the miscellany of the concept.

LIST 1.1 : INFORMATION PROFESSIONALS: SOME ROLE TITLES

Information scientist
Mediator
Gatekeeper
Resource manager
Teacher
Researcher
Practitioner
Librarian
Archivist
Manager
Keeper of books
Fact checker
Information 'source'
System designer
Leader and supervisor
Negotiator
Writer
Speaker
Fund raiser
Subject expert
Database search
Collection builder
Budget analyst
Statistian
Consultant
Telecommunications expert
Enterpreneur
Indexer
Abstructer
Information officer
Facilitator
Knowledge councillor
Communicator
Technology transfer agent

Source : Oswitch, P.A. The role of the information professionals in development. *Information development* 1990, 6 (1), 28

All the above cases attempt to show that nearly the whole complex of social institutions are engaged in information collection, processing, analysis, storage and dissemination activities in one way or another. But as Schement defined it, and as the author of this thesis believes it to be for the purpose of this study, information work occurs when the worker's main task involves information processing or manipulation in any form such as information production, or maintenance in the form of new knowledge or repackaging the existing form (6). Some of these are:

- managing information operations, programmes, services, or databases,
- preparing data and information for others - i.e editing, publishing, translating, etc,
- analysing data on behalf of others - researching, and analysis of data and information from the library, computerfile, etc.,
- searching for data and information on behalf of others - diagnosing users' need for information, identifying data sources, etc.,
- other operational functions - acquisition, control and facilitating access, etc.,
- information systems design,
- information systems analysis,
- information research and development,
- education and training of information users and workers (7).

In setting further limits to the purpose of this study, the author restricts the scope of the information work to the library and information services and applies this to the workers involved in acquisition, recording, processing, storage, retrieval, interpretation, dissemination and assistance in the use of data and information sources including the use of information technologies, as will be discussed in section 1.2.2, and 1.2.3 respectively.

1.2.2 INFORMATION SOURCES

Information work necessitates knowledge of the main characteristics of all types, and familiarity with many individual sources. Although it is rare to have to consult more than a few types of sources on any one occasion, nearly all of them are needed over a period of time. Much of the expertise of searching for information lies in choosing the most appropriate sources to consult in each case and the best order in which to consult them. Often the information required is contained in several sources. The question is which are the most promising? Which are the easiest and quickest to tap? Which should be searched first? Wise decisions depend on many factors but a prerequisite is knowledge of the sources of information. Description of the scope and limitation, ease or difficulty of consulting them is beyond the scope of this section but by way of definition, some sources which are pertinent to this study are mentioned here.

Most literature on library and information services divide information sources into the following categories :

- primary sources:- these comprise documents which contain the full text of the author's work and are complete in themselves.
- secondary sources:- provide signposts to the primary sources and can also used as primary sources for immediately usable information.
- tertiary sources : - guide to guides, bibliographies of bibliographies, reviews.
- special format materials: - physical formats

These are identified in the LIST 1.2.

LIST 1.2 : INFORMATION SOURCES

I. PRIMARY SOURCES

Monographs
- textbooks
- research
- criticisms
- imagination
- entertainment

Dictionaries
- Glossaries
- Thesauri

Directories
- business
- place
- people

Encyclopedias
- Year books

Theses/ dissertations

Reports
- sci/tech
- research
- technical
- business
- company
- professionals, anals

Incunabula

Journals
- sci/tech
- research
- business
  - news
- entertainment

Conference proceedings
- pre /post

Newspapers
- cutting services

Atlases
- gazeteers
- maps

Standards/Specifications
- patents
- law/legislative - documents

Minutes
- correspondences

Manuscripts

Ephemera
- leaflets
- pamphlets
- advertising leaflets.

Data files
- census records
- statistics
- physical constant

II. SECONDARY SOURCES

Abstracting/ indexing
Indexing
Bibliographies
Catalogues

III. TERTIARY SOURCES

Reviews
Bibliographies of bibliographies

IV. SPECIAL FORMAT MATERIALS

Computer software;
Posters; Prints; Photos; Films; Slides;
Audio/ Video tapes; Phonographic records;
Art facts; Samples

It is also recognised in the literature different catagorisations exist such as Olle into Physical, literary and bibliographical sources (8) as in LIST 1.3.

LIST 1.3 : INFORMATION SOURCES

I. PHYSICAL SOURCES

1. Printed word
2. Microforms
3. Audio: tapes and discs
4. Visual: films, film-strips
5. Videotext
6. Online

II. BIBLIOGRAPHICAL SOURCES

7. General national bibliographies
8. Published library catalogues
9. Bibliography of periodicals
10. Bibliographic control of contents of periodicals
11. Bibliographic control of conference proceedings
12. Subject bibliographies
13. Literature guides
14. Author bibliographies
15. Records of research in progress

III. LITERARY SOURCES

16. Language dictionaries
17. Monographs
18. Encyclopaedias
19. Yearbooks
20. Newspapers
21. Periodicals
21. Conference proceedings
22. Collections, festchriften and anthologies
23. Government publications
24. Statistics
25. Biographical sources of information
26. Geographical sources of information
27. Dictionaries of quotations and concordances
28. Illustrations
29. Printed emphemera
30. Theses/ Dissertations.

Source: (8, P.1)

Documents are not the only sources of information. Importantly, information can be obtained from non-documentary sources - from people as well.

1.2.3 INFORMATION TECHNOLOGY (IT)

Information technology is defined as " various means of obtaining, storing and transferring information using computers, telecommunications and microelectronics" (9). This includes both the hardware components that make up the information system architecture and the systems software that enables it to function as an integrated whole. Placing emphasis on the increasing range of its use and coverage, the British Advisory Council for Applied Research and Development defines IT as: " The scientific, technological and engineering disciplines and the management techniques used in information handling and processing; their interaction with men and machines; and associated social, economic and cultural matters" (10). With these views in mind and for the purpose of identifying information resources, the author of this thesis believes that the inclusion of the machines such as micrographic and reprographic services in the definition is important for the study.

1.2.4 FINANCIAL RESOURCES

Finance is a resource from which other resources - human , material, etc. come into practice and vice - versa. An information service is costly, as services become ever more

complex and modern technology is introduced to the systems the cost of running the service increases.

1.3 INFORMATION RESOURCES AS ECONOMIC RESOURCES

An important change in the world scene is the recent but increasing recognition of information as one of the most powerful national resources. It is considered by some as a national resource as vital to each nation as its wealth in gold, diamonds, oil deposits or human resources (11). Information is a resource that has the unique quality of being non - depletive. Whereas oil deposits, gold and diamonds, etc. are all exhaustable, information is not. It increases with use and the more it is used the more productive it becomes. Another property of information is the fact that other resources depend on it for their full evaluation and utilisation. What we make of our material resources depends on what we conceive them to be, and this in turn depends on what information we have on them. But information is a resource only if it is recognised as such. Its effectiveness, like the other resources, depends entirely on what is made of it. As an undeveloped asset goes to waste, and an unmined mineral lies buried in the ground, so is the case with information resources. As stated in the Economic Cooperation and Development (OECD) report on European industry (12), information and knowledge, rather than capital and production of manufactured goods will become the central issue around which competition will develop. The shift is taking place

now. The huge investement in information by the industrialised countries illustrates this fact.

It is estimated for instance that the total United States expenditure on information increased by 400 % from 23 billion dollars per annum in 1950 to about 115 billion dolars in just a matter of two decades (in 1970) (13). This is well expressed by Dizard who stated that : " the shift is taking place now, the one we need to know more about, is moving us toward an environment in which information production and distribution will overshadow material production" (14). Growth in agriculture and industry is no longer the major impetus of social development, but is being replaced by an information based thrust that draws on human resources and capital to transfer knowledge into many forms of physical and social activities to generate wealth in new ways, and in the process, to profoundly alter goals and values (15).

1.4 ROLE OF INFORMATION RESOURCES IN WORLD ECONOMIC ORDER

Developing countries suffer from the same basic causes of poverty, antiquated political economies based on agriculture and rising population . Because these economies are not able to generate a high level of surplus capital, there are insufficient funds for the social and technical infrastructure necessary to create alternative economic forms.

This infrastructure requires education and research facilities, a population trained in scientific and technical disciplines, and communication systems that generate and disseminate information. So, the great disparity in economic, social, education, scientific and technical development between the developed and developing countries can in part be ascribed to the disparity of the quality, quantity and degree of scientific and technical information available to the use of such information for their prosperity.

While developing countries wrestle with their own structural contradictions, current economic crises, added to unmanageable debts(16), growing famine and social unrest, the developed world presses on with technical and organisational changes that increase its power over information resources. As a result, the earlier movement away from agriculture and into industrial production was nearly complete. The next stage was the transformation into " post-industrial" economics where "knowledge - based" industries relying on information flow and telecommunications employed an increasing majority of labour force and molded an "information society" of electronic consumers (17). Developing countries, unable to make this transformation saw the new technologies as a threat, leading to wider technological gaps and increasing dependence on "information societies". This keeps the information - rich even richer, widening the gulf between them and the "information - poor".

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CHAPTER TWO

2. ETHIOPIA

2.1 INTRODUCTION

The status of library and information resources in Ethiopia cannot be studied in isolation from the general economic and social situation in the country. This chapter, therefore, provides general information about Ethiopia including its geography, historical background, infrastructures: transport and communications, education, and research and development activities. All these are very much linked to socio-economic development and the general library and information situation in the country.

2.2. GEOGRAPHICAL FEATURES

Ethiopia is situated on the Horn of Africa covering an area of 472,400 sq. miles (1,223,600 sq. km.). It is twice the size of France or four times that of G.Britain and Northern Ireland. It is bounded on the West by the Sudan, on the South by Kenya, and on the East by Somalia and Djibuti. It has a 628 mile coastline along the Red Sea, on the Northeast, about 150 Red Sea lands belong to Ethiopia. There are 24 administrative and five autonomous regions. The Capital City, Addis Ababa is situated at the centre:- about 700 miles from the North, Northwest, Southeast, and 640 miles from Northeast points of the country.

2.3. POPULATION

The first census was carried out in 1984. Population (preliminary) by that time was 42,019,418 (1) and the estimate for 1989 was 47,709,000 at the rate of natural increase of 27.7 per 1,000 (2). According to the 1985 estimate 38,531,089 were rural and 4,518,542 were urban dwellers(3). An urban area refers to all localities that are accorded an urban status by the Ministry of Housing and Urban Development. There are 322 urban areas (4). As a result of a national literacy campaign, which took effect in the mid 1970's, more than 62.4 % of the population are now able to read and write (5).

2.4. HISTORICAL AND POLITICAL BACKGROUND

Ethiopia occupies a unique position on the African continent as it has remained an independent political entity almost continuously for 1,500 years.

It is one of the countries posessing an ancient civilisation with an ancient script of its own that goes back as far as the fifth century B.C. Use of the script was widespread in the churches and many monastries throughout the country. The oldest literary language in Ethiopia, Geez, was first used for writing of Christian texts in the 4th century A.D.(6). Geez was the literary language of Ethiopia until it was replaced by Amharic, the official language, in the 19th century.

The earliest literary records consist of inscriptions written on hard surfaces, mainly stone, metal and clay. Monumental writing on walls of rock and granite steeles, religious writings on clay, iron implements, gold, silver, bronze, and iron coins were the main media both during pre - christianity and christian eras. Christianity was introduced in Ethiopia in the 4th century when the Bible was translated into Geez from Greek coptic and Arabic (7).

Ethiopia was governed by a monarchy until 1974, but since then has been administered by Military Government under socialist forms of political and economic systems. At the time of writing this dissertation the rebel force Ethiopian Peoples Revolutionary Democratic Front (EPRDF), overthrew the Military Government and have full control of the country. EPRDF has now established an interim government and therefore the political situation of the country is not clear at present.

2.5. ECONOMIC CONDITIONS

Ethiopia has a centrally planned developing economy largely based on agriculture.

Development efforts over the past years have been and continue to be frustrated by a combination of a host of factors. These factors include, among others, adverse climatic conditions, environmental degradation, unfavourable external economic environments and absence of peace which is an important condition for effecting the ability for sustainable development in the country.

According to the report made by Getahun on the *First National Conference on Science and Technology Policy of Ethiopia, 20-25 June, 1988*, the economic performance over the past decade, though fluctuating, was generally poor. Over the period 1977 - 1984, gross domestic product grew annually by an average of 2.3 per cent while the rate of increase of population averaged 2.8 per cent per annum. As a result per capita GDP declined from 204 Birr (US $98.55) in 1977 to about 194 Birr (US $93.71) in 1987 representing a drop of about 5 per cent over the period mentioned (8). Agriculture accounts for approximately one half of the GDP and employs more than four fifths of the workforce (9). About 90 per cent of foreign exchange earning occurs from the export of agricultural commodities. The manufacturing industries mainly process agricultural products (10). Industry accounts for about one sixth of the GDP and employs less than 10 % of the workforce (11). Similarly, the service sector accounts for one third of the GDP and employs approximately one eighth of the workforce (12). The country's overall balance of payments has also deteriorated over the past decade due to a growing deficit in the trade balance (13). Ethiopia's substantial balance of trade deficit can be attributed to its internal disorders, which have lowered the production of exports. Exports are largely composed of coffee, hides and skins.

2.6. TRANSPORT AND COMMUNICATIONS

The transport and communication service in Ethiopia is organised under the Ministry of Transport and Communication and embraces four areas, namely: inland transport which includes road and rail transport; marine transport; air transport and communication which consists of telephone, telegram and postal services. Road transport accounts for 94% of passengers and goods traffic in the modern transport services (14).

Motor vehicles: in 1989 there were 41,300 cars; 8,800 lorries and trucks; and 3,041 buses were available (15). Railway: the Ethio - Djibuti Railway linking Addis Ababa with Djibuti, is the main railway through which ten per cent of the country's import/ export trade is channelled (16).

Air transport is facilitated by 35 airports, three of which are of international standard and the rest are air fields. Ethiopian Airlines has 28 airplanes which range from old DC3 to the modern Boeing 767 and is rendering technical and managerial services to African and Middle East countries (17). Marine transport is handled by three organisations, namely, Marine Transport Authority, Shipping Lines Corporation, and Maritime and Transport Service Corporation. About 90 per cent of the country's foreign trade is served by the two national ports, Massawa and Asseb. The cargo handling capacity of the two ports is about 1,850,000 tons of freight per year and can give

service to 12 large ships at a time. About 15 % of the freight is transported by national ships (18).

All the main centres in the country are connected with Addis Ababa by telephone services. The number of telephones in 1986 was 162,000 (19). The Ethiopian Telecommunication Authority (ETA) had been in the process of digitising the telephone system in the country. By now the conversion to a digital system in Addis Ababa has been completed. There are plans to digitise the telecommunication system in all, except the most remote, adminstrative regions of the country. Currently the ETA has also established 140 Mbit/ Sec microwave and optical fibre in Addis Ababa for public services.

The Ethiopian Postal service is a member of the World Post Union (WPU) and carries any kind of item (except those which are restricted by the constitution) nationally, regionally and internationally. At present about 888 post offices are operating throughout the country. According to unpublished report by the Ethiopian Science and Technology Commission, an electronic mail and fax system project is going to be introduced (20).

2.7. POWER AND ENERGY

The most important central urban regions have electric power supply. Over 92 % of the energy supply is from firewood, charcoal, dung and crop residues. The main electric power source is hydro-electricity although imported fuel (approximatly 800,000 tons of crude oil and

30,000 tons of refined oil annually), supply 22 % of the public power systems (21).

2.8. EDUCATION

2.8.1 GENERAL

Much has been written about the role played by the church and the mosque in providing education over the centuries, as the only access to education for the people of Ethiopia.

In the field of education there have been impressive advances. A very large proportion of the population now participate in learning. Intensive efforts to eradicate illiteracy have won world - wide acclaim, including a medal from United Nations Education Scienctific and Cultural Organisation (UNESCO). About 1,674,717 million people have earned literacy certificates (22). One of the moving sights to experience in the towns is the huge number of adult and young people filling the streets on their way to evening schools. Primary education commences at seven years and continues with optional secondary education at 13 years. According to *Basic Education Statistics* 1989 (23), in the academic year 1989 there were more than 2.5 million pupils in primary schools with a rate of growth of 9 %. In the secondary schools (including junior secondary schools), there were about 874,000 students with a growth rate of 12.6 %. There were 8,584 primary schools with 65,993 teachers and 1,370 secondary schools (including junior secondary schools) with 21,334 teachers. Some 160,000

candidates attempt the Ethiopian School Leaving Examination every year (24).

2.8.2 HIGHER EDUCATION

In Ethiopia, University level education dates back to the early 1950's and unified university organisation was established in 1961. Since then the number of institutions of higher learning has increased significantly, ten having been established since the mid 1970's. There are about 28 institutions/faculties/colleges/ of higher learning to date. In the 1989 academic year student enrolment to these institutions/colleges/faculties totalled 17,707. These comprised 10,547 undergraduate degrees and 6,657 undergraduate diploma of regular programmes. During the same year the evening student enrolment was 3,894 for undergraduate degrees and 7,517 for diploma programmes (25). This brings the total enrolment of students to 29,218 in 1989.

Addis Ababa University started its first postgraduate programme in 1978 and doctoral programme in 1985. Since then about 400 students have graduated at MA/M.Sc degree and six at PhD level (26).

2.8.3 LIBRARY AND INFORMATION SCIENCE EDUCATION

The situation of library and information resources in Ethiopia will be discussed in section 3.2.7. In the following section only some aspects of library science education are presented.

Attempts to introduce library science education are only recent. From 1959 to 1964 some short introductory courses were offered at the National Library in Addis Ababa and the former University College of Addis Ababa during the summer vacation (27).

In 1966, a library science department was established with two programmes, one for diploma and the other for a minor, at the Haile Selassie I University, (now called Addis Ababa University), Library Science as a minor available was for those who majored in other academic subjects. It consisted of 26 credit hours distributed over four academic years (one credit hour is 1 lecture hour per week) of library science courses. The objective of the minor programme was to train teacher librarians who would go out to various secondary schools to organise school libraries and at the same time teach in their major academic areas (28). The full-time course consisted of 32 Semester Credit hours (one semester credit hour is one lecture hour or three laboratory hours per week per semester of 16 weeks) and was designed to produce junior librarians. Both programmes lasted until 1976. During the period, a total of 150 students graduated from the minor and 100 from the Diploma (29). Two years later, in 1978, a Diploma programme aimed at producing para-professionals, was reinstated with a revised curriculum consisting of a total of 63 semester credit hours. It extended over two years in regular (day) classes, or three years in evening classes. The curriculum tries to cover the technical areas of library activities

such as cataloguing and classification with extended three contact hours of lectures and practical work per week of 16 weeks. Three hundred and sixty five trainees have graduated from this diploma programme (30). Since the establishment of formal education then, about 465 trainees with diplomas, and 150 with a minor in librarianship have graduated. The enrollment of 112 to the regular and 107 to the evening programmes of the Department in 1989 will make the sum about 600 by the end of the current year (31).

Another development took place in 1990. A library and information science undergraduate degree programme, which takes four years to complete in regular classes and seven years in evening classes, has commenced. It aims to produce manpower that has the necessary competence and confidence to design, organise, manage and develop small libraries and information centres in the various sectors throughout the country. One of the main reasons for introducing this programme was to introduce information science into the curriculum, as this is lacking in the existing diploma programme. The programme was also intended to provide logical linkage with a regional postgraduate course in information science commenced in 1990, as will be discussed in section 4.2.3.

2.9. RESEARCH AND DEVELOPMENT (R & D)

Research in Ethiopia is a recent activity. It received some impetus with the establishment of the University and other research institutions in the 1960's. The initative

came from expatriates who were employed in the various faculities of the university (32). The research projects undertaken depended on the personal interest of these individuals. The work was also of a basic nature. *Register of current research on Ethiopia and the Horn of Africa 1963 - 1971* published by the Institute of Ethiopian Studies gives a broad indication of the area and extent of research activities during that time in Ethiopia. It shows that during the period, out of a total 844 projects 468 were completed by 48 local institutes, while the remaining were by foreign institutions or individuals. The fields covered were: agriculture, forestry, buildings, geology, medicine and natural sciences (Botany, Zoology, and Palaeontology).

Since 1974, R & D activities in the country have been given impetus and recognition. In 1975, the Ethiopian Science and Technology Commission (ESTC) was established by proclamation as a principal Government body. Its aims are :

- " to encourage, strengthen and guide the search for scientific knowledge and the pursuit of technological developments emanating therefrom and applicable to the alleviation and surmounting of hardship in the life of the broad mass of Ethiopia as well as to raising their productivity, and
- to encourage, strengthen and guide the search for Ethiopia's natural resources and the development of those technologies which applied thereto serve to win optimum yield in all sectors" (33).

There are now more than 20 autonomous and semi- autonomous organisations in R & D units and laboratories in colleges and universities: Addis Ababa University, Asmara University, and Alamaya University of Agriculture supported by the goverment, regional and international organisations.

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CHAPTER THREE

3. ASPECTS OF INFORMATION RESOURCE AND SERVICES IN ETHIOPIA

3.1 INTRODUCTION

This chapter is primarily concerned with the issues of library and information resources in Ethiopia. However, the author believes that this cannot be meaningfully discussed in isolation from a total information generation, transmission and use prospect of the country in general. The first four sections of the chapter therefore, provide the oral traditions, medias (Radio, Television and Press), printing and publishing activities, professional associations and some other specialised institutions mainly committed to the generation, collection, organisation and dissemination of information in one way or another. Following these, the environment of library and information resources in the country is presented. The method used to assess the resources in this section is mainly based on the surveys which took place in previous years and personal experience and observation of the author as a librarian within the environment under discussion.

3.2. ORAL TRADITIONS

Continuity of social institutions is the preservation and advancement of knowledge and the learning process (1). In Africa, as indeed in other parts of the world, most individuals have traditionally acquired their skill,

knowledge and attitude from agencies and institutions other than formal education. The African's family, peers, culture and social institutions have continued to play a significant role in individuals' total learning experience. In a non-literate society, this takes place in the form of verbal, ceremonial,legends, myths, poems, etc. It was learning acquired through this process of oral communication that used to constitute the traditional African method of perpetuating the cultural, social, political and economic traditions from generation to generation.

The making and transmission of cultural beliefs in Africa was the task of priests, elders and wise men in general, not of librarians, historians, or publishers in the modern sense. Amadi calls this " indigenous African librarianship", and describes them by saying " they are not only a form of libraries without shelves but in addition they served as mobile libraries that packaged and disseminated information wherever the target audience was physically located" (2). So, in Africa an old man is revered as a seat of wisdom. Amadi, when noting the importance of elders as sources of information in this society ,said " The grief arising from the devastation of a library by fire or similar causes in the Western World is only comparable in intensity to the loss, through death, of an old man in Africa" (3).

Ethiopia is not an exception, and though she was the only country to have a long tradition of literary activities with her own literary alphabet in Africa, the influence of oral tradition is apparent even today. The author of this dissertation has personally witnessed the fact that researchers in the Humanities and related fields still seek elderly members of the community as supporting evidence for their research findings in Ethiopia. The knowledge which the elderly have accumulated over the years is often substituted for the absence of written documents.

3.3 RADIO, TELEVISION AND THE PRESS

Information for the mass media is collected from various national, regional and international sources. Nationally, the Ethiopian News Agency (ENA) is one of the sources of information. There are about 39 ENA stations in the country used as information feeders to the mass media (4). Regionally and internationally, Pan Afrcican News Agency (PANA) and Reuters are the major sources. Communication media are strictly controlled by the government by a number of means including precensorship. There are five radio and TV stations. According to the 1986 statstics, there were 45,000 television sets, and two million radio receivers with the ratio of 1: 1000 and 1: 24 of the population respectively (5). Another source shows the increament of these figures to 60,000 televisions, and nine million radio receivers in 1990 (6). Hence, the ratio of the current year would be about 1: 800 and 1: 5 of the population

respectively. Information is disseminated through the mass media in nine different languages, including English. There is one government station which makes sound broadcasts on the medium and short waves. Its home service is on air for 121 hours a week broadcasting in six local languages and international languages, English, Arabic and French (7). There are approximetely 8,569 annual programmes, of which 4,316 hours provided general information, 478 hours educational, 322 hours cultural, and 3,457 hours for entertainment programmes (8). The Ethiopian Television programmes are on air for 61 hours a week in Amharic and English languages (9).

Various government organisations use various media for communicating with their respective audiences. The Ministry of Education, for example, owns eleven radio transmitters situated in different parts of the country (10). They are devoted to broadcasting programmes with formal and informal educational contents. Similarily, the Ministry of Information, on its own initiative and in co-operation with other government organisations, uses the national radio and television services for broadcasting programmes on specialised areas, such as science and technology. There are three government controlled daily newspapers in Amharic, Tigrigna, and English languages with a combined circulation of about 47,000 (11) - which is about 1 per 1000 population. There are also about 14 newspapers published weekly and fortnightly by the government or government organisations in local languages

(Amharic, Oromogna, Tigringa), and two international languages (Arabic and English).

3. 4 PRINTING AND PUBLISHING ACTIVITIES

Although Ethiopia has a long tradition of literary activities the concept of publishing is new in Ethiopia. It is certain that most people do think publishing houses, whose task is to provide the investment cost of a book and get the author's work in the hands of the public, is easily considered as printing process because they are only familiar with printing presses. The printing press was introduced to Ethiopia in 1863 in association with a religious mission (10). Following this date, government and other missionary presses were imported and have been used in commercial circles, and for government decrees, proclamations, notices, newspapers and also for foreign diplomatic publications.

Though there exists a shortage or lack of 'modern' technologies, the printing industries in Ethiopia, though concentrated in Addis Ababa and Asmara , are now relatively expanding. Most presses use hand composition systems. Some larger printing presses such as Artistic and Berhanena Selam use a combination of monotype, linotype and photosetting. Berhanena Selam Printing Press is the only one which is using computer typesetting, especially for newspapers. In the press stage, most printing is dominated by platin and cylinder press while some are operated by various models of offset lithography. Some

printing presses are organised under the auspices of the Ethiopian Printing Corporation and a few are private and institutional printing presses. Though effort has been made by the Ethiopian Printing Corporation to advance printing activities to increase the efficiency and quality of printing in the country, a number of printed products which could be printed locally have been printed abroad.

Despite the claim which some printing houses make saying that they too act as publisher in certain cases, they have shown very little effort in this respect. Current Publishing activities in Ethiopia are undertaken by publication sections within the government organisations/ institutions which are meant to serve their respective hosts, and very few government publishing houses focus on book publishing.

Publishing sections at the government and non-government institutions produce regular and irregular publications of special interest in their areas. Among such specialised publishing houses it may be important to mention the institution called Educational Materials Production and Distribution Agency (EMPDA), which was set up under the Ministry of Education in 1975 with major objectives to:

- "prepare, publish, and print textbooks, reference materials and other educational publications, such as charts, maps, wall pictures, etc.;
- make publishing materials available for adults who are engaged in active production or for those who did

not get the opportunity of going to school so as to combat illiteracy and enhance national development" (13).

Since its establishment, EMPDA has published and distributed more than 250 titles of students texts, teachers and curriculum guides. It has also published and printed a number of books required to carry out the ongoing National Literacy Campaign, primers, follow-up books and instructional manuals in the national languge, Amharic and 14 other major nationalities languages. According to the sources during 1979 - 1986, a total of approximately 39,998,176 copies of books and other instructional materials were published for the Campaign (14).

Here, it may be worth noting that the tradition or capability of publishing professional writings on science and technology is very low except by these sections/ departments of specialised institutions and some professional associations (as discussed in section 3.4). Even Kuraz Publishing Agency (KPA), which was founded by the government in 1981 and supposidly " well structured", cannot handle publishing on specialised fields.

KPA receives such publications from every sector and refers them to organisations particularly concerned with the given special field of study for further examination and approval of the contents. The main problem experienced from this procedure, is the difficulty of protecting the author's work and the delay of publishing. Since its

establishment, KPA has published about 175 titles that were distributed in more than four million copies which according to the source categorised as children's books, literature, and general knowledge. Of these, 50 % is literature, 30 % books on general knowledge and 20 % childrens books (15). It also imports books on science and technology, general knowledge, social sciences and literature and distributes to the public through its 49 retail shops operating in different administrative and autonomous regions. Since its establishment, it has imported about 3,500,000 books (16). But the source does not indicate whether these figures refer to copies or to unique titles.

3. 5 PROFESSIONAL ASSOCIATIONS

As discussed in the previous sections (1.2, 1.3), creation of widespread awareness of S & T, dissemination of R & D findings and diffusion of indigenous and appropriate foreign technologies are necessary if these are to be utilised as instruments for improving the quality of life for the people in developing countries. Professional associations have an important role in this respect. They generate, collect, process and disseminate information through bulletins, newsletters, conferences and seminars and informal communication.

In Ethiopia, there are professional associations, though they do not have legal status (17). The establishment of

the Ethiopian Medical Association and along with it the coming of the *Ethiopian Medical Journal* was a major breakthrough for S & T publication in Ethiopia. As a consequence, scientists and researchers have begun to organise themselves into professional associations and societies and they have started to initiate their journals, newsletters, bulletins, etc. *Hissab, the Mathematical Journal*, the *Bulletin of The Chemical Society of Ethiopia*, the *Voice of Teachers* and *SINET, the Journal of Sciences* are some of the regular publications issued by professional Associations/ societies. But the rate of output is unsatisfactory due to lack of relevant and useful S&T information, lack of technical facilities, low financial support for research and publication, lack of trained manpower, for example technical editors, and the absence of legal status (18).

3.6 SPECIALISED INFORMATION SERVICE

The definiton of information work, as discussed in section 1.4, is argumentative. Recalling back the definition for the particular purpose of this study, the author likes to acknowledge information service bodies, here in this section, those government institutions that have been established with the aim of generating/collecting, analysing, organising and dissemination of data/ information in specialised fields.

A few of such institutions and their purpose in Ethiopia are:

- National Meteorological Service Agency:- the principal objective of which is collecting, disseminating, exchanging analysed and interpreted metreorological data and forecasting locally and globally.
- Ethiopian Mapping Authority:- collects, analyses and interprets, and disseminates geoinformation.
- Central Statistical Authority, whose duties are collecting, organising, analysing, publishing and disseminating statistical data to support planning and decision making in the country in every sector and at all levels.

3.7 LIBRARIES IN ETHIOPIA

Though the history of collection of monastic and royal manuscripts, goes far back to the 5th century, the history of libraries in the modern sense, however, is relatively recent. It was in the 1930's that libraries as we know them today began to emerge, with the introduction of modern education. The national library of Ethiopia was established in 1944 and the first academic library was set-up in 1950, followed by the Haile Selassie I University in 1961.

Much has been written on the early library and information activities in Ethiopia. The MLS thesis entitled *An infrastructre for documentation, library and archive services in Ethiopia* by Essaias Demissie (19) and a paper *On information work in Ethiopia* by Adhana Mengstab (20) can

be cited as important examples. The existing situation of resources and services of the libraries, information and documentation Centres/units in the country is also well covered by the surveys undertaken by the Ethiopian Science and Technology Commission (ESTC) in 1987 (21) and by Yohanis Tilahun(22).

The survey by ESTC in 1987 was the first of its kind in trying to encompass all types of libraries, information and documentation Centres/Units and covered a number of Administrative Regions of the country.

Sixty three library, information and documentation centres were covered by this survey. The 1990 survey by the same institute was more selective . It could only cover those centres selected to make cooperative agreements as the first phase of a programme of coordinating activities of library and information services. Tilahun's survey has covered libraries in Addis Ababa with especial reference to public and school libraries.

The author of this theses, therefore, takes the benefits of these surveys to extrapolate some data that are relevant to the purposes of this study. Here, discussion is made on the groups of libraries and documentation services which are categorised based on their areas of establishment and/ or convenience for the puposes of the analyses. These are:

- Research and higher education institutions.
- Service rendering institutions.

- Manufacturing institutions.
- Schools.
- National and public libraries.
- National Scientific and Technological Information and Documentation Centre (NASTIDC).
- Non- Government organisations.

Of course, there are some institutions involved in more than one of these categories. For example, the Ministry of Industry, and the Ministry of Urban Development and Housing which do research, and are involved in production activities including training and consultancy services attached to their areas. Here they are categorised under manufacturing and service rendering institutions respectively.

3.7.1 LIBRARY/ DOCUMENTATION SERVICES' RESOURCES IN RESEARCH AND HIGHER EDUCATION INSTITUTIONS

Higher education institutions are not only providing training to produce professionals, they are also committed to research and consultancy services. Besides, postgradute study in universities requires the submission of a research -based dissertation.

By the 1987 survey (23), 16 libraries, documentation centres of institutions of higher education and 12 of research institutions' were covered. Sixty pre cent of these research institutions, are devoted to agricultural research.

Among higher education institutions, Addis Ababa University consists of a central library and thirteen branches located near the faculties they serve. Assessment of the information resources particularly :- information sources, information technology or equipment, information workers and financing conditions of these institutions are shown in table 3.1. These figures and those in subsequent sections of this chapter have been compiled from the surveys by the Ethiopian Science and Technology Commission (24) and Yohanis Tilahun (25).

TABLE 3.1 : SOME ASPECTS OF LIBRARY AND INFORMATION RESOURCES IN RESEARCH AND HIGHER EDUCATION INSTITUTIONS

NO. OF INSTITS.	INFORMATION RESOURCES	DESCRIPTIONS	QUANTITY/ NUMBER
28	Information sources	- Books	1,600,000
		- Documents	158,000
		- Periodical titles	5, 600
		- Microfilms	20,000
	Information technologies	- micrcomputers	8
		- photocopy mach.	6
		- binding "	4
		- duplicating "	5
		- microfilm read/pr	30
		- film projecters	10
	Intermediaries	- professional (Library Science)	27
		- sub-professional (Library science)	71
		- professional (other fields)	20
	Budget	58 % of the budget indicated is for Addis Ababa University	Birr 2,577,331 or ($ 1,245,087)

About 90 % of the information resources shown in the above table belong to higher education institutions and more than 50% relate to the Addis Ababa University library alone. Special format materials, such as microfiche, cassettes, etc are available but in very small quantities. From the years, 1984, 1985 and 1986 the average annual additions of information sources of these institutions were about 878 books and 139 periodical titles. But it is important to note that according to the survey (26), 18.75% of research institutions' and 68.75% higher education institutions' libraries did not have any addition of books for these three years (1984,1985,1986). During the same years, for some institutions, the figure for annual additions was at a decreasing rate. The Addis Ababa University library, one of the largest libraries in the country, had no new additions of periodicals in these years. Except in Addis Ababa University library, and a few research and special libraries, acquisition of secondary and tertiary sources is not common in most libraries in Ethiopia.

Although centralised computer facilities are available in some institutions, the library or documentation units of these have no access to them. The micro-computers mentioned above are owned by libraries of three institutions.

As shown on the table there are about 27 professionals, 71 sub-professionals in library science and 20 educators in other fields of study. But 40.75% of these professionals

in library science are working in Addis Ababa University libraries. Most libraries of research institutions are run by one sub-professional.

Though budget is a driving force of the libraries or information and documentation centres, only about 31% of the libraries of higher education institutions' actually have an allocated budget for the service from the government and the budgets themselves are far from satisfactory. As the source shows the budget for Addis Ababa University libraries' during 1987 was 1,500,000 Birr(US $ 724637), which was twice the amount of the budget of the four other higher education institutions together (27). The budget situation in libraries/documentation centres of research institutions was also not encouraging. Only approximately 38% of these institutions have a defined budget from the government.

Some libraries of higher education and research institutions are occasionally supported by national, and international development assistance institutions such as United Nations agencies (World Bank, United Nations Development Programmes (UNDP), Food and Agriculture Organisation of United Nations (FAO), etc), British council, Sweden Agency for Research and Development Cooperation with Developing Countries (SAREC), etc.

3.7.2 LIBRARY/ DOCUMENTATION SERVICES' RESOURCES IN SERVICE RENDERING INSTITUTIONS

Service rendering instititions, are government organisations that have been established to serve fully or partially the activities of other social and economic sectors of the country. The 1987 survey of libraries, information and documentation services in the country (28) has also covered library/ documentation centres of these institutions. From this survey some aspects of the information resources are projected on table 3.2.

TABLE 3.2 : SOME ASPECTS OF LIB. AND INFORMATION RESOURCES OF SERVICE RENDERNIG INSTITUTIONS

NO. OF INSTITS	INFORMATION RESOURCES	DESCRIPTIONS	QUANTITY/ NUMBER
19	Information sources	- books	51,654
		- documents	110,000
		- periodical titles	2002
		- microfilms	1000
	Information technology	- Microcomputer	1
		- photocopying mach.	13
		- microfilm readers	4
		- binding Mach.	4
		- film projectors	3
		- duplicating mach.	9
	Intermedi-aries	- Sub-professionals	17
	Budget	Most did not have defined budget	Birr 137,257 ($ 66307)

On this table secondary and tertiary sources are not shown because libraries of these institutions, and any other libraries in Ethiopia, hold a very insignificant number. The same is also true regarding collections of special formats. Only one library has been reported as holding about 500 microfiche and 500 microfilm format materials.

The only micro-computer, here used for library and documentation services is owned by the Development Project Study Consultancy Agency. Though a mini-computer and 24 micro-computers are available in the Central Statistical Authority, its library service unit is not using these facilities. Similarly, the National Meteorological Agency has also some micro- computers for meteorological data processing activities, but not used for library services.

Inadequacy of manpower is also one of the major problems existing in most of the institutions. Moreover, the staff running the library are not properly trained. About 33% of the libraries, documentation units do not have any staff trained in the fields of library or information sciences.

Except for salaries, most libraries/documentation units were reported to have no defined budget. Most puchasing or subscription is made from the budget of the host when a strong request for particular item is raised from staff. However, about 25% of libraries in this category do have defined budgets for the services.

3.7.3 LIBRARY/ DOCUMENTATION SERVICES' RESOURCES IN MANUFACTURING INSTITUTIONS

This refers to the manufacturing sector which is organised under the Ministry of Industry. Nearly all manufacturing industries were set up in the past fifty years by the state or private entrepreneurs, most often foreigners, or having major shares. The ownership of all such major industries is now transferred to the state. The manufacturing sector is little developed in Ethiopia. As discussed in section 2.5 its current contribution is about 11% of GDP, 0.3% employment out of the total active population and 11% to the country's export earnings. Library and documentation services in this sector are also far from adequately supporting economic development activities. The survey in 1987 (29) assessed four libraries of manufacturing industries and gave a picture of information resources as indicated on table 3.3.

TABLE 3.3 : SOME ASPECTS OF LIB. AND INFORMATION RESOURCES OF MANUFACTURING INSTITUTIONS

NO. Of INSTITS	INFORMATION RESOURCES	DESCRIPTIONS	QUANTITY/ NUMBER
4	Information sources	- books	2730
		- documents	912
		- periodicals	604
	Information technology	- Mini-computer	1
	Intermedi-aries	- sub-professional	6
	Budget	Two have defined budget	Birr 20,000 ($ 9661)

According to the survey there was an average addition of only 104 books in the three consecutive years before the survey. Although useful, secondary and tertiary sources are not significant in number. Special format sources such as microfilms, slides, audio/ video cassettes are available but are also not significant in number. The library at the Ministry of Industry is the only one using the advantage of Hewalett Packard(HP) Mini-Computer facilities of its host, connected by terminal. Otherwise, according to the survey, there is no information technology, even as defined for this study, for library and information use. Except for the salaries of the information workers, two libraries did not have a budget. The other two libraries, one library at the office of the Ministry of Industry, and the other at the

National Chemical Corporation have a defined amount of budget but this is inadequate.

3.7.4 SCHOOL LIBRARIES RESOURCES

The number of elementary and secondary schools including the number of students and the growth rate, as has been discussed in section 2.8, is encouraging. Out of the twenty-one secondary schools in Addis Ababa, nine comprehensives have reported better library resources than other school libraries in the city, though often with outdated stocks. Four of these will be discussed in this section as examples. The growth of schools demands proportional growth of libraries to support the curriculum. This also calls for reasonable quantity and quality of library holdings, staff, equipment and budget for the purpose as well. Extrapolation from the survey of 4 school libraries in Addis Ababa (30) and of other administrative regions (31), on table 3.4, shows some aspects of library resources in schools.

TABLE 3.4 : SOME ASPECTS OF SCHOOL LIBRARIES RESOURCES

NO.OF SCHOOLS	INFORMATION RESOURCES	DESCRIPTIONS	QUANTITY/
8	Information sources	-Books	40,172 titles
	Information Technology	-	
	Intermedi-aries	- Professional - Sub-professionals	1 3
	Budget	No defined budget	

The four reported high school libraries in Addis Ababa have approximately 25300 books altogether, whereas members of the community (students, teachers, administrative staff) of these schools are about 22970. The ratio of the books to the users is about 1: 1. The condition of high school libraries outside Addis Ababa is worse. The survey of four school libraries in four administrative regions shows the total number of books to be about 14860, whereas the user communities served can be twice as large as the figures given for books.

Here, the World Bank should be acknowledged for its funding of the initial phase in the supply of books for new schools which is usually about seven thousand volumes, or one title per student (32). Both library groups (the Addis Ababa's and the other Regions) did not have equipment for supporting the collections. Moreover, these eight high

school libraries together have only one professional and three sub-professionals in library science. The ratio of sub- professional intermediaries, to the school community is about 1: 7660. It is therefore, not difficult to imagine the level of service in school libraries.

The library workers earn budgeted salary. But there is no defined budget for the library activities, although a certain amount of money is allocated for acquisition and pressing needs from the other income sources initiated by the schools. For example, there is a policy on the side of the Ministry of Education that 30 % of the school income from textbook rental (students pay rents for using textbooks in a given academic year) should be allocated to the library for acquisition.

3.7.5 PUBLIC AND NATIONAL LIBRARIES RESOURCES

Public libraries serve the whole population. They serve all those who have the ability and interest to read and understand or enjoy their facilities.

The Public Library Division of the National Library is the main library resource of the city of Addis Ababa. In the capital, some 60 % of the 284 Urban Dwellers Associations have some provision of reading rooms and three have grown into libraries with regular staff (33). The British Council library also provides an invaluable alternative public service. As an extention of its services, the Public Library Division of the National Library has also

established public libraries in Administrative Regions in the country. Furthermore, about six thousand reading rooms have been established as part of the effort to sustain literacy (34). Attached to this, the Education Materials Production and Distribution Agency (EMPDA), has published ten million booklets in 15 Ethiopian languages for post-literacy reading, though this is still far less than required(35).

The National Library, as a central depositary of all indigenous documentary materials has a big collection of manuscripts. The Institute of Ethiopian Studies' library, a branch of the Addis Ababa University library, has over the years vied with the National Library in the collection of Ethiopian manuscripts, which are locally published books, and material about Ethiopia published abroad. Better funded and staffed than the National Library, it was, and still is, the leading research library for Ethiopian studies in the country. The Library of the Institute of Ethiopian Studies is grouped under the research and higher education institutions. Therefore the data in this section does not include the resources of this library. The situation of resources in public libraries in Addis Ababa is covered in the survey by Tilahun (36). The survey of some libraries in the country by ESTC has also included three public libraries in other Administrative regions. Data extracted from these two surveys are shown in table 3.5.

TABLE 3. 5 : SOME ASPECTS OF PUBLIC AND NATIONAL LIBRARIES RESOURCES

NO. Of LIBS.	INFORMATION RESOURCES	DESCRIPTIONS	QUANTITIY/ NUMBER
8	Information sources	- books	171,275
		- documents	12,425
		- periodical	351
		titles	351
		- cassettes	35
		- slides	4000+
		- microfilms	55
		- brial books	348
	Information technology	- microfiche reader	6
		- photocopying mach.	2
		- binding "	1
		- film projector	5
		- audio/video reco.	10
	Intermedi-aries	- professionals	3
		- sub-professional	37
	Budget		Birr 21,115 ($ 10,200)

As the table indicates, out of the total collections the National Library has 100,000 books, 12425 documents and 230 periodical titles. The library also holds special format materials such as about 200 cassettes, 35 titles of slides, 55 titles of microfilms and 348 braille books. Other libraries serving the public in Addis Ababa are The British Council library and the Addis Ababa City Council library. The Britsh Council library has more than 36,900 books and about 113 periodical titles ; The Addis Ababa City Council

Library has 3512 books and 10 periodical titles. Four public libraries at four Administrative Regions together have 30,863 volumes of books, but no periodical titles (37).

According to the surveys, the National Library has only a photocopying, and binding machines, whereas the British Council library has equipment such as photocopying machines, film projectors, audio and video recorders, and microfiche readers and printers.

The National Library is staffed with two professionals and 19 sub-professionals whereas the four public libraries of the Administrative regions have eight sub-professionals in library science. The British Council library has one professional and three sub- professional librarians. The Addis Ababa City Council library has seven sub-professionals.

The budget of both the National Library and the Addis Ababa City Council library for 1987 was about 21,115 Birr (US $10,200) whereas the budget of the British Council library during the same year was 369,792 Birr (US $ 178, 643). The four public libraries of the four Administrative regions did not have defined budgets during the period.

3.7.6 NATIONAL SCIENTIFIC AND TECHNOLOGICAL INFORMATION AND DOCUMENTATION CENTRE (NASTIDC)

The centre was set up in 1987 with the following objectives:

" 1. to provide library, documentation and information services , and

2. to coordinate various national sectoral information systems and act as a focal point for national, regional & international cooperation" (38).

It is organised into five major operational divisions and has about 30 employees among which five are professionals in Information Sciences, three are presently reading for their professional qualification in information studies, with a further three in preparation for training in the 1991/92 academic year. It has six sub-professional librarians. The Central Technical library Division of NASTIDC has a modest collection of approximately 15,000 books, 5000 documents, 120 titles of periodicals, 2500 microfiche, and small number of audiovisual materials in science and technology fields. It has three photocopying machines; two microfiche reader/printers; and a set of microfiche proccessing machineries (microfiche camera, duplication machines, etc.). As the above two objectives of the centre indicate the users of the services can be drawn from all corners of scientific and technical fields in the country. However, at present, due to limitations of reading places and other information resources, access is restricted to the staff of the ESTC, and some other researchers and scientists by official request from their employers or through other special arrangements.

Computer application has been developed for NASTDIC bibliographic and non-bibliographic services using HP 3000

Minicomputer system with five terminals and the MINISIS software. It posseses about 28,000 bibliographic records from the Pan African Documentation and Information System (PADIS: - as will be discussed in the next section), International Livestock Centre for Africa (ILCA, - as will be discussed in the next section), has databases of their holdings, and some other United Nations Publications. These databases are used to refer users to primary sources available at the ILCA libarary and to bibliographic records at the PADIS service. Updating of these databases are done on an ad hoc basis when occasionally PADIS and ILCA are asked if they have made any updates to their databases. For its in-house services there are about 24,000 entries for on-line searching on holdings of the technical library division of the centre. The entries include books, periodical titles and documents, and articles from the journals subscribed to by the centre. Updating of this database is made on weekly basis but due to the acquisition problems the number of additions to this database are very insignificant and yet the database itself has quite a few items. Non-bibliographic services on biographical data of Ethiopian experts (professional and sub-professionals) in different fields gathered by a survey took place in 1989 by NASTIDC. It holds more than 15,000 records containing professional interests and experience of individuals working in different organisations in the country. Access to this database is restricted to planners, decision makers, especially in manpower development fields. The

database has not been updated and to do so would need supplementary survey which needs further manpower and finance.

A very encouraging advance recently made to the NASTIDC is the demonistration of CD-ROM technology as an information resource. It has recently acquired seven databases on CD-ROM, namely AGRICOLA (1970-1990), MEDLINE (1983-1990), Applied S&T Index (1983-1990), Grolier Electronic Encyclopedia (21 volumes), ESPACE (European patent applications(1989), ESPAC - WORLD (1989, PC patent application) and APS (American patent applications, 1989-90), using COMPAQ 386 Micro-computer with a HITACHI CD-ROM drive. It has been recieved within last months. Therefore, it is not yet clear how and to what extent, it will be used. Information which can be obtained by this means is mainly in the form of citations of sources, some which may not be obtained within the country. However, it is still useful in creating considerable awareness of the existance of the bulk of literature in a given area of searching and initiate acquisition of the sources. Hence, maximum effort is required to facilitate the accessibility of primary documents that cannot be obtained in the country.

3.7.7 LIBRARIES AND DOCUMENTATION SERVICES OF NON-GOVERNMENT ORGANISATIONS

As discussed in the previous section, the situation of library and information resources of various government

institutions of Ethiopia is not encouraging. What exists is terribly inadequate to satisfy the growing demand for information services in the economic development process of the country. Most researchers/ scientists of government institutions prefer to use libraries and documentation services of non-government organisations for they are better served with facilities and resources.

Library and documentation centres/ units of non-government organisations have a vital role in the provision of services that will support S&T activities of the country. Though a number of such non-government organisations are centred in Ethiopia, for the purposes of this discussion, the cases of Pan-African Documentation and Information System (PADIS), and the International Livestock Centre for Africa (ILCA) are presented as follows.

The PADIS programme emerged in 1980 and is administered by the United Nations Economic Commission for Africa (ECA) based in Addis Ababa. It was established with two broad objectives: " firstly to assist ECA member states in developing their information management infrastructure and; secondly to gather, classify, retrieve and disseminate information of relevance to the attainment of African social and economic development goals" (39). These objectives involve the provision of advisory and training services in addition to the setting up of a region-wide multi-sectoral information system and networking that will demonstrate modern information services. This further

involves the creation of links with national socio-economic information systems and the development and promotion of common information classification systems among the networking participants.

PADIS does not give library services. Such services are provided by the ECA library located in the same compound. The ECA library is among the older international libraries and one of the most significant, claiming to be the largest collection in the world on the economics of Africa - some 350, 000 volumes (40). It is a deposit libary for UN documents including UNESCO and the World Bank publications. Ethiopian researchers and scientists in the various institutions including the universities and other learned societies of the country are among the beneficiaries of the ECA library service as temporary members of the library. PADIS also provides access to databases through its Hewlett Packard (HP)3000 series III Mini computer with more than 60 terminals connected for online access to the databases at different offices in ECA headquarters. Scientists and researchers from other organisations can go to the Headquarters to use these facilities. It possesses significant resources in the forms of databases such as bibliographical databases on African economic, technical and social development, and on population; referral databases on African experts, institutions engaged in consultancy or research, and research and development projects; and numerical databases of more than 160,000

items of statistical data (41). The databases are compiled from input sheets of national focal points of African countries and ECA library and containing published and semi-published (grey literature) materials from ECA or United Nations (UN) and developed countries. In addition, it produces a bibliographical index called *Devindex Africa* concerned with development literature.

Though the PADIS service is encouraging, the difficulty is to get access to the origional sources in under budgeted, and disintegrated information services of African institutions. The provision of a good reference retrieval service may frustrate users if they cannot be provided with relevant primary document. Therefore, PADIS may also be expected to facilitate delivery system as well.

Another non- governmental organisation with a considerable role in the provision of information services in Ethiopia is the International Livestock Centre For Africa (ILCA). It came into full operation in the early 1980's, and has developed an in-house database which includes the entire book and microfiche collection of the library. The microfiche collection represents a unique compilation of more than 25,000 documents on livestock development in Sub-Saharan Africa. Some 1,600 periodicals are received and the book collection is more than 20,000 titles (42).

The library's databases are available on-line to ILCA staff and to researchers/scientists of the Ethiopian Government

institutions at sixty-four terminals in the library and placed in offices of ILCA staff. Often, access is made to international databases such as Agricultural On-line Access (AGRICOLA), the international system for the Agricultural Science and Technology (AGRIS), and the database of Commonwealth Agricultural Bureaux (CAB) some of which are available for searching on CD-ROM at ILCA. It also provides short-term training to librarians and documentalists of African institutions involved in Agricultural S&T and supplies the library and documentation centres with ILCA publications including a microfiche copy of some documents on request.

3.7.8 SUMMARY

With the exception of non-governmental organisations, information resources of most libraries of the Government institutions can safely be said to be poor. Collections are limited mainly to books and a few periodicals. Most often libraries act as a storehouse for old newspapers, empty boxes and other materials of little value to users of all levels. Modern media such as tapes, slides, films, etc, and other types of information sources listed in LIST 1.2 or 1.3 are not available in the majority of the libraries and documentation centres. Finance is a serious hindrance to the growth and proper functioning of the libraries. Many libraries are poorly funded and hardly receive due consideration in the allocation of budgets. The funds are often inadequate and unfortunately the available funds are

also not always wisely spent. Selection of books for the libraries is made from publishers' catalogues although even these are not systematically obtained. Therefore, libraries have very little choice in selecting books on various subjects. Thus, books of high standard or of research value are often not purchased. So the bulk of output of research and development journals and monographic literature produced worldwide often go undetected and un used. In particular research level literature in Science and Technology is very limited in the country. A few information sources originated within the country and available free of charge are not publicised for use. For example, Plant Genetic Resource Centre produces a considerable number of research reports and conference proceedings but are rerely received or even known of by library or documentation centres or other research institutions of similar fields such as Scientific Phytopathological Laborartory. One major reason for this can be inadequate staff both in quality and quantity. The academic qualifications possessed by many librarians are not adequate to perform the specialised professional responsibilities. The necessity and sufficiency of other professional, semi-professionals, and non-professional staff in a library have been completly overlooked by most institutions. It is common practice in some libraries in Ethiopia that libraries are closed when the librarian takes leave.

Modern technology is playing an important role in information dissemination. It is becoming a basic and an essential tool in libraries of developed countries. Development plans in the developing countries focus on education, training, agricultral and industrial development. Information technology is certainly not a priority. Libraries in these countries, therefore, rely heavily on donors. With the exception of libraries of non-government orgnisations, information technologies owned by libraries in Ethiopia, however insignificant, are often made available by donor agencies. Of course donation may bring its own problems. The recipient, in some cases has no say in what is given and it is often not geared towards needs or the receiving library may be unable to provide for future enhancement of the donated equipment due to lack of trained manpower in this respect. Like any other developing country Ethiopia has a long way to go in solving this problem.

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CHAPTER FOUR

4. POTENTIALS AND CONSTRAINTS OF INFORMATION RESOURCE DEVELOPMENT

4.1. INTRODUCTION

It has been shown that there exist a scarcity of library and information resources in various establishments in Ethiopia. This chapter attempts to consider major promising projects and programmes which a number of institutions have launched for the betterment of the situation and to identify basic constraints of library and information resource development in the country as a whole. Apart from the particular problems of her own, Ethiopia also shares other problems with other developing countries. Hence, an overview of the general development problems of these in developing countries will also be presented.

4.2 POTENTIAL FOR INFORMATION RESOURCE DEVELOPMENT

It is reasonable to say that every library, information and documentation centre has a potential for being upgraded due to the growing awareness and influence of information as one of the basic resources for economic and social development in a given country. Given this condition then, it is fair to argue that no matter to what level it may be, the situation of libraries and information resources in Ethiopia show a certain potential for development. However, in the following sections the most practical and

particularly the most important programmes and projects for the purposes of this study are presented. These are namely, PADIS Computer Networking Project; the establishment of the NASTIDC; and the opening of the School of Information Science for Africa (SISA).

4.2.1 PADIS COMPUTER NETWORKING PROJECT

As an attempt to fulfil its objectives described in section 3.7.7, PADIS has announced the launching of a project on computer networking in Africa in a report of the Workshop on the subject (1). This workshop brought together reprsentatives of 22 participating institutions of 13 African countries. Observing from the presentations of the representatives of participating institutions, the report states: " it became clear that the African region possessed many unique sources of information whose increased dissemination could benefit Africa's development".

One of the objectives of this workshop was to define experimental areas for the networking project. These were divided into groups based on geographical areas: the Addis Ababa group, the North Africa group, the Ghana group, the East and Southrn Africa group, and the West Africa group (2). Each of these experimental groups has got a plan that puts worth on access to information resources of participating institutions and the outside world, through computer networking. Accordingly, the Addis Ababa group, which has five participating institutions located in Addis

Ababa, namely Ethiopian Science and Technology Commission, ESTC, (which will be discussed in section 4.2.2); Institute of Agricultural Research, (IAR, Ethiopia); School of Information Science for Africa, SISA (as in section 4.2.3); International Livestock Centre for Africa, ILCA (will be discussed below); and PADIS have the following plans:

- making MINISIS (software developed by International Development Research Centre, Canada (IDRC) to run on Hewlett Packard (HP) 3000 series and at present used by three participating institutions of the group:- ESTC, ILCA, PADIS) accessible online to all of this group within the time frame, April to March 1992 ;
- create PC-mediated communications among the groups of Addis Ababa ; and
- accessing external networks through PADIS utilising the ECA line (3)

These experimental plans attempt, firstly to create a network between those organisations supported by MINISIS database on HP mini computers to enable mutual access to those databases on each other's MINISIS installations; and envisage the provision of online access to the databases resident on these installations to the remaining two participants, namely, SISA and IAR through their PCs.

Secondly, to experiment with a PC-based network for uses external networks, regional and international networks through PADIS facilities.

It has been said that the project will facilities such as :

- modems one each for IAR, SISA, ESTC, ILCA, and for PADIS itself (the last three organisiations may require an additional modem to be attached to their HP3000s)
- direct telephone line connection to PCs and/ or HP3000s.
- training on the use of query model to the databases; and communication software packages.

This initiation is not only one of the important steps towards developing a better capability of exploiting national information resources, but is also a considerable start for regional and international collaboration for information resource development and use.

There is little doubt that the successful implementation and practicing of these activities within the five organisations in Ethiopia will further initiate the extention of the networking structure between some other libraries and documentation centres for cooperative resource development effort within the country as will be recommended in Chapter Five of this dissertation. But what should be further recognised is also that libraries cannot share what they do not have. As Parker said, " if too little is shared between too many, every one will end up with even less than they had to begin with" (4). Hence, associated with the networking activities, other information resource development aspects such as

acquisition of collections and training at all levels should be highly encouraged by both PADIS and the govenment institutions.

The strategies for the attainment of these objectives are given in Chapter Five.

4.2.2 THE ESTABLISHMENT OF NATIONAL SCIENTIFIC AND TECHNOLOGICAL INFORMATION AND DOCUMENTATION CENTRE (NASTIDC)

The Ethiopian Science and Technology Commission(ESTC) is fully aware of the fact that coordinated scientific and technological information and documentation services are among the priorities for scientific and technological development efforts of the country. The setting up of NASTIDC under ESTC in 1987 as a project is a visible sign of change for the better in the information service provision in these and other sectors of the economy. The goal of creating a satisfactory level of information provision in science and technology can not be reached by isolated individual effort. Rather it would be highly desirable to bring all efforts together so as to develop and promote information services in the country by creating resource sharing mechanisms. In persuance of this, NASTIDC is taking the initiative to establish an information network of selected library and information centres for the nine sectors: health; education; agriculture; industry; natural & social sciences; mining & energy; housing,

construction & urban development; transport & communication and planning .

Each sector posseses a group of libraries drawn from various ministries and institutions within the sector. For example in the agricultural sector there are four libaries/ documentation centres of the following organisations:

- Institute of Agricultural Research (IAR), located in Addis Ababa;
- Alamaya University of Agriculture, some 300 miles from Addis Ababa;
- Ministry of Agriculture, located in Addis Ababa ; and
- Ministry of State Farms , located in Addis Ababa.

But, among these the library and documentation centre of IAR has been selected as an appropriate one to represent the agricultural sector and serve as a node to the network. The NASTIDC basic criteria for selection of these representatives includes:

- Organisational capability which refers to the current status of the organisation in information related activities, its information resources and services, its equipment and facilities, manpower, etc.
- Proximity of the nodes (representatives) to the majority of the user groups of the sector ;
- Willingness of the organisation to participate in the network.

NASTIDC, a nucleus of this networking service, has also a future plan to connect to other regional and international networks as a national focal point for the country. The PADIS Networking Project as discussed in the previous section will further strengthen these programmes, since NASTIDC is one of the experimental participants.

Accordingly, a draft proposal for interlibrary loan has been prepared for further comment by participating institutions. It is expected to function in the near future. Interlibrary loan agreements, cooperative acquisitions, and other resource sharing activities are likely to be more practical and useful between libraries within the same or similar sectoral objectives, than between libraries in other fields. Hence, NASTIDC is also required to encourage and strengthen the contact within the institutions of those similar sectors.

Other evidence for its promising prospect of fulfilling a coordinating role is the building construction work taking place for new NASTIDC premises from the fund allocted by the Ethiopian Government. Of course, a building alone is little use without other resources for such a big project. So it still needs to be backed up by further government support.

4.2.3 THE OPENING OF SCHOOL OF INFORMATION SCIENCES FOR AFRICA (SISA)

Lack of information resources can be one of the critical constraints for socio-economic development of Africa. However, as recognised in most of the literature, the problem is not so much the absence of information but rather the inablity of the countries in the region to harness their information resources for use in the development effort. Obviously, the main stumbling block is the chronic shortage of skilled information personnel built up through need-based training at all levels, particularly those who can research, design, implement, manage, develop and operate information systems and services at local, national and regional levels.

The establishment of SISA in 1990 was a response to this urgent and growing high level manpower need in Africa. It offers a regional two-year postgraduate programme leading to a Master of Science in information science (M.Sc.I.S) and is assisted by the International Development Research Centre (IDRC), and UNESCO, at Addis Ababa University. The programme commenced in 1990. SISA " aims at, through its postgraduate as well as short-term training programmes and refresher courses , preparing students for careers in the information field, and providing the much needed opportunity for professionals presently employed in African libraries and information centres to enhance their professional skills and to gain additional knowledge in the

information areas" (5). It has an annual intake of about twenty students drawn from countries in Eastern and Southern Africa: Botswana, Comoros, Djibouti, Ethiopia, Kenya, Lesotho, Malagasy, Malawi, Mouritious, Mozambique, Namibia, Sechelles, Somalia, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. The curriculum is expected to recognise and cover the interdisciplinary nature of information science so that graduates would be qualified to work in all areas relevant to the problems of African national development. The lists of core and elective courses are given in List 4.1

SISA has a computer laboratory consisting of 23 micro computers, CD- ROM drives, plotters, scanners, dot matrix and laser printers with software packages (6).

It has seven faculty staff posts: four local staff and three expatriates (one professor, one Associate professor, and one Assistant professor) in information, computer, and library science (7).

Ethiopia is lucky to be the host of SISA, so she can easily take advantage of existing experts, equipment, information sources, and facilities of the school for her information resource development and service programmes. The launching of the networking project between the five organisations, including SISA as discussed in section 4.2.1, is one evidence for its future role within the country in the country's networking and other cooperative activities.

Furthermore, the students may do their research or other course work based on data of the host institution or country. Hence, it would be wise for library and information centres of the various institutions in Addis Ababa to suggest projects to SISA and get their cases studied so that particular problems of information resource and service development can be identified and studied in depth.

LIST 4.1: COURSES AT THE SCHOOL OF INFORMATION SCIENCE FOR AFRICA

CORE COURSES

Introduction to information science
Research methods
Quantitative methods for information studies.
Information users.
Information technology
Information storage and retrieval
Information systems & services for African development
Information systems analysis,design & evaluation I
Information systems analysis, design & evaluation II
Management of information systems & services.

ELECTIVES

Automation of library/information systems
Graphic information systems
Information sources, systems, services in administrations
Information sources, systems, services in agricultral develoment
Information sources,system, services in business and industry
Information sources, systems, services in demography
Information sources, systems, services in health science
Information sources, systems, services in the humanities
Information sources, systems, services in science and technology
Information sources, systems, services in social sciences.

THESES

A research project on a subject permiting the student to make some input towards solving some practical problems in library and information services in Africa.

Source, ref. 5.

4. 3. PROBLEMS OF INFORMATION RESOURCES DEVELOPMENT IN DEVELOPING COUNTRIES: GENERAL OVERVIEW

In the light of all their differences, it is very difficult to generalise the situation or problems of information provision in developing countries. Hence, the discussion is limited to facts that are likely to exist in most developing countries.

Most literature on the subject state, and in fact as already discussed in the case of Ethiopia, there exist in many developing countries:

- a serious lack of trained personnel in the right proportions at various levels;
- lack of general communication facilities;
- insufficient external currency and much bureaucracy;
- inadequate indigenous book trade infrastructure;
- less consideration for standards of services, organisations and financing of libraries; and
- psychological feelings of isolation among professional staff of libraries

In fact, the major problem faced by most developing countries as they struggle to develop and modernise library and information resources and services, is the high proportion of illiterates in their population. This high level of illiteracy and consequently lack of library tradition requires a close link between library and educational planning in developing countries. In many

parts of the developing world, particularly Africa, the transfer of information: historical, technical and social - has depended mainly on the oral tradition. Even those who have achieved some considerable degree of literacy need help in the actual handling of library material. Rural populations especially, are denied access to libraries and are being further limited, if not by illiteracy, then by the small volume of, or lack of publishing in vernacular languages.

Another major problem developing countries are facing is related to the acquisition of foreign materials. These problems arise mainly for three main reasons. First, the relatively underdeveloped economic circumstances of developing countries within which their libraries have to function; secondly, the fact that publishing is in its infancy throughout most of the area, and therefore the necessity to buy almost entirely from foreign countries and thirdly, the fact that developing countries are far removed from the metropolitan areas of the world, where the bulk of publishing is done. Thus material for research or general reading will have to be imported mostly from publishers in developed countries and will have to be paid for in hard currency which is hard to secure. In fact it is not only the library or information profession which experiences considerable difficulty in securing a share of the country's limited supply of hard currency. But, having been granted the right to a certain share of it, they struggle with bureaucracy to secure the permits that allow

them to place orders for books and journals abroad, and later those that allow them to clear the incoming books through customs. The postal and shipping costs, usually figured into the total invoice, are charges that reflect cost of materials. If they opt for the lower charges of surface mail, they must wait much longer. On the other hand, if asked for airmail subscriptions, the cost of an individual journal may be nearly doubled. Such added charges cut down the number of the subscriptions these libraries may receive and the quality of their services is thereby diminished.

4. 4 CONSTRAINTS OF INFORMATION RESOURCE DEVELOPMENT IN DEVELOPING COUNTRIES WITH PARTICULAR REFERENCE TO ETHIOPIA

This section aims to identify the main constraints which must directly or indirectly be tackled if there is to be any prospect for improvement in information resources and services in Ethiopia.

4.4.1 ECONOMIC FACTORS

It is unfortunate that one of the most chronic problems library and information systems of developing countries are facing is constant shortage of funds. Africa in particular is facing a number of problems associated with the deterioration of the environment. Repeated drought resulting in drastic reduction in food production and the

economic, political and social crises added to the international economic problems have contributed to the low level of the economy.

As discussed in Chapter Two, the drought and civil war in the different parts of the country have adversely affected the economy of Ethiopia more than most countries in Africa. These recurrent problems on top of the backward socio-economic system have made her also one of the least developed countries in the world at this time. The country's export products mainly come from the agricultural sector, where the drought problem which has been one of the main causes for the lack of self-sufficiency in food supply has also massively reduced export potential. In addition to being limited, the decline of the price of these export products in the world market has greatly weakened her foreign exchange position.

Resource development for library and information activities in Ethiopia is particularly difficult and expensive because very little publishing is done in the country, with the result that most publications including equipment and facilities have to be imported from the advanced countries where payments have to be made in the currency in which these foreign countries operate or in some cases U.S currency or some other convertable currency. In an effort to conserve its limited foreign exchange capacity, the government of Ethiopia tends to enact strong regulations and procedures that severly limits imports into the

country. Even when the money has been made available on paper, it still is difficult to make any payments on the invoices received expeditiously, as would be desired, since long and circuitious channels have to be traverssed before the remittance on the invoices can finally be dispatched to suppliers. This problem is not only affecting acquisition, but also maintainance of existing facilities. The most telling arguement by Michael Hailue about the situation in Africa and is also true in Ethiopia is " facilities and services developed through bilaterial and international aid usually collapse after the withdrawal of such support, since the local commitment to sustain them does not exist... It is not unusual to notice expensive equipment including PCs, photocopies, michrofiche cameras and readers collecting dust at the library for want of spare parts that cost a few dollars in foreign currency" (8).

Owing to internal shortages of funds, coupled with this shortage of foreign currency, Ethiopia is suffering in the acquisition of essential material, maintenance of the existing facilities and development of human resources for building up better information resources and services in the country.

Economic problems are profoundly and fundamentally affecting all sectors of Ethiopian society and until the current political situation becomes clear, it is difficult to predict any changing conditions.

4. 4. 2 INFORMATION INFRASTRUCTURE

The information industries and infrastructures of most developing countries are far from a reasonable stage of development. Hence, a problem that has constantly engaged the attention of information workers in the developing countries is the lack of adequate infrastructure in the economy to support the generation of information, such as the development of idigenous publishing activities, and the consequent lack of an organised booktrade. As pointed out in Chapter Two, the book publishing industry is still very much in its infancy in Ethiopia. Consequently, as discussed in the above section, libraries are forced to resort to the use of agents or booksellers through whom books and other materials published outside the country are purchased which unlike advanced countries is not as simple as sending an order and receiving an item within a few days or weeks. In Ethiopia the process involves waiting for several weeks or in most cases months. Air mail is prohibitively expensive due to the distances involved and is generally, therefore, out of the question in view of the quantities involved, except for very special items required for 'immediate' use. The only alternative is to obtain material by sea mail and this would be a matter of six months at least. Such long delays often result in some items being lost in transit and certain items being outdated by the time they are received.

Another important issue for library and information sources development is the research environment of the country. It is clear that research and development institutions play an important role in the generation and development of information sources. It is also an accepted fact that advancement of research and development activities highly depends on the status of information resources and services available for the purpose. James Heitzman said " if researchers have sometimes been criticised for creating 'ivory towers' perhaps librarians and documentalists are also guilty of creating 'paper towers' because of a failure to recognise this cycle of knowledge as one single process " (9). Development in R & D has automatically influenced the need for libraries as for laboratories. In Ethiopia, there is no infrastructure that supports this mutual relationship as such. Hailu Gebre-Mariam when presenting the environment of research and development in research institutions in Ethiopia said " in order to enhance scientific creativity, the current rigid and bureaucratic adminstrative and R&D management system must be improved by creating productive institutional base free from distracting administrative procedures. The poor intellectual environment due to lack of scientific leadership and information services also needs improvement" (10). Even when valuable research results are produced, they remain in the laboratories, the scientists' office or secretaries file. Diffusion is minimal, it is hardly

received or known by libraries of other institutions, even sometimes to documentation centres of their own organisation.

4. 4. 3 POLITICS AND POLICIES

As discussed in Chapter Two, from 1974 to the present year, Ethiopia was ruled by a military government involved primarily in building up the infrastructure for a socialist form of economic system. There has been internal social and economic unrest. It goes without saying then, that during this period library and information resource development has been less, if at all, considered. Before or after the revolution, the authorities and the general public in the country were often not aware of the importance of library and information services in supporting social, scientific and technical progress of the country. Libraries were looked upon as luxuries, rather than as necessities in the society and on the part of the government. The government acted in an authoritarian manner in regards to library and information services. It usually did not accept new budgetary proposals that were raised by institutions. Furthermore, due to the socialist ideology the country was following, it was considered as against the policy and philosophy of the government to allow private investment in infrastructures that could help information resource development, for example, firms like publishing houses, printing press, bookselling, etc.

Efforts made by some national and international organisations such as the Ethiopian Science and Technology Commission, Addis Ababa University, UNESCO, and UNDP to establish a national information system, and information science school and department should not be overlooked. This represent a significants and very positive shift in attitude in Ethiopia. However, optimal utilisation and operation of the development of information resource and services needs to be backed up by a sound policy guidance in equity with other sectors of the economy. The country requires a coherent national information policy for effective generation, collection, organisation and utilisation of information resources from national and international sources. Despite this fact, Ethiopia does not have a national information policy. As a matter of fact, the country's science and technology policy which has been formulated by the initiation of the Ethiopian Science and Technology Commission in 1989 is not yet legalised. Even if relevant strategies were available they are unlikley to be applied in a society in a meaningful way without the guidance of true policies.

4.4.4 TRADITION

In the developed countries, a very strong cultural tradition underlies a powerful book and newspaper industry. Readers' clubs, mobile libraries, etc. have been organised by the initiative of private or public bodies. In most developing countries these are less practiced. One reason,

as discussed in previous sections, is shortages of funds, publications, and qualified personnel. But one strong reason may also be that the people themselves have no strong perception of libraries as important institutions. The people feel no obiligation to develop the libraries due to lack of deep-rooted tradition of book culture. This is also a very important factor in determining to what extent it will be developed and its location within the framework of a national overall plan. In a country where a book tradition does not exist, the people often see reading books as a pleasure only, an unproductive activity or in other words just a waste of time. Poor interpretation of its aim will lead to wrong placement of priorities. Sometimes the author has witnessed subordinates hiding themselves from their bosses so as not to be seen in the library and away from their office; and parents say to their children "... Go and look for work, don't waste your time in reading books !". Furthermore, it has been witnessed that personnel who are unproductive in other offices are transferred to library units as a punishment.

It is hard to imagine the development of information resources and services in situations where interpretations like this exist.

4. 5. SUMMARY

The potential for information resources development in Ethiopia and the most apparent problems and constraints of information resource development in developing countries in

general and that of Ethiopia in particular have been identified. Though the problems are manifold and are addressed to the high government level for appropriate action, strategies must come from within the library and information profession. Hence, chapter five deals with numerous recommendations that may help to improve the situation of information resources in Ethiopia.

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CHAPTER FIVE

5. RESOURCE DEVELOPMENT STRATEGIES : RECOMMENDATIONS

5.1 CO-ORDINATION

Where information resources offerd by an individual library or documentation unit are scarce to provide, develop, and maintain the services, co-ordinated effort at a national level may be appropriate. Reasons for co-ordination include:

- avoiding unnecessary duplication of stocks and efforts;
- facilitating unified government recognition of information and documentation services as an important sector at national level;
- facilitating multilateral sharing of resources at national and international levels, ensuring general awareness of availability of resources and their accessibility; and
- stimulating subsectoral reorganisation, reassessment of objectives and development within the information sector.

In a co-ordinated system each separate library or information centre may have its own objective but the formulation of this would be within the overall scope of broad common goals. This would be effected by plotting the line of relationship which links one library/ documentation unit to another within and between systems. The

interrelationship between various components within a system does not happen automatically without any driving forces. It can be determined and formed in different ways. For example by any or a combination of the following methods: (1)

- Administrative or geographic areas where every library or documentation centre could join the system with the aim of increasing and generating the flow, transfer and dissemination of information and knowledge to its users. The only confine is the boundary of the area in which the system operates;
- Mission oriented subsystem, which is an integration of various fields, areas and institutions aiming to achieve the central objective of a particular undertaking. For example, if a programme with a national scope , such as a family planning information system is required to be established, it will assemble the various components (research libraries, university libraries, specialised libraries and documentation centres, and so on) which have materials, operations and services valuable to family planning.
- Discipline oriented library and information subsystem. This groups the libray and information centres which have materials and operations in a particular subject or discipline. For example, physics information system; the chemistry information system; and so on.

Determination of the co-ordinated subsystem may also need to be considered factors such as:

- Information needs of the users, taking into consideration the present and the future number of potential users and their classification;
- Prospect of the economic, social, political and cultural development;
- The organisation and administrative systems and structures of the country;
- Availability of library and information manpower and other information resources for the purpose.

In order to determine a method for drawing a relationship between library and information centres in the Ethiopian situation, it may need a survey that further investigates existing information resources and services considering all factors as geographical, disciplinary, missionary, and other relations. Furthermore, the survey should assess factors such issues as potential needs of information in the particular areas, disciplines, missions and analyse cost benefit of the relationship to be proposed. Since the issue is national in scope, it may need libraries to act together. Thus the survey may also need to involve the totality of libraries, information and documentation centres in Ethiopia. But what should be further recognised is that the line of relationship should represent the homogeneity and unity in which the components of the coordinated system support each other. Besides, two other

most important factors to be considered are first, common need and mutual interest of the components of the system and secondly, willingness of these to co-operate.

This system may obviously call for a body which will be charged with the responsiblities for guidance, stimulation, and co-ordination. In Ethiopia where the government holds the main role in overall development, it is important that a central co-ordinating body shold serves to advise the government on the formulation of a national information programme and on matters related to information co-operation. Presently, NASTIDC, as discussed in section 3.7.6 and section 4.2.2, is striving, though not yet legally well supported, to serve this purpose in areas of science and technology, involving libraries of most sectors of the national economy of the country. So, at the moment it seems practical to augument the NASTIDC function to fulfil a co-ordinating role at national level for all library and information activities. This, of course would need further inclusion of national, public and school library systems as subsystems in the NASTIDC umberella. School libraries can be grouped under the education subsystem aready defined by NASTIDC, rather than by creating additional new and different sectoral subsystems. In the long term, when material, human, financial and other information resources of the country reach a promising stage for the purpose, it may be required to create new sectoral systems at national level.

The co-ordination system proposed here does not affect the mandate of the National Library to collect works published in the country under the legal deposit, or other duties and responsibilities of any other library and information centre, rather it aims to maximise output and accessability of these by co-ordinated effort of the subsystems. Furthermore, the proposed co-ordinated national system could also aim to identify and improve access to unpublished (grey) literature and other format materials produced at various institutions through the co-ordinated system.

The author of this dissertation proposes that either NASTIDC be promoted to national co-ordinator for all library and information sectors and be renamed accordingly for example, Library, Documentation and Information System Coordinating and Service Centre (LDISCSC), or that Interim National Information Committee should be created whose main task should be to arrange for the establishment of a coordinated system of library and information services in the country which includes the appointment of a co-ordinating body. The committee members should be drawn from information professionals, user groups of various research and development institutions, universities/ colleges, professional associations, etc. The committee or NASTIDC may need to further survey of existing information resources; potential of libraries and documentation centres; and information needs in the country to serve

their purposes. The Ethiopian Science and Technology Commission which has been showing great interest to develop library and information services in the country on various occasions, such as organising seminars, establishing NASTIDC, training of information professionals by sending them abroad, etc., can also take the responsibility to facilitate the committee or through the establishment of the co-ordinating system.

The co-ordinating body should be responsible for establishing integrated national development plan for library and information services; and should evaluate, standardise, and distribute activities and responsibilities between subsystems. It is also required to render a referal service at a national level on information sources of the co-ordinated subsystems. Thus, the subsystems must furnish the required bibliographical data to the coordinating body which could be in the form of completing standardised input sheet or records on tape(s) or diskette (where the library of subsystems are automated). There is a standard worksheet already developed by NASTIDC for exchange of bibliographical information between its sectoral nodes and other systems such as PADIS and ILCA. Hence, this format can be further used for the proposed coordination. Where computer application is introduced compatibility of information technologies within a coordinated system should be checked to enhance smooth information exchange. However, it should be known that standardisation of a national

system, which particularly involves conversion of an already existing system to the proposed standardised national system is not an easy process. It calls for a continual negotiation, consultation, willingness and the maintenance of common interest among the concerned individual institutions.

To implement this recommendation, government support in terms of legislation; financing the training of information workers at various levels including acquisition of material resources and facilitating infrastructure and support services are vital.

5. 2 NATIONAL POLICY

The starting point for a national plan for library and information resources and service development is the preparation of a national policy. The elements found in the national policy will guide further expansion of the library and information plan and show the status of relationship between policies and plans of other sectors of the national economy.

It is usual that different sectoral policies which are determined to be of national scope are included within the overall Government policy - National Policy, unified with other fields'(sectoral) policies. The question may be raised as to whether the library and information policy will be a separate part within the overall National Policy, or come under another sector, for example under the

education policy or economic policy. This is very important, because the place and position of library and information policy in the overall national policy will much influence the further elaboration of the plan, and furthermore, implementation of the programme itself. If it is a full separate policy, it must be a policy within a national scope, and embody all aspects of information; all libraries, documentation centres, archives, other information industries and specialised information service institutions, etc., whereas, if library and information policy is put under the educational agency, for example, its plan will be within an educational development plan which will be formulated (mainly by the Educational Department's personnel) within the ability and capacity of the budget allocated to the education sector. The effect of this pattern will be that, firstly the budget allocated for the library and information development will be very limited since it will be only within the education budget; secondly, the attention to development will usually be more concerned with library and information centres inside the administrative boundary of The Ministry of Education; and thirdly,in practice it will be very difficult to achieve full co-operation from other Departments where some of the libraries (particularly, special libraries) and archives belong to and implement the development plan.

Having the library and information policy as one separate field within the overall national policy (not as part of

any other sectoral policy) will still present difficulties since it can be hindered by organisational and adminstrative problems. Nevertheless, this pattern is preferable for getting full integrated development because it will reflect the needs of all sectors. In any case, only one government authority, the proposed system, should be responsible for the whole sub systems of the library and information services and should be based on binding legal regulations and define the main tasks and the structure of the interconnection of the system.

5.3 SOURCE DEVELOPMENT

5.3.1 NATIONAL CO-OPERATION: CO-OPERATIVE ACQUISITIONS

Library materials in Ethiopia, as previously mentioned, are acquired through gifts, legal deposits, complimentary copies, exchange, membership, and purchase. Acquisition through gift, deposits, complimentary copies and exchange may not involve the same direct material cost as by purchasing, but postage and other handling costs and processing incur costs. Most of the international information services have the facility to direct or refer the enquirer to an authority on the subject required. This goes a long way towards solving a major problem which is knowing what has been published or what is available. Obviously, this breaks down a lot of barriers to information flow. Referral services provide the developing world with access to what is available in other countries,

especially in the developed ones. Most services of such kind, however, include only basic bibliographical data to describe an article or other published materials: author, title, year of publication and source, and sometimes an abstract. So what is retrieved is merely for alerting users of the existence of an item. Where abstracts are provided, most usually they are only indicative of the content of the primary publication. Only very rarely are fully informative abstracts provided. The question is what happens when users get that indicative information and then cannot get hold of the full text? Of course such libraries as The British Library Document Supply Centre, might be used, though not practiced in Ethiopia. Otherwise, in most cases we are back to the economic, infrastractural, policy and other problems for acquisition or information resource development activities already discussed in section 4.4. Besides it is also impossible for any one library to own everything it considers relevant to the subject interest of its readers. Inevitably we cannot be free from the costs of acquisition, but these costs can be wisely planned to maximise benefits. To this end, it is recommendable that an acquisition - cooperation scheme be introduced between groups of libraries and documentation centres where also interlibrary lending facilities should be further enhanced between these groups in Ethiopia. However, the costs and benefits of various options must be assessed. Various forms of acquisition-cooperation have been mentioned in the literature (2, 3). These include specialisation agreements;

co-operative purchasing programmes; joint ownership of materials; exchange arrangements and shared storage co-operation.

Specialisation agreements are based on allocating certain subject disciplines to each of the co-operative libraries. Through this arrangement, items are ordered and processed by individual libraries, included in a union catalogue and made available to other participating libraries through interlibrary loan. A prerequisite for the success of such an arrangement is a good interlibrary loan scheme with an efficient document delivery system and up-to-date union catalogue.

A co-operative purchasing programme may take the form of allocating one channel through which the participating libraries issue their purchasing requests. This may be achieved by designating one library or an independent body to perform the purchasing process. This scheme can considerably save money by discounts obtained through special agreements with certain publishers, book jobbers, and the shipment and other costs involved in processing of the materials can be minimised. However, before establishing the cases, someone would need to analyse the current and projected volume of purchase and the discounts which may be obtained.

Joint ownership through contributions to a pool stock is another form of acquisition co-operation. The stock may

consist of expensive or rarely used items. The success of such scheme will be depend on the geographical location of participating libraries or information centres.

Exchange agreement involves the exchange of duplicate and in some cases little-used items between the cooperating libraries. Some kind of arrangements to identify the items for exchange are normally required.

The shared storage agreements may be made between co-operating libraries to rent/ build the required shelving space so each library has its own space in the store and the material can be located through the library's own or common catalogue. This system may be used to store the less-used portion of the collection when the library growth and shortage of space becomes a common problem. For the present situation in Ethiopia, this type of agreement is not appropriate.

These cooperation systems in general demand a number of conditions that require commitment from government institutions and individuals such as:

- a realistic and effective planning for libraries which should be supported by an appropriate legislation and resources;
- standardisation of library practices in order to make possible the compilation of national union catalogues and a union list of serials;

- good circulation systems;
- well educated and qualified manpower who can undertake selection, co-operative cataloguing etc.;
- post and communication facilities; and so on.

So, improvement of these conditions should be highly encouraged by the government and must be incorporated in the co-operative scheme proposed. Otherwise, all types of co-operative acquisition scheme, except for a few limitations of their own, (such as geographical limitation) could improve the capability of the participating libraries to perform their basic functions of matching user needs and information sources. Cost for facilitating and running of the co-operative scheme may be also inevitable. Hence, it may be advisable to assess the cost benefit of the operation by conducting a survey to identify material, human, financial and time cost for the agreement to be effective within the co-operative group. Selection and adoption of a scheme should be based on the result of survey and unanimous agreement of participating libraries or documentation centres. The national co-ordinating body proposed in the recommendation section 5.1 should facilitate the survey and a meeting for selecting the schema.

Extending his proposal the author suggests that the grouping of libraries or documentation centres for co-operative acquisition should be the same as those which emerge from recommendation 5.1. Details of bibliographical

data of the materials acquired through these schema will be filled in duplicate input sheets and one sent to the national coordinating centre for preparation of national bibliographic information on the MINISIS system which can then be distributed to other member of the group in various forms or communicated through computer link where possible.

In the proposed co-operative acquisition scheme, some means of acquisition such as, gift; complementary; and membership copies can directly be solicited or received by individual libraries of the groups. In the case of exchanges, however, it would be more advisable if copies of the publication produced by the government institutions or individuals in Ethiopia, though few, are acquired either by purchase or any other means by the coordinating centre or representative of the subsystems on behalf of the groups and then mailed to the exchange partner abroad. The material in turn would be distributed among the group based on their area of interest. This will substantially support the library budgets particularly foreign currency, since purchasing and postage costs are by local currency. It is another bureauocracy one may tolorate in order to improve collection capacity at relatively low cost. It would allow libraries' to offer their own country's publications to institutions abroad in exchange for titles they cannot afford to buy at home. But the quality, quantity, and language of production of the publication in the country may affect maximum expectation from the negotiations.

Another acquisition strategy is an acquisition based on the profile of researchers and research projects which allows the provision of materials to researchers or researh projects than libraries.This strategy helps the proposed coordinated national system to play an important role in introducing and running a service, by providing access to international journal literature which is not locally available for the researchers or research projects in the country. The basic idea of the strategy is to follow an inventory of on-going research and development projects by defining a profile of the researchers interests that are in line with each project in the respective host institutions. Then this profile will be sent to an established service abroad for retrospective searching or searched in databases of the proposed system, CD-ROM databases available in ILCA, or of the PADIS databases, and other non-government institutions in Ethiopia. Here, qualified staff for identification of users needs and application of various search strategies is essential. The output list of references matching the profile are regularly sent to the researcher to extend requests for photocopies. These requests can be passed on by fax, or telex to the centre abroad and photocopies will be sent back by air mail with a delay of weeks which in most cases should be expected. The cost for running the services shall be covered by the local project for which the search has taken place. The search services could be run by Science and Technology

libraries or other libraries as will be selected or the joint effort of those libraries with supplementary use of British Library Document Supply Centre(BLDSC).

In principle, document delivery services should respond to requests for published material in science and technology, or any subject requested, whether derived from citation in the literature or from computer-based bibliographic search available in the country. However, if the service is promoted on a wide scale, it may be difficult to accommodate the demand. Therefore, criteria for the service should be carefully planned so as not to generate a demand which cannot be substantially satisfied. Whether there is a demand for this type of service is not yet known, but it is the opinion of the author that this system could be a cost-effective way to find out where the demand exists particularly, rather than to blindly try to extend the number of subscriptions for what may be rarely used. In order to implement the service, identification of high-demand journals for projects and other scientific activities in the country is required.

5.3.2 REGIONAL COOPERATION

Some initiatives connected with the New World Information Order have attempted to break the developed countries' monopoly of the knowledge industry by encouraging regional projects involving developing nations with much in common. Most literature mentions that the large percentage of scientific research relevant to developing countries comes

from other developing countries, although this forms but a small percentage of sources in the developed worlds'-produced databases. Some of the international agencies, in particular those associated with United Nations, have databases in which the developing countries do put their data. One well known example of this is the Agricultural Research Information System (AGRIS). It is a decentralised co-operative system in which members from both developed and developing countries contribute agricultural information to the AGRIS headquarters in Geneva through designated regional centres. Since both developed and developing countries are permitted to contribute their own bibliographic records to the system, it is very likely that data of developed countries influences the content of the AGRIS database too. So it is that only 25 % of AGRIS content is input by developing countries (4). This may initiate joint efforts to create scientific and technological databases appropriate for developing nations with common problems, rather than heavily relying on linkages to external global information services. Hence, it is recommendable that the proposed system create a study group that will judicially select, analyse, evaluate existing information sources and facilities in developing countries with particular emphasis to African countries for exchange of information sources which can be in any form: acquisition lists, databases on different media, etc. with a support of co-operative document delivery services: interlibrary loan, photocopying

services, & so on. The present PADIS initiative, as discussed in Chapter four, should, therefore be encouraged. But what has been further considered by the author of this thesis is that individual decentralised inter-institutional ties should be created between libraries and information institutions of African countries by inter-institutional visits, exchange of ideas and programmes and feeling of collective self-reliance; since African countries have similar cultural background and face similar national development challenges, the knowledge and the information produced in one country may closely match the information needs in other African countries. This type of relationship would help, even if the current PADIS computer networking project failed or delayed to bring about regional cooperation through this formal networking. The proposed co-ordinating body should take the intiative in this aspect too.

5.3.3 INTERNATIONAL CO-OPERATION

At national level, needs have to be identified; policies proposed have to be exercised to meet these needs; so as to make information more accessable. At regional and international levels, United Nations organisations, such as UNESCO, through its Intergovernmental Conference on Scientific and technical Information for Development (UNISIST) programme; FAO, by the AGRIS programmes; etc., according to their mandate, could provide opportunities for participation in the scientific fields and act as a

catalyst for access to sources of scientific and technological information. For example, UNISIST's main objective is providing " a conceptual framework for the establishment of national and international scientific and technological information systems and services to facilitate access to the world information resources and create the necessary conditions for system interconnection and compatibility" (5). Another important programme is the International Referal System for Technical Co-operation among Developing Countries(TCDC/ INRES) of United Nations Development Programme (UNDP). It collects and disseminates information for developing countries that are available for technical co-operation programmes, projects, and activities with other developing countries, through bilateral or multilateral arrangements. It is a referal system listing basic data furnished by an organisation and services for technical co-operation it offers. The inputs are collected from different focal points and are availabe free of charge on request. The United Nations Environmental Programme also has a network for exchange of environmental information - INFOTERRA, the International Referal Systems for Sources of Envirnmental Information, whose operations rely on a grid of focal points: national focal points, regional focal points, sectoral focal points. It gives inventory of information sources that give subject, geographic, and other coverage. The system has been designed to allow consultation of the directory of sources which can be available in the paper form or magnetic

diskettes, or tapes for focal points. AGRIS is also another important and well known system in the provision of information services in the field of agriculture and related subjects for both developed and developing countries though the content of the database is dominated by the literature of developed nations.

It is difficult to present all the facilities of government and non-government international institutions, professional associations, etc. with whom cooperation is useful for information resource development of Ethiopia,in this section of the thesis. Here, the intention is to recommend that the proposed system should become a national focal point or member for international collaboration and cooperation so as to explore all possible assistance to maximise accessibilty; and also meet information resource development costs: infrastructural, information sources, manpower training, equipment and other costs.

5.3.4. BOOK DEVELOPMENT COUNCIL

Various UNESCO sponsored conferences, seminars, taskforces, and other professionals in publishing and information science fields recommend the establishment of a Book Development Council to promote the production and distribution of books in developing countries (6). Following this recommendation, and in some cases before it was made many countries have established such a centre, for example in Japan, the Book Development Centre was

established in 1969 (7). For Ethiopia, Essayas Demissie, in MLS thesis entitled *An infrastructure for documentation, library and archive services in Ethiopia* (8), recommended the establishment of the council governed by the composition of groups: authors, librarians, publishers, educators, and the reading public; with duties and responsibilities such as :

- establishing a suitable mechanism for the promotion of reading habits and the conduct of research essential to the development of the book industry
- encouraging the establishment of publishing houses; wholesalers; and retail activities in the country.
- responsibility to publish books-in-print at national level and information on book printing, publishing, bookselling, etc.

These proposals were made in 1977 and so far have not been taken up. This may be because they were either too ambitious in view of the constraints at the time and subsquently, or may be because they were not published in the country.

The author of this dissertation, re-enforces these useful recommendations to be put into future practice and suggests the proposed coordinating body to take the initative to lay down a ground for its establishment.

5.4. INFORMATION TECHNOLOGY

It is imperative for Ethiopia to achieve comprehensive documentation of all Ethiopian materials in the form of

bibliographies, indexing and abstracting services and provision of access to scientific and technical information of both developed and developing countries by coordinated acquisition and centralised bibliographic control. In order to achieve this, it is neccessary to make use of information technology which appears to be well within the economic and technical capability of the country. It is true that the function of maintaining bibliographic control may not necessarily require high technology. There may exist in developing countries printed national bibliographies to the accepted international bibliographic standards using only typewriters and duplicating machines. But it is also true that many of the functions of the control, and of availability are made easier when computer technology is available, for example, for maintaining union catalogues. As discussed in recommendation 5.1, the proposed coordinating centre will maintain national bibliography or union catalogue by collecting bibliographical data on standardised input sheets or standardised computerised format from the subsystems. The flow of this data between the coordinating centre and the subsystem will be more efficient and effective if information technologies are applied. The application can be on-line by establishing telecommunication line or off-line by exchange of tapes and diskettes. The computer networking project commenced by PADIS, as identified in section 4.2 will hopefully facilitate some of these plans.

Furthermore, the national information programme should aim to incorporate into the national information infrastructure, the acquisition of external databases on different form and media for example, CD-ROM databases, in specific and different subject areas; the establishment of national databases on specific subject of national interest and the incorporation into relevant external databases into internal local databases of published and grey literature. A special problem in this regard in Ethiopia, as in some other developing countries, however, may be the case of computerisation of publications in the national language, Amharic script. But at present the newly established National Computer Centre in Ethiopa has developed a character set for the natinal language and word processing software in the language and characters has already been developed and is now in use.

In general, it is possible to say that attempts to maximise accessibility of national, regional and international information resources and services necessarily calls for application of information technologies.

5.5 MANPOWER DEVELOPMENT

The establishment of the School of Information Science for Africa, (SISA), as discussed in Chapter Four, and the upgrading of the undergraduate diploma programme in Library Science to the undergraduate degree level at the Addis Ababa University, as discussed in Chapter Two, would help

to address one of the problems which the country has been suffering from in the field.But the quantity of trainees going through these programmes may not be enough. About 50 students from the Addis Ababa University undergraduate library and information science programme and a maximum of the 2 from postgraduate study programme of SISA is the most that is viable at present. In contrast, according to G. Birru's (9) projection of professional library and information manpower for the years 1989-1993, 405 professionals; and 829 subprofessionals are required for the estimated number of libraries of all types and information systems in the country. In the first three years'(1989, 1990 and 1991), a projected need of 82 professionals and 91 subprofessional manpower was hardly satsified because both programmes were commenced in the 1990/ 1991 academic years, and output from the undergraduate diploma programme was small. Hence, if only graduates from these local sources are to be expected it will take a long time to enhance information resource and services development activities. Besides, new graduates need experience to be able to tackle high level negotiation and management that information resource development calls for. Thus professional level training abroad is still inevitable. In addition, junior level training is also important. Training at junior level can be obtained through short-term professional training which should be organised by the proposed system or by inclusion in University curriculum and on-the-job training. Furthermore, study

tours, participation in seminars and conferences, etc. in different parts of the world by different level of professional groups would also help develop professional careers.

5.6 USER EDUCATION

Even though information is made available by the system, the potential users of these facilities can be unaware of the existence and the advantages they offer. Information may remain unused because it does not meet the special needs of specific sectors of the community or may lack reading interest due to the influence of oral tradition since desire to read stems from a cultural attitude and awareness of the importance of reading, whether it be for professional advancement, or performance of social duties or pleasure.

Where oral tradition has predominated, even though books or other sources are available, potential users are not motivated to read and do not realise the advantages these sources offer, so that information they contain remains unused. On the other hand, as previously discussed, the scarcity of these sources also frustrates efforts for research and development and self-fulfilment. To overcome these problems, organising user studies by survey questionnaires; education programmes on use of existing facilities; and organising library and information promotion programmes carefully targetted to services that exist should be undertaken.

These efforts, particularly should be continued in professional life and research workers should be encouraged to seek and use the specialised literature that exists and which would help them in carying out their research and development programmes.

5.7 DISSEMINATION OF THE RECOMMENDATION

The author of this dissertation should disseminate the idea of his recommendations through local newspapers and other science and technology or professional journals/ newsletters and present at seminars and conferences on library and information services taking place in the country.

5.8 SUMMARY

It is difficult to find a strategy that immediately solves the scarcity of information resources: financial, material, infrastructural and human, particularly with the given economic, social and political conditions of Ethiopia. The recommendations given here show very desirable ways to move forward, effectively from scratch. Development will be very gradual and it would be rather unwise to expect all the components to come fully together to start with. The author, therefore would like to recommend that with the existing manpower and other resources, a nucleus of each of these recommendations is built up. Chapter six gives some ideas how to start to implement the strategies.

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CHAPTER SIX

6. CONCLUSIONS

No one can dispute the importance of information in the world today. Information is one resource from which decisions are derived. Getting access to the right information at the right time may shift the balance between success or failure of a project that is useful for the betterment of social and economic conditions of the country. This is especially significant in developing countries which are struggling to deal with the problems of economic and social development.

Most developing countries have an oral tradition of information transfer and do not have investment in printed sources of information, nor the infrastructure for such as, for example, publishing houses and libraries for dissemination of information. Furthermore, research activities within many developing countries have only recently been given attention, while most research studies on a particular country are conducted by outsiders rather than local researchers. Thus it is not surprising that developing countries are still, to a large extent, poor in information resources and are dependent on the developed world for information. Furthermore, it has been reported that as mach as 97 % of the information generated in developed countries is not appropriate to the developing

countries for the major reason that research by these advanced countries is less applicable to developing countries due to differences in economic and geographical conditions (1). According to some arguments, practical, rather than theoretical information is more necessary for the economies of developing countries. These arguments, however, do not deny the truth that findings from basic research such as those in science are still important and appropriate for developing countries. Hence, these arguments demand a coordinated effort from developing countries to develop their own information resources. But due to the limitations of training, finance, infrastructure, traditions, etc. in these countries, even access to information that exists locally is difficult. It is fair to say that researchers and other information users in developing countries are locally supported by very weak or resource-poor libraries and are also remote from access and support of information resources at other locations. So, in what way the information can be accessed and developed in developing countries is the central issue of this dissertation.

Since information is believed to be one of the important resources that should be exploited for economic and social change, it would be an urgent need for developing countries to exert their efforts in order to break out from the problems circumscribed to achieve the possibilities of accessing to this resource. The first

step towards this action may be devising strategies that opt for various methods that stem from within the country and call for regional and international assistance and collaborative development since it is difficult or impossible to maintain self- sufficiency in the present situation of an information explosion and rapid escalating costs of information sources and services.

For a particularly poor economy and library and information resources of Ethiopia, the author of this dissertation has recommended a number of strategies.These strategies range from the strengthening of internal information systems by integrating existing libraries, information and documentation centres at various institutions in the country to calling for regional and international cooperation for assistance and mutual advantage. The establishment of an integrated infrastructure and policy governing the system may prioritise the strategies. Otherwise, all the recommendations here, shall be considered as components of the information resource development effort and could be applied simultaneously. However, more emphasis may be given for those recommendations that encouarge cooperative effort in the collection development endeavours and manpower training.

The successful implementation of these strategies depends on a number of factors. Among the vital ones are the level of commitment of information workers, particularly professional staff and commitment of government bodies at

all levels in terms of allocation of finance and other resources. In implementing the strategies the following action must be considered.

- Strategies must be approved by those who will implement them. Therefore, meetings should be organised for representatives of all libraries and documentation centres of various institutions coordinated by NASTIDC or the Interim National Information Committee proposed in section 5.1. This meeting may decide, after discussion, whether these strategies need to be changed, modified or whether other strategies should be added.

- Identification of information needs of users and compiling profile of information users of the systems by conducting a survey of information needs and the user community.

- Assessment of the present status, future potential, and cooperative relationship that should exist between government and non-government institutions, professional associations, etc. in the country and the libraries and documentation centres in the subsystems or national systems as a whole.

- Organising campaigns to publicise the role of information in the life of individuals, institutions, and the country as a whole through mass media to change the tradition of information transfer and use in societies and to create an awareness of the

establishment of the national information system to serve the purpose. But care should be taken not to initiate a demand which cannot be satisfied. It must be targeted to the services which exist.

- Compiling national guides to institutions; sources of information; information facilities and services; on-going research projects; etc.

- Acquiring or collecting and organising directories of government, non-government national and international organisations; professional associations; R&D institutions, etc. in various countries and on various disciplines to assess their services and facilities for possible assistance and cooperation.

- Identification of important libraries and information centres in various fields and different parts of the world for exchange of publications, interlibrary loan, or cooperation in other forms where possible.

- Selection and analysis of reputations, possible economic advantages, efficiency of supply,& etc. of publishers, distributers, jobbers, equipment suppliers, etc. in different parts of the world and in different fields.

- Identification of online or other international databases that could be called upon for various information needs of users of the country.

- Assessment of short and long term courses, conferences, professional meetings and other regular or irregular undertakings in different areas of information sciences to be able to participate or to train information workers.

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