ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF INFORMATION STUDIES FOR AFRICA

AN EVALUATION OF NATIONAL INFORMATION POLICY PROPOSALS OF SELECTED AFRICAN COUNTRIES - BOTSWANA, ETHIOPIA, MALAWI, TANZANIA, UGANDA, AND ZAMBIA

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN INFORMATION SCIENCE

BY

DICKSON YUMBA

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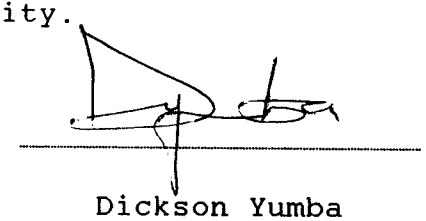
This thesis is my original work and has not been presented for a degree in any other university.



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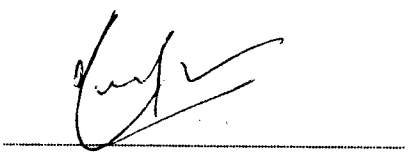
This thesis has been submitted for examination with our approval as university advisors.



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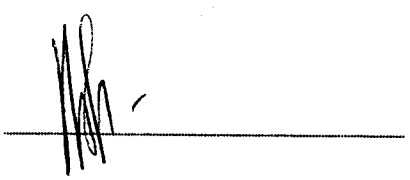

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To my wonderful father and mother,

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ABSTRACT

The role that information plays as an essential ingredient in the socio-economic development process of any society is now accepted in the developed as well as developing countries. For information to be useful in this context it has to be systematically captured, recorded, processed and organized to ensure timely access to relevant and reliable information by decision makers, planners, managers, executives, researchers and people at the grassroots involved in diverse ways in development related activities in various sectors of the national economy.

The information personnel in Africa while recognizing the role of information in national development, are also aware of the deficiency and ineffectiveness of existing information systems and services on the continent. The lack of an overall national policy on information systems and services in most of the countries that could coordinate existing resources and systems, and support the development of an appropiate and strong infrastructure, is seen to be one of the causes of the deficiencies. Therefore, to correct the situation, national information policy proposals have been drafted in several countries during the past decade.

This study is an attempt to review, analyse and assess the national information policy proposals of six countries - Botswana, Ethiopia, Malawi, Tanzania, Uganda, and Zambia. A series of analytical frameworks to compare the policy elements have been formulated. The common elements, differential elements and omissions thereof in relation to the checklist of the elements in the frameworks are highlighted. The study indicates deficiencies in preliminary preparations as well as omissions of some elements in the policy proposals, and comments on the likely consequences in implementing the policies. The thesis concludes with recommendations that may contribute to strengthening the current efforts toward formulation and implementation of national information policies in Africa.

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LIST OF ABBREVIATIONS

ARCIS - African Regional Centre For Information Studies

BNLS - Botswana National Library Service

COSTECH - Tanzania Commission For Science and Technology

DSE - German Foundation For International Development

ESTC - Ethiopian Science And Technology Commission

FID - International Federation For Information and Documentation

GDP - Gross Domestic Product

GNP - Gross National Product

IDCC - Information And Documentation Coordinating Committee

IDRC - International Development Research Centre

IES - Institute Of Ethiopian Studies

IMF - International Monetary Fund

IT - Information Technology

MMD - Movement For Multiparty Democracy

NATIS - National Information Systems

NCCI - National Coordinating Council For Information

NDIC - National Documentation And Information Committee

NIAAC - National Information Agency Advisory Committee

NIPCA - National Information Policy Coordinating Agency

NLS - National Library Services

NSTIDC - National Scientific And Technological Information and Documentation Centre

OAU - Organization of African Unity

PADIS - Pan African Development Information System

PGI - General Information Programme

PTA - Preferential Trade Area

SADC - Southern African Development Corporation

SADIS - Southern African Development Information System

SISA - School Of Information Studies For Africa

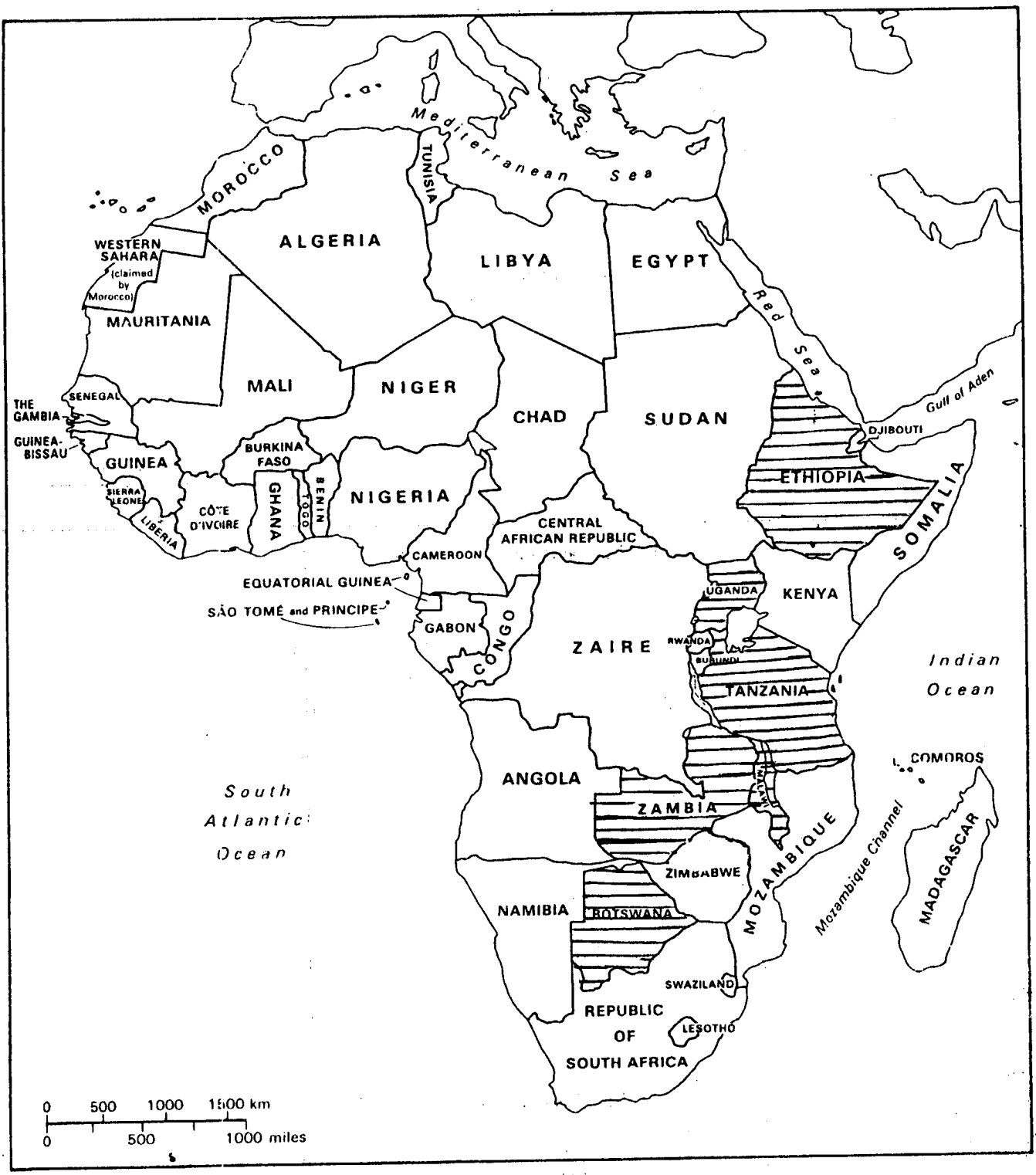
TLSB - Tanzania Library Services Board

UNESCO - United Nations Educational Scientific And Cultural Organization

UNZA - University Of Zambia

ZLA - Zambia Library Association

ZLS - Zambia Library Service



Outline Political Map of Contemporary Africa

CHAPTER 1

PROBLEM STATEMENT

1.1 INFORMATION: AN AFRICAN PERSPECTIVE

From independence to date, countries in Sub-Saharan Africa, like other developing countries of the world, are endeavouring to develop their poor economies and to improve the quality of life of their people. After almost four decades of political independence economic development is nowhere near the desired goal. After the mid 1970's the performance of the subcontinent has been particularly poor. The major socio-economic indicators show a general slowing down of the economy. The quality of life of the mass of the people is deteriorating further. Various reasons for this state of affairs have been put forward by economists and other professionals.

The development process requires various kinds of resources, inputs; such as, finance, human, natural, physical, etc. It has been argued the world over that among the causes of underdevelopment in the developing countries and in particular in Africa, is the lack of reliable and timely information and data to support development planning, programming, and plan

implementation and evaluation. This implies that decision making in development planning is done with very little or even without relevant and timely information resulting in inaccurate and wrong decisions, and consequent wastage of financial, human and other resources (Mosely, 1992).

Information systems and services are intended to provide timely, relevant, and reliable information to planners, decision makers, executives, researchers, other professionals, semi professionals, people at the grassroots, etc. Therefore, if relevant and timely information is unavailable, the implication is that the existing information systems and services are deficient and thus ineffective. Indeed a survey of information systems and services in Africa (Adeyemi, 1991) confirms this situation. Archives, documentation centres, information centres, libraries, publishing and printing, etc are not operating as efficiently as they ought to as is evident in the national development plans of the majority of these countries. Most of these countries do not address the issue of information provision as an integral part of national development planning process (Neelameghan, 1981).

Government's concern relating to information is seen largely as a propaganda instrument, and there, control over the mass media has acted as a deterrent to the growth of private media and the publishing industry as a whole. Not much has been done in gathering, processing, and dissemination of technical and specialized information as a resource needed to support development planning and processes. This has resulted into situations where decision makers, planners, managers, executives, researchers and the general populace have little appreciation of the value of information and in some cases unware of the potential of information as a resource in national development.

1.2 NEED FOR INFORMATION

The need for information is ubiquitous, meaning there is no sector or economic activity that can function effectively without information. Effective planning, allocation and utilization of all types of resources requires information on such issues as balance of payment, gross domestic product (GDP), sectoral development indicators, national debt, natural resources, etc. As already indicated this information has to be timely and reliable in order to support decision-making

and reliable forecasting in socio-economic development planning (Neelameghan, 1981).

The recognition of information as an essential ingredient to development of any human society was long realized by developed countries and this gave impetus to deliberate efforts in creation of information systems and services through public policies (Marghaleni, 1987). Hill (1989) writing on the evolution of information policies in industrialized countries points out: "In all the industrialized countries, the range of information policies currently under operation owes much to a long evolution as well as to specific events and new technological developments." Van Rosendaal (1984) also commenting on the European policy situation observed "information is one of the few non-scarce raw materials for the economy of Western Europe. The timely and inexpensive availability of information makes it a motor for innovation and therefore, a driving force for economic and social development." In Sub-Saharan Africa it was not until the 1970's that this realization began to take root.

1.3 NEED FOR NATIONAL POLICY ON INFORMATION

1.3.1 PREMISES

Some fundamental reasoning on which an overall information policy is advocated have been identified (Neelameghan, 1990):

* The fundamental premise (based on past experiences of the past decades) of an overall national policy on information systems and services is that any economic, social and political system will perform more efficiently and effectively if a mechanism is provided which will ensure that decision makers, planners, managers, executives, researchers, and the people at large at various levels involved in diverse ways in socio-economic development in government and private sectors, have timely access to relevant and reliable data and information.

* With the realization of the above there is an increasing concern in many countries of the world with the coordination of their various information systems and services so that the available and mobilizable information can be channelled into a

national information system which can respond to the information needs of every one.

* Mechanisms (constitutional acts, legislation, and policies of various kinds) relating in various degrees to the provision of information already exist in many countries. But what is lacking is the inter-relationships that may exist between issues concerning information communication, information technology, information economics, information management, information privacy and confidentiality, and the right to information. The inter-relationships between these issues can best be addressed and enhanced by an overall policy dealing with them. This approach should take into account the implications of the emerging information technologies which have revolutionalized information handling activities and the needs of information networking at regional and international levels.

* There is a growing trend in the globalization of national issues and a corresponding inter-dependence among nations, accelerated by, contributed to and strengthened by developments in information technology, regional alliances of

nations, and regional/international information systems and networks. The effective participation of a country in the development of and deriving benefits from such regional/international systems, depends in a large measure on the existence of a strong national information infrastructure. The development of such an infrastructure and ensuring its participation and contribution to regional and international cooperative information systems and programmes will be facilitated by the formulation and implementation of appropriate policies in the participating countries.

* Thus an overall national policy on information systems and services fully incorporated into the national socio-economic, political, technological, cultural, development policies and plans, is conducive if not a pre-requisite to national socio-economic development.

In Sub-Saharan Africa, the backward economies and the need for timely and reliable information in development process points to the need for defining the role of information in national development and restructuring of the poor and ineffective national information systems of these economies.

In most African countries national policy on information is often regarded as not important vis a vis the many pressing problems facing these countries. This assumption arises from the non-existence of such policies. In some cases there is hardly any government agency which plays an important role in planning and monitoring developments in this area. Where such bodies exist they are not integrated into the top-level decision-making structures. Yet given the considerable potential information has for accelerating development, a strong case can be made for the view that there is need for national policy on information.

The political instability which characterises most of the countries in Africa is another issue to think of when discussing the need for policy on information. Some information programmes are subject to political instability and can change with each change of government. Information programmes should not be taken as ad hoc measures in isolation to meet a particular need and hence subject to withdrawal by the next administration. This is why it is argued that a national policy on information is necessary so that each step taken is seen to be part of a coherent whole designed with firmly stated aims and objectives (Anthony, 1981). The information relevant for development is mainly

collected from the national culture environment because it reflects the problems and needs of a given nation. It has been argued that the poor information situation in Africa is not entirely due to lack of information per se, but the inability of these countries to sustain the institutional infrastructure and legal framework for generating development information within the national environment (Adeyemi, 1987). This evidently points to the need to develop information systems and services at national level and the need for national policy on information to "provide guidance for design of a strategy and programmes for the development and use of information resources, systems and services" (Montviloff, 1990).

1.4 JUSTIFICATION FOR THE STUDY

The foregoing observations do not imply that nothing has been done to correct the information situation in Subsaharan Africa. There has been concern at both national and international levels. Of particular importance is the initiative taken by Unesco and other international agencies to encourage developing countries to formulate national policies on information by sponsoring and organizing seminars, workshops and consultancy missions in the field of information in

various countries. This has given rise to efforts toward formulation of information policies. These efforts have reached different levels in different countries. Some countries have gone as far as drafting proposals. Overall, the picture seems to be a mixed one. In some countries the issue is being tackled at sectoral level and in others the scope is limited to traditional information services (libraries, archives etc).

It is in the context of this mixed picture of information policies in the sub-region that the study is being undertaken. The countries selected (Botswana, Ethiopia, Malawi, Tanzania, Uganda, and Zambia) are in one economic grouping, the Preferential Trade Area (PTA). They are also member states of the Organization of African Unity (OAU) and Botswana, Malawi, and Zambia are members of the Southern African Development Cooperation (SADC). These economic and political groupings to be effective and meaningful entail trans-border data flow. In most regional cooperations information exchange is the most important aspect for all types of purposes. The alliances of nations require data and information support in the performance of their functions in various sectors of the participating countries. Efficient and effective information networking at regional and international

level require a strong national information infrastructure (Neelameghan, 1991) to facilitate:

- coordination and cooperation mechanism among different information centres and sources,

- gathering, processing, dissemination and effective use of data and information within the country and those that flow into the country from external source,

- participation in regional/international information systems by input of national information to those systems,

- exchange of data and information among cooperating entities and systems, and

- access and efficient use of information available through the networks.

The development of national systems that will incorporate the above indicated issues can be enhanced by the formulation and implementation of national information policies.

The aim of this study is to review the information policy proposals of the six countries in the sub-region and also examine the steps taken toward formulating such policies. There are certain steps and actions that need to be undertaken in formulating a national policy on information if the policy is to be effective, viable, and accepted by decision makers and the nation as a whole. The study would analyze the steps taken in the countries under study. Although there have been papers and reports on the formulation of and proposals on national policies on information in these countries, there appear to have been no comprehensive comparative study. The International Federation for Information and Documentation (FID) and the Organization for Economic Cooperation and Development (OECD) have undertaken comparative studies of information policies in Europe and other developed countries.

It is hoped that the study would provide a review of the state of information infrastructure in the sub-region and thereby contribute to a knowledge of the on going efforts to improve information systems and services for socio-economic development. The comparative study will be a contribution to international and comparative librarianship. It could also provide a better understanding of the common elements and differential

elements in the national policies of these countries in the context of their respective socio-political, socio-economic, and cultural development milieu, as well as their geographical and historical backgrounds.

1.5 OBJECTIVES

1.5.1 General Objectives

The general objective of this study is to deduce the general direction of national information policies, the common elements and differential elements thereof in the sub-region comprising of Botswana, Ethiopia, Malawi, Tanzania, Uganda, and Zambia. It would enable drawing up of useful lessons toward making recommendations for strengthening the current efforts in national policies on information.

1.5.2 Specific objectives

In order to achieve the general objective of the study the following specific objectives have been formulated to:

(A) identify/formulate parameters for an analytical

framework for comparative study of national policies on information, and

(B) use the analytical framework to compare the elements of the national policies.

The information professionals are the major target groups for this document. On the one hand, leading information professionals bear a responsibility of sensitizing decision makers and other development planning authorities to recognise and accept the concept of national policy on information and its value in developing the national information infrastructure, and on the other hand create an information culture in their respective countries, by sensitizing the information professional colleagues and the general public of the importance of information in their lives, their work and their advancement and well being.

1.6 SCOPE AND LIMITATION OF THE STUDY

Given the breadth and the complexity of the information sector in the countries of Africa, it would be a very extensive task to deal with all the diverse elements and issues that may fall within the scope of the topic of

this thesis. Considering the time, resources, and constraints, such an extensive comparative study is not practicable. The study is therefore limited to analyzing proposals on national policy on information of the six countries, Botswana, Ethiopia, Malawi, Tanzania, Uganda, and Zambia. These countries share certain common features as mentioned in section 1.4, that is they belong to the same economic and political groupings - PTA, OAU, and SADC, which would make the study useful, in better understanding their information policies and to harmonize the policy elements facilitating transborder dataflow, data exchange arrangements, networks, etc within the subregion. Further, they all use English as a working language. The language issue would impede data collection if it were otherwise.

1.7 METHODOLOGY AND DATA COLLECTION

1.7.1 Review of Documents

The method of data collection was predominantly through review of existing literature and documentation on information policies and this included:

- documents on information policies in general, and

- information policy draft proposals of countries under study.

The documents reviewed fall into three categories:

a) Articles in periodicals on various issues of information of the countries under study and general literature on information policy;

b) Conference papers and consultancy reports dealing with information issues in the subregion relating to information policies; and

c) Draft proposals on national policy on information from the countries under study.

1.7.2 Letters

Letters were addressed to heads of institutions responsible for formulating national policies on information requesting copies of draft policy proposals and other information.

1.7.3 Constraints

There is a scarcity of materials on information activities, particularly on policy issues in the sub-region. Most of the papers arose from the activities (national, regional, and international meetings) of Unesco's UNISIST and General Information Programme (PGI); German Foundation For International Development (DSE), International Development Research Centre (IDRC) and other international agencies. Few background papers submitted by participants find their way into formal literature and their contents are often repetitive and descriptive. Most of the papers are unpublished. Thus they are rarely cited and even when their existence was known efforts to retrieve them proved unfruitful. It is against this background that the accessible documents were studied.

1.8 WORKING DEFINITIONS

For the purpose of this presentation the following working definitions were used:

1.8.1 Africa

Africa refers to Sub-Saharan Africa excluding the Arab North Africa and the Republic of South Africa.

1.8.2 Data

Data are facts, the raw materials from which information is created for or by the user. Information once assimilated by an individual becomes personal knowledge. Personal knowledge once incorporated in books, films, software, etc serves as potential information for others (Montviloff, 1990).

1.8.3 Information

Information is intelligence or knowledge that contributes to the social, economic, cultural and political well being of society irrespective of the form it is encrypted in (text, figures, diagrams, etc); irrespective of the mode of dissemination (oral, written, audio-visual, etc);

and social activities that give rise to it (research, administration, census, etc); and the institutions that organize and disseminate it (libraries, documentation centres, statistical offices, mapping agencies, media and broadcasting services, telecommunications etc) (Pan African Development Information System, 1988).

1.8.4. Information resources

Information resources include data in textual, numerical, image or sound forms recorded on conventional and non-conventional media, collections, human expertise, information industry, etc, (Montviloff, 1990).

1.8.5 Information services

Information services include provision of information and data through systems and networks of different types in private and public sectors, databanks, databases, library systems and services, documentation centres, information analysis, consolidation and repackaging centres and services, archives, statistical services etc (Montviloff, 1990).

1.8.6 Information systems

Information systems are composed of sets of information units in computerized or non-computerized forms which interact with each other in some consistent pattern (Montviloff, 1990).

1.8.7 Information infrastructure

Information infrastructure consists of information resources, services, and systems, supported or not by information and telecommunication facilities necessary for processing and delivering of information. The traffic within this infrastructure is information.

1.8.8 Information technology

Information technology is any equipment or techniques used to handle information. It includes computing and telecommunication and related technologies.

> "The scientific, technological and engineering disciplines and management techniques used in information handling and processing; their applications, computers

and their interaction with men and machines; and associated social, economic and cultural matters" (Quoted from Zorkocy, 1985, from Report on information technology, M H Stationary Office, 1980).

1.8.9 Policy

"A policy is a statement of a specific goal or goals which are to be achieved or to be pursued; a statement of the means by which realization of the goals will be brought about; an assignment of responsibilities for implementation of the means and a set of rules or guidelines regulating the activity" (Martyn, 1988).

Policies may be developed at institutional level (micropolicies) or at national, regional and international levels (macropolicies). These can be of the following kinds: legal instruments constitutional, parliamentary acts, laws, regulations, international treaties, etc) and cultural instruments (customs, beliefs, traditions, social values, etc) (Montviloff, 1990).

1.8.10 National information policy

National information policy would therefore, imply a set of principles built on a given legal framework to guide and coordinate the collection, organization, recording and dissemination of information within a country and also provide a mechanism to access and obtain information outside the national boundaries.

CHAPTER 2

AFRICA: BACKGROUND

2.1 FACTORS THAT INFLUENCE THE DEVELOPMENT OF INFORMATION INFRASTRUCTURE

Development of any sector in an economy is influenced by overall environmental conditions and development goals pertinent in a given country or society. These include the geography of the country, demography, political and government structures, economic and industrial development, social structure etc (Montviloff, 1990). It is assumed that:

- The physical environment of a country provides a measure of the geo-climatic conditions, ease of internal and international communication which make information activities easier or more difficult;

- The greater the population density, the easier the intercommunication of information; and the more dispersed the population, the more difficult it will be to disseminate, access and use of information;

- Extreme temperature and humidity hinder the preservation and use of documents and increase their cost;

- The better the communication, the easier the flow of information among individuals and institutions;

- The higher the GNP, the higher the overall economic capacity of a country to support and allocate the resources for information activities;

- The priority the government gives to one or more sources of wealth (exploitation of natural resources, manufacturing of goods, provision and marketing of services etc) will affect or impede information activities;

- The greater the emphasis on the diversity of public, private, small/large, national/multinational companies, the greater will be the diversity of information services;

- The higher the support given to research, the more intense will be the generation and use of information; and

- The more education and more educated people the greater the capability to generate and use of information as well as more intense information activities in this area.

It is against these factors that this chapter gives a brief and general overview of the situation in Africa in general and each country under study.

2.2 PHYSICAL CHARACTERISTICS

2.2.1 Geography and Climate

Africa spans an area of 30 million sq km and contains a diverse environment: vast plains, forest, semi desert and desert lands and soaring mountains. The continent is high in the south-east and low in the north-west.

Plains are the dominant features of African landscape. The inselbergs (isolated bare rock hills) and the wall like escarpments which punctuate and often terminate the plains strengthen the impression of Africa's vast flatness. More than half of Africa is arid or semi arid.

Highlands and mountains also characterize the African landscape, for example, the Ruwenzori (Uganda/Zaire) and Ras Dashen in Ethiopia rises to a maximum of 6,000 metres.

Temperature variations are generally less pronounced in Africa. In January 25 degrees centigrade isotherm encompasses most of eastern, western, and central Africa with isolated picks (about 30 degrees centigrade) on Ethiopian highlands and Kalahari plateau. In July the temperature varies from the south-most tip to the northern range from 15 to 30 degrees centigrade.

Heaviest rainfall occurs in the region along the equator (receiving about 2,000 mm). To the north of the equator the rainfall decreases to about 250 mm. To the south the situation is more complex, i.e. the west coast of Namibia receives 250 mm and the east coast particularly the coast of Madagascar receives as much as 2,000 mm.

The humid areas happen to be those receiving highest rainfall, the west coast and the area astride the equator (The Cambridge encyclopedia of Africa, 1981). In recent years, however, the rain pattern has shown remarkable changes in that a number of areas in the continent have experienced severe droughts.

2.3 POPULATION

Of the total world population of about 5.28 billion, it is estimated that 12.1% inhabitants live in Africa. The population density is highest in East, West, and North Africa. These subregions account for 42, 37, and 22% respectively of Africa's total population. In Eastern and Southern Africa; Ethiopia, Kenya, Malawi, Tanzania, and Uganda show a density of 25 to 99 inhabitants per sq km. Zambia 10 to 24 per sq km, Botswana under 10 per sq km (African Region Population Project, 1991).

2.3.1 Occupation

Agriculture (small holder and subsistence) and herding are the principal economic pursuits for the vast majority of the people in Africa. The majority of people in the Subsaharan Africa dwell in the rural areas. Although the rate varies from country to country it ranges from 65 to 75%. The subregion also exhibits the highest urban population growth rates in the world. Eastern, middle, and western Africa have had the highest rate of urban growth (Prospects of world urbanization, 1989).

2.3.2 Literacy

Of the three regions with the highest illiteracy rates in the world is Subsaharan Africa. The other two regions are the Arab States and Southern Asia. It is estimated that half of the adult population is illiterate. In the least developing countries the percentage rises to 65%.

2.3.3 Ethnic Groups

There is a wide diversity of ethnic groups in Africa. Although no one is certain of the precise number of languages spoken today, scholars are in general agreement that they are in excess of 1,000 (Black Africa, 1972).

2.4 TRANSPORT AND COMMUNICATION

2.4.1 Roads

Generally Africa has poor road conditions giving rise to high transport operation costs. At present the road network of some 47 countries include about 700,000 km of main roads and an equal length of feeder roads. Major transport corridors linking land-locked countries to the sea have road infrastructure paved and generally in satisfactory conditions. Country networks, however, show

a staggering deterioration of existing roads. Non-maintenance has left about half of Africa's paved roads and about 80% of the unpaved roads in fair to poor conditions, and 85% percent of rural roads are poor and many of the roads of all types are in danger of being lost to unused state (UNTACDA, 1991).

2.4.2 Railway

Africa has a total of 80,706 km of railway lines, average of 2.7 km per 1,000 sq km. West Africa has about 10,188 km, Central Africa about 7,840 km, and East and Southern Africa has about 23,000 km long.

2.4.3 Shipping

Ship-owning and ship operating companies in Africa operate relatively few ships mainly serving national trade. The Eastern and Southern African countries have given very little attention to develop national fleets (UNTACDA, 1991).

2.4.4 Ports

The 1980's saw the rapid expansion in sea ports of Africa. There was substantial investment in construction of utilized and bulk terminals in 80 of the largest ports. Most coastal states have low traffic volumes by international standards.

2.4.5 Air Transport

African air transport carries the least ton-kilometres in the world. Much has to be done to improve air transport services, safety, security, and facilitation at major international airports. All the countries, however, have some regional and international air links.

2.4.6 Telecommunications

The development of telephone facilities in most African countries is still relative low. The total number of main lines in Africa in 1988 was 0.72 per 100 inhabitants. At subregional level, telephone penetration range from a low average of 0.24 per 100 inhabitants in West Central Africa, 0.41 in Eastern and Southern Africa, to a high 2.38 in North Africa. Eastern and Southern Africa have made major efforts in construction of interstate

telecommunication links, utilization of existing networks for inter-country communication and application of agreed tariff rates. East and Southern Africa together has 183 automatic exchanges with a capacities for 1.1 million lines. In West and Central Africa automatic exchanges have the capacity for 690,992 and 227,105 line respectively (UNTACDA,1991).

2.4.7 Postal services

Over the past ten years the density of postal services has improved in Africa, although it is generally considered that Africa's postal services are poor. There are wrong choices of transit centres which often leads to delays in distribution of mail and there have been little effort to develop postal services in rural areas.

2.4.8 Broadcasting

The infrastructure in this sector is far from being satisfactory in many African countries. Television and radio broadcasting remain at the bottom of the scale. the number of radio receivers in Eastern and Southern Africa is 136.5 per 100 inhabitants, West and Central Africa has 125.9 and 131.7 respectively. Television: Eastern and Southern Africa, and Central and West Africa have 23.7 and 11.6 per 100 inhabitants respectively.

2.5 ECONOMY

Following their political independence in the fifties and sixties most African countries have been dominated by one major theme, economic development. By 1990 this goal had not been realized. It is difficult to draw a general conclusion about subsaharan economy during any given period because of the diversity in a number of indictors that have a direct influence on the economy of a given country. For example, there are differences in population, climate, income per head, educational levels, natural resources endowment etc.

Generally the first decade after independence witnessed some economic growth in the subsaharan Africa. After the mid 1970's, however, almost every subsaharan economy declined in virtually every measurable way. Despite this gloomy picture the subregion has achieved a measure of economic growth since the mid 1980's. During this period the region's gross domestic product (GDP) advanced by 3.6% at constant price according to the International Monetary Fund (IMF). In per capita terms, however, the GDP did not register significant gains. This is mainly attributed to the rapid population growth of 3.2% (Sparks, 1992).

When compared with other developing regions of the world, subsaharan economy or social indicators perform less well. For example (see table 1 below) of the 3 major developing regions of the world subsaharan Africa has the lowest GDP per capita growth rate which was negative during the 1980's and 1990's. By 1991, per capita GDP was 15% below its level a decade earlier.

Table 2.1 Comparative Economic and Social Indicators (1980-90)

	Subsaharan Africa	East Asia	South Asia
- Total population (millions 1990)	525	1,552	1,131
- Real growth per capita GDP 1980-89 (average annual Percentage)	-2.1	6.3	2.9
- Population growth (average annual percentage) 1980-90	3.2	1.6	2.3
- life expectancy (years).....	51	68	58
- Infant mortality (per 1000 live births).....	196	96	74
- primary school enrolment rate (percentage).....	56	96	74
- Daily calorie intake per person..	2,101	2,594	1,228
- Government Expenditure on health (as percentage of GDP, 1985).....	1.2	1.0	0.7
- Government expenditure on education (as percentage of GDP, 1985).....	5.0	3.1	3.1

Source: The World Bank, United Nations, FAO, IMF. Some figures are estimates.

Despite the improvements in GDP in the late 1980's and 1990's almost every economy of subsaharan Africa has declined in the past three decades. The poor countries of Africa were even poorer by 1990 than they were at independence. This state of affairs is attributed to internal and external causes.

Internal Causes:

Physical infrastructure has been deteriorating since the 1960's. Roads, railways, ports and communications have been neglected, particularly in the rural areas.

The structure of the economy is still predominantly based on the production of primary agricultural products and mineral products for export.

Agriculture production has declined due to fluctuating climate and poor soils which has had devastating impact on agriculture.

Inflation. The regions inflation rate has been increasing in recent years, reaching an annual average of 16.7% between 1975-89.

Population growth rate at 3.1% (annual average) and rapid urbanization have caused stress on the already impoverished economies.

There is also mismanagement of the economy.

External causes:

The region's economies are based on production of one or two primary crops and mineral products for export whose prices have fallen on the world market. This in turn has reduced foreign exchange earnings to finance development. Foreign aid servicing has been hampered severely as a result of the fall in foreign exchange earnings. In the wake of the breakdown of the Eastern European socialist bloc Western donor countries are focusing more attention in that area thereby reducing foreign aid to and investment in subsaharan Africa.

2.6 POLITICS

From independence Africa has been and continues to be characterised by governments with a variety of political ideologies. In the majority of the countries the political situation has been that of instability. Governments have been unable to maintain their authority and political order.

At independence ruling parties took control of the state office and had some form of capitalist economies left behind by the colonial powers. In several countries rival parties were unable to settle regional differences and resolve their disagreements within an agreed

constitutional framework. This gave rise to military coups. Radical officers took power with programmes of populist policies. Some of the coups resulted in authoritarian and repressive governments. In some countries coups set precedents for further coups (William, 1993). In a number of countries ruling parties formed one party states which also fell to military coups. In other countries, however, one party governments survived the initial military coups and provided a stable form of government for nearly thirty years. Examples of such countries include Kenya, Malawi, Cameroon, Cote d'Ivoire, Tanzania and Zambia. These governments combined centralized and bureaucratic direction of policy and administration. Some pursued socialism in its African form and in some socialism was just an official rhetoric. Elsewhere socialist Marxist governments emerged in the 1970's: Angola, Ethiopia, and Mozambique with centralised planning and policy direction.

The end of the 1980's blew a wind of change across Africa. The disintegration of the eastern socialist bloc and the end of superpower rivalries has lead to peace negotiations between warring factions. There is also a broad political opposition calling for plural politics from within the countries. The pressure for plural politics has also come from donor countries who are

increasingly linking economic aid to political reform. Indeed multiparty elections have taken place in several countries. On the whole, however, political instability and civil wars continue to characterise Africa.

2.7 BOTSWANA

2.7.1 Geography

Botswana is a landlocked country occupying 582,000 Sq Km of land. It has an average attitude of 900 m above the sea level. Kalahari sands are the characteristics of most of the country but the east is more hilly and broken. The Kalahari desert dominates Southern and Western Botswana. It is large and sparsely populated and surrounded by almost entirely by South Africa, Namibia and Zimbabwe.

The Okavengo, flowing from the north-east from Angola is Botswana's main river. Most of its water is lost through evaporation and transpiration. Shortage of water due to low annual rainfall is the biggest hindrance to the development of Botswana's natural resources.

Climate: Although there are variations, the climate is predominately subtropical with semi-arid conditions in south and south-west; rainfall in these regions range from 200 mm to 250 mm. Winter is warm (April-September) at about 20°C. Summer (October-March) temperature at about 38°C.

2.7.2 Population

The eastern strip is the best endowed and most developed region of Botswana, and 80% of the population resides here. The preliminary result of the 1991 census put, the population at 1.3 million (World population, 1992).

There are eight indigenous ethnic groups in Botswana and seven of these are concentrated in the eastern strip of the country. All the indigenous people regardless of their ethnic origin speak Sitswana which is the Country's common language (maina, 1991). The two official languages are English and Sitswana. The majority of the population resides in rural areas and they engage in small live stock herding due to the limitations imposed by low rainfall.

2.7.3 Political Structure

Since independence in 1966, Botswana's political system remains tranquil and democratic. It is one of the few remaining parliamentary democracies in Africa. The ruling party, Botswana Democratic Party won the elections at independence in 1965, 1969, 1977, 1978, 1982, 1986, 1990. The other opposition parties include, Botswana Independence Party, Botswana National Front, Botswana

Peoples Party, Botswana Progressive Union, and Botswana Freedom Party. Government policies support a market economy. The public sector, however, is an important regulatory factor and general economic policy guidelines are provided through national plans. The sixth national development plan (1985-91) emphasizes employment creation through attraction of foreign investment and expansion of the private commercial sector. One of the major aims of the economic policy is to nurture the mining sector from where much of the public sector revenue comes. The revenues are redistributed centrally and locally, to build up social and economic infrastructure (Stahl, 1990)

2.7.4 Economic Development

At independence Botswana was one of the 20 poorest countries of the world. Government revenue was dependent on foreign aid and remittances of the migrant workers employed in the South African mines. The commercial livestock sector was the largest contributor to GNP and export earnings.

Mining: During the 1980's Botswana's economic performance outstripped that of all non-petroleum producing countries in Africa. GDP rose, in real terms, by an annual average of 11.3% in 1980-90 giving Botswana one of the highest

world growth rate (Africa South of the Sahara, 1993), The rapid expansion was due to the discovery and development of mineral resources, diamond in particular. This has helped to finance development of infrastructure, manufacturing and social services. The seventh national development plan 1991-97 aims to increase earnings from the mining sector.

Agriculture: An estimated 62.8% of the labour force were engaged in agriculture in 1990. Because of the dry nature of the country, it is more suited for grazing than arable production. Cattle industry contributes 80% of agriculture GDP. The meat industry is organized as a parastatal.

Manufacturing: since the 1970's manufacturing has emerged as one of the dynamic sectors. In 1988 it contributed 4% of GDP.

2.7.5 Education

Education, is a priority area of government policy, receiving one quarter of recurrent budget expenditure. Illiteracy rate was widespread at independence. In 1980 a literacy program was initiated. In 1970 adult illiteracy rate was 50%, but by 1990 it came down to 26%.

The primary school system has expanded so that the universal primary education is virtually complete. Since the mid 1980's junior secondary schools have been given priority. An estimated 70% of the secondary school age population were enroled in junior secondary schools in 1990. The University of Botswana was formerly established in 1982. In 1990 it had a student population of 3,352. (Unesco Statistical Yearbook, 1991)

2.7.6 Communication

There is 887 km of rail line within Botswana, This includes three branches connecting three important mining area with varying distances of 56 km, 16 km and 175 km. The main rail line from South Africa runs through Zimbabwe to Botswana.

In 1989 there were 13,500 km of roads, including the main road from Gaborone, via Francis Town, to Kazangula, where borders of Botswana, Namibia, Zambia and Zimbabwe meet.

Telecommunication: There are about 17,900 telephones in Botswana. All major towns have automatic telephone exchanges, all of which are currently being modernized. A number of rural areas have telephone systems operated by manual exchange.

2.7.7 Research

Government ministries and parastatals conduct research. Several ministries have created research units to conduct research in their areas of interest. Government also allocate specific research tasks to external research institutions. The National Institute of Development Research and Documentation (NIR) was established in 1975 with view a to providing the University of Botswana a centre for development research. Besides conducting research in various fields, NIR also conducts training in research. Of the total research funds allocated for 1988/89, mineral resources (including groundwater) and agriculture received 46 and 38 percent respectively (Stahl, 1990).

2.8 ETHIOPIA

2.8.1 Geography

Ethiopia extends South and West from Eritrea to form the hinter land of the Horn of Africa. It covers a total area of 1,221,900 sq km. Ethiopia is bordered by Sudan to the west, by Kenya to the south, by Djibouto to the east and Somali to the south east, and more recently to north by

Eritrea which attained independence in April 1993. The independence of Eritrea has left Ethiopia land locked. The mountain plateau which dominates the country comprises two principal regions: the western and eastern highlands divided by the Great Rift Valley. Elevation range from around 100 m below sea level to a number of mountain peaks in excess of 4,000 m above sea level.

Altitude variations produces a wide range of temperature conditions. Plateau uplands are temperate, low lands are hot and humid. The wet season (April to September) with 1,000 mm of rain but the north-east and eastern plains receive almost 500 mm and are very vulnerable to drought conditions. Addis Ababa, the capital, has an average temperature of 15°C.

2.8.2 Population

In 1990 the population was estimated at 51.2 of which 13% live in urban areas. Population density is 36.6 per sq km (World population,1991). The distribution of population reflects the pattern of relief. The highlands having plentiful rain are home of settled agriculture and highest concentration of population.

There are over 70 ethnic groups in Ethiopia. Of the 70 languages only 8 are spoken by large numbers people. Amharic is the official language.

2.8.3 Political Structure

Since May 1991, Ethiopia has a Transitional Government which came into being after the overthrew of the socialist government which ruled Ethiopia since 1974. The Transitional Government's rule is based on a charter drawn by different parties which includes the Ethiopian People's Revolution Democratic Front (EPRDF) which at present dominates the government, Oromo Libration Front (OLF), Afar Libration Front (ALF) etc. The government is in the process of conducting constitutional assembly elections which would eventually draft a constitution. Although the Transitional Government supports a free market economy and seen with the establishment of the Privatization Agency in February 1994, it continues to advocate considerable measure of state involvement in trade and in ownership and management of large scale enterprise (Africa South of the Sahara, 1993).

2.8.4 Economic Development

Ethiopia's economy which is predominantly agriculture has suffered disruptions since 1970's. The 1974 revolution was followed by introduction of socialist economic policies, land reforms, nationalization of all major industries and the centralized planning. Continuous warfare through the 1980's placed severe strains on the economy. In 1990 the GNP per capita was $120 and Ethiopia was ranked as second poorest country of the world.

Agriculture sector is the largest contributor to GDP, and it provides 80% of exports and employs over 75% of the working population. Coffee is the most important export crop. Of the total arable land 93% is under peasant production. Drought, war, and other environmental degradation has lead to serious famine in recent years (McCann, 1987).

Industry: Manufacturing sector is largely composed of processing of agriculture produce. Over 90% of large scale industry is still state owned. The sector concentrates on consumer goods, textile and food processing.

Mining: There are small reserves of gold, platinum, copper and potash.

2.8.5 Education

Education provided by the government is free in Ethiopia. There has been a rapid growth in the number of schools since 1974. Besides various types of colleges, Ethiopia has three Universities whose student population was estimated at 16,116 (This included Asmara University) in 1990. A literacy campaign was launched in 1979, and by 1987 the adult illiteracy rate had reduced from 93% to 29% (Unesco Statistical Yearbook, 1990).

2.8.6 Communication

There is a single rail line running from Addis Ababa to Djibouti. The all weather road network has been considerably extended from 5,500 km in 1974 to 17,672 in 1987/88. However, many roads have been damaged due to war.

Telecommunication. Telecommunication infrastructure is operated by the Ethiopian Telecommunication Authority (ETA). By 1992 there were 140,487 telephone subscribers of which 7,396 were installed during the year. Over the

last few years, automatic exchanges have been installed in all major towns. Besides telephone services ETA offers telefax, telegraphic, and telex services at national and international levels (Ethiopian Telecommunication, 1992).

2.8.7 Research

Research in Ethiopia is conducted by various institutions. Ethiopian Science Technology Commission (ESTC) was established in 1975 to enhance science and technological capacity. It is the principal body concerned with formulation of national policies and planning science and technology as well as overseeing promotion and coordination of scientific research and development activities in the country. The second level of research structure consists of research institutions. These are autonomous or semi-autonomous linked to government ministries or universities such as, Institute of Agriculture Research, Institute of Ethiopian Studies, Ambo Scientific Phytopathological Laboratory, etc. There are also R & D centres and field stations which are non-autonomous. They are attached to main research institutions. These are mostly found in agriculture sector. Major problems facing research in Ethiopia include lack of adequate and trained manpower, equipment and funding (ESTC, 1986).

2.9 MALAWI

2.9.1 Geography

Malawi is located in south-east Africa and is a narrow land locked country covering an area of 118,484 sq km. It occupies a plateau of varying heights. The largely infertile western central plateau (800 - 1,400 m) rises north to 2,600 m in the Nyika highlands. To the south is the cultivated shire highland (600 - 1,600 m) reaching a maximum altitude of 2,130 m (Mt Zomba) and 3,000, in the mulanje massif. Transversing the country north-south the Great Rift Valley contains lake Nyasa, (20% of Malawi's total surface area) and the shire valley, draining south-east from the lake. Zambia, Tanzania and Mozambique are Malawi's neighbours.

There are three climatic seasons in Malawi, cool season is from May to August. the mean temperature in the plateau areas is 15.5 - 18°C and the Rift Valley 20 - 24.5°C, September to October a short hot season, mean temperature in the Rift Valley ranging form 27 - 30°C and from 22 - 24°C on the plateau, and the rainy season lasting from November to April.

2.9.2 Population

The bulk of the population is concentrated in the southern region the most developed and with the most fertile soils. Northwords the population thins out. Malawi is one of the densely populated countries in Africa with a population of 8.5 million (average density being 72.2 inhabitants per sq km). According to the United Nations projections, the population will increase to 11.4 million by the year 2000 (World Population, 1992).

Ethnic composition: Chewa, Nyanja, Tonga and Tumbuka ethnic groups make up 60% of the population; Lomwe 18.3%, Yoa 13.2, Ngoni 6.7% and some small European and Asian minorities (World fact, 1990). English and Chichewa are official languages and are spoken by 50% of the population.

2.9.3 Political Structure

Malawi has been a one party (Malawi Congress Party) state since 1966. It has had a stable political environment although at the expense of severe repression of any one challenging the party and the authoritarian rule of President Banda. In 1971 under a constitutional

amendment, President Banda was appointed life president (William, 1978). There is also a parliament consisting of the President and the National Assembly. All members belong to Malawi Congress Party. Ministers are responsible to the President.

The winds of change sweeping across Africa for political reform has not spared Malawi. Political pressure form within and without the country led to the amendment of the constitution in 1993 to allow multiparty democracy. Multiparty elections are due in May/June 1994.

2.9.4 Economic Development

In 1991 the GNP per head was US$241. There have been problems of subsistence agriculture, low educational levels, shortage of skilled manpower, lack of mineral resources, underdeveloped infrastructure and import dependent industries.

Agriculture is the main stay of Malawi's economy contributing 33% to the GDP and 90% of export earning in 1991. More than 80% of the working population are engaged in agriculture. Maize is the principal crop. Nearly 80% of land is worked on by subsistence farmers. Expansion of small holder schemes and National Rural Development Programmes were launched in 1977 in an effort to expand

commercial production of crops (mainly for export) and raise rural income. Major exports include tobacco and tea.

Industry. Manufacturing industry increased output by an average of 11% per year during 1970's. This slowed down in 1980's to less than 3% due to drought and scarcity of foreign exchange. The sector contributed 13.6% of GDP in 1990. Government encouragement of private sector led to attraction of foreign investors. The Small scale Enterprise Development Organization of Malawi (SEDOM) was established in 1979 to encourage development of small industries (Africa south of the Sahara, 1993).

Mining. A few industrial minerals so far have been exploited despite the discovery of bauxite, asbestos, coal, gemstone, uranium and graphite.

Priority areas for development include transport, agriculture, education, and industry and were allocated 32%, 19%, 9.6% and 6.4% respectively of the national budget in the 1985/86 - 1987/88 economic development programme.

2.9.5 Education

In 1988, 50% of the total school age population were attending primary school but only 4% of the total school age population were attending secondary school. University of Malawi had only 2,685 students during the same period. In 1987 two teachers training colleges were opened as part of the governments second Education Development plan (1985-95).

According to Unesco estimates the adult illiteracy rate was 55.8% in 1990. In 1986 a five-year adult literacy programme was launched.

2.9.6 Communication

Malawi Railways operates 465 km of 830 km single-line rail from Salima to Mozambique port of Beira. Another rail link providing access to the port of Nacala has been disrupted since 1981 due to guerrilla activities in Mozambique. The re-routing of trade through South Africa, Zimbabwe and Zambia has caused a severe strain on the economy of Malawi.

Malawi road network which totalled 12,215 km in 1988 is being upgraded. This includes the Kamuzu highway which will provide the main link between the northern, central and southern regions (Africa South of the Sahara, 1993).

Feeder and crop extraction roads which are generally in bad state during the wet season are also being extended and improved.

Telecommunications. There are 36,800 telephones, and telephone density is at 0.62 per 100 inhabitants which is low by the regional standards. In 1987 there were 21,800 subscribers almost entirely in urban areas. Of the total subscribers 45% were classified residential, the rest were used for business (Malawi Government, 1987). Two direct earth satellite stations were built: one to serve India and the Far East and the other for Europe, North America and some parts of Africa.

2.9.7 Research

Much of the research work is in agriculture sector as it is the mainstay of the country's economy. Government established several agricultural research stations in all parts of the country which are coordinated by the Ministry of Agriculture. National Research Council established by the Act of parliament of 1968, now called the Department of Research and Environment Affairs, has the responsibility of coordinating all research activities in the country and to promote scientific

research and other related research needs of the country and advise the Government on scientific and technological policies.

2.10 TANZANIA

2.10.1 Geography

The 945,087 sq km of Tanzania includes the main land Tanganyika, and offshore islands (Zanzibar, and Pemba). Tanzania has a wide range of land forms and climate. The main highland areas - the northern belt: Usambara, Puse, Kilimanjaro, and Mount Neru, Central and southern belt: Southern highlands, the Ugurus and the Ulugurus, the north south belt runs southwards from Ngorongoro crater. The long coastal sand beeches and reefs are interspersed with mangrove swamps where the Pangin, Mandera, Mbemkuku and Rufiji rivers enter the Indian Ocean.

The rest of Tanzania is largely made up of gently sloping plains and plateau broken by low hill ranges and scattered isolated hills. Population distribution is affected by the semi-arid conditions in some northern regions and by predominance of tsetse fly in western central areas.

The climate is subject to variation according to altitude. There are three major climatic zones. The costal area has high temperature and high humidity levels. This lessens on the semi-arid central plateau. The costal area receives up to 1,000 mm. Inland the rainfall decreases to 250 mm. Much of the rain falls from December to May. Temperate conditions prevail on the high peaks.

2.10.2 Population

Tanzania had an estimated population of 25.6 m in mid-1990 of which 17.9% live in urban areas (Africa region population projection, 1991). Population density is 27.1 persons per sq km, and the growth rate between 1980-87 was 3.3%. Highest population density (over 250 per sq km) occurs on the fertile lower slopes of Mt. Kilimanjaro and on the shores of lake of Malawi.

There are over 120 ethnic groups of which the largest are the Sukima and Nyamwezi comprising 21%. English and Kiswahili are the official languages.

2.10.3 Political Structure

Currently Tanzania is ruled by a single party chama cha Mapinduzi. The constitution, however, has been ratified

in 1991 to allow a multiparty democracy. Multiparty elections are scheduled for 1995. The country is headed by a president.

Tanzania is divided into 20 regions and 75 districts which are administered by the Regional Commission and the District Commission respectively. There are three main organs of the party: the National Conference, serves as the sounding board for the government; the Central Committee is responsible for day to day administration of the party; the National Executive Committee, is the chief executive arm of the party. The general policies made by the party have to be translated and implemented by the government (Sekimang'a, 1992). Tanzania is one of the few African countries which has experienced political stability since independence with its record of economic stagnation.

2.10.4 Economic Development

Tanzania is one of the poorest countries of the world with GNP per capita of US$110. The policy of the government since independence has been to lift the majority of the population out of illiteracy, poverty and disease. To achieve this goal the government pursued the program of regrouping scattered villages into Ujaamaa villages, which were envisaged as centres for social and

infrastructural services (Hyden, 1980). The policy (Arusha Declaration of 1967) of nationalizing important economic sectors, particularly major industries and distribution and marketing was pursued in order to achieve economic independence. However, the severe economic decline from the late 1970's through to the 1980's and the need for economic aid compelled the government to adopt measures to redress the economy.

Agriculture. Tanzania is predominantly an agricultural country. Over 90% of the country's population live in rural areas and are involved in agricultural activities. Agriculture contributed 38% of the GNP and accounted for 84% of export earnings in 1990. Coffee is the most important export crop.

Industry. The period from independence to 1980, the country registered an average annual growth rate of 2.0% in industrial production of. Between 1980 and 1985 the growth rate fell to zero when many factories were closed or suspended operations due to severe lack of foreign exchange to pay for raw materials, machinery and spare parts. In 1988 the manufacturing sector contributed 7.8% of GDP (UN Industrial Statistics yearbook, 1990).

Mining. Tanzania mines diamonds, gold, coal, phosphate, various gemstones and tin in small quantities.

Tourism is another source of foreign exchange. It is regarded as having good potential given Tanzania's beaches and game parks covering about one third of the country.

2.10.5 Education

Universal primary education was introduced in 1977 and made compulsory by Education Act the following year. Total enrolment of school-age children in primary 63% and 4% for in 1989. Tanzania has two universities; Dar-es-Salaam and Sokoine, and a number of vocational training centres and technical colleges. The estimated rate of adult literacy rose from 33% in 1967 to 90.4% in 1986 as a result of vigorous literacy campaigns.

2.10.6 Communication

The concentration of the population on the periphery of the country leaving much of the central part relatively sparsely populated poses transport and communication problems.

There are 2,600 km of rail lines within Tanzania operated

by Tanzania Railways Corporation (TRC). The Tanzania-Zambia highway (TAZAM) designed to provide an outlet to landlocked Zambia has eased the problem of transport to the rich Kilombero valley, the Iringa and Mbeye region in the south of the country.

Tanzania has 81,895 km of roads, out of which 17,738 km are primary and 42,000 km are secondary. Only a small proportion of the total network are paved and many of the roads are impassable during the rainy season. A five year integrated road project funded by the World Bank and other donors was started in 1991 to repair and improve 60% of the country's primary roads and 50% of the regional road network in eleven agriculturally important regions (Africa South of the Sahara, 1993).

There are 103,800 telephones in Tanzania. A new international telephone exchange giving direct dialling facilities was installed in 1991. A satellite earth station built in 1979 was replaced by a new installation giving access to Atlantic and Indian ocean satellites.

2.10.7 Research

Although Tanzania has established some institutional infrastructure for research in a numbers of sectors, "the

research conditions are far from ideal. Many researchers and graduates have left the country, many laboratories lack instruments and research materials, Salaries are low,.. ", (Widstrend, 1992). Through various acts of parliament, several national research institutions have been established. Most of those fall under the industrial, agricultural, natural resources and health sectors of the economy. The research superstructure consists of a new ministry, the Tanzania Commission for Science and Technology (COSTECH) formerly UTAFITI and a mix of several other government institutions through which research money is channelled. Research is conducted by the two universities, various ministries and parastatals, private research and consulting organizations.

2.11 UGANDA

2.11.1 Geography

Located on the equator, landlocked and covering a total area of 241,139 sq km, Uganda is divided into ten provinces. The bulk of the land forms part of the central African plateau, marked by mountains and depressions. In

the west the Virunga range rises to 4,127 m while Mount Margherita rises to 5,150 m in the Ruwenzori on the border with Zaire. In the south is Lake Victoria. The highlands are above the limit of cultivation. Savannah vegetation predominates in the central region and the north. Uganda's neighbours are Tanzania, Kenya, Sudan Zaire and Ruwanda.

Uganda has an equatorial climate. Most of the north receives some 1,500 mm. Central and the north eastern plateau receives about 1,000 mm of rainfall. In the south west the rainfall decreases. Most of the rain falls from March to June. Temperatures vary between 15 and 30°C.

2.11.2 Population

Preliminary results of the 1991 census put the population at 16.6 million and density of 69 persons per sq km. Average annual growth is 3.2%. The population is predominately rural. The 1990 census recorded only 7% of the people residing in towns (World population, 1992). The eastern and southern-eastern regions are areas of highest population density.

The 40 ethnic groups in Uganda fall into three linguistic groups. Bantu speaking - 70% (Buganda, Bersoga, Banyoro,

Banyankole); Nilotic 16% (Lango and Acholi), and Nilo-Hamitic 14%. English is the official language.

2.11.3 Political Structure

Uganda's political environment has been unstable since the first coup that ousted Obote in 1971. From that time Uganda has seen a series of governments and wars. Since the National Resistance Army of Museveni took power in 1986, Uganda has experienced peace. Present set up of the government includes the Executive and legislature. The President is the head of government. The cabinet is composed of a number of political parties. The National Resistance Council functions as a legislature pending the arrangement for a transition to a full democratic rule. The Constitutional Assembly Election are scheduled for mid 1994.

2.11.4 Economic Development

Agriculture is the main stay of Uganda's economy. It accounts for 67% of the countries export earnings, 72% of GDP,and 65% of Uganda's work force are engaged in agriculture. Coffee accounts for 93% of exports, other crops being cotton, tobacco and tea.

Industry. Main industries are engaged in processing agriculture products and production of consumer goods. The output of the industrial sector has fallen since the 1970's as a result of the political instability. In 1990 manufacturing provided only 4% of GDP (Africa South of the Sahara, 1993).

Mining. Mining of blister copper fell sharply from 17,000 ton in 1970 to 2,261 in 1977. The mine at kilemb in western Uganda eventually ceased production in 1979. A number of other minerals are mined on a small scale. These include limestone, tin, beryl, phosphate, gold, bismuth and columbo tantalite.

Tourism. Between 1960 and 1972 tourism was the third most important foreign exchange earner after coffee and cotton. The wars that followed 1972 devastated the industry. The government has now begun to rehabilitate the sector.

2.11.5 Education

All schools charge fees, and most schools are sponsored by the government while a small proportion are sponsored by Christian missions and private concerns. In 1988 the number of pupils attending government primary and

secondary schools was equivalent to 51% of children in the relevant age-group. In 1987 Makerere University had a student population of 6,300. The Islamic University at its opening in 1989 had 80 students. There is also a university of science and technology at Mbasasa inaugurated in October 1989. There are also several teacher training and vocational colleges.

2.11.6 Communication

Much of the rail lines and roads were destroyed during the war of 1978 to 1985. In 1992 there was 1,230 km of railway network in operation.

There are 28,332 km of road network of which 7,782 km are main roads and 18,508 are secondary roads.

There are 61,600 telephones and radio communication stations. Kampala telephone network been modernized and expanded.

2.11.7 Research

In Uganda there are several institutions involved in conducting research most of which are government sponsored. The National Research Council was established

in 1970 to guide and coordinate research throughout Uganda.

2.12 ZAMBIA

2.12.1 Geography

Occupying the elevated plateau in south-central Africa, Zambia is landlocked. It spans an area of 752,614 sq km. The country shares borders with Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, and Zaire. Most of the land comprises elevated plateau with isolated peaks and hill ranges such a Muchainga mountains rising in the north to 1,788 m. About 71% of the land is drains into the Indian Ocean by the Zambezi and its two main tributaries, the Kafue and the Luangwa, with the rest by the chambershi and Luapula via the Congo (Zaire).

Zambia has a tropical climate with three seasons. Two dry seasons, one cool, one hot, lasting May-August and September-November respectively and the rainy season with high temperature and humidity. Temperature ranges between 30 - 35°C across the country.

2.12.2 Population

The population at the 1990 census was put at 7.8 million with a density of 10.4 inhabitants per sq km which is low by Africa standards for a country which contains no truly arid area. Zambia is the most urbanized country in the Subsaharan Africa with 41% of the population residing in towns (Prospects of World Urbanization, 1989). Lusaka the capital city is the largest urban centre.

There are over 73 ethnic groups in Zambia, The major ones being Bemba, Nyanja, Tonga and Lozi. Over 80 languages have been identified of which seven are recognized as official vernaculars. English is the official language.

2.12.3 Political Structure

Until 1991, Zambia was a one party state ruled by the United National Independence Party (UNIP) which provided a stable political enviroment until the late 1980's when discontent from the population began to mount. The Party's Central Committee and National Council formed the policy making body.

In 1990 the constitution was amended to allow multiparty democracy. In the general elections that followed UNIP lost overwhelming to Movement for Multiparty Democracy

MMD. The MMD government comprise the President, Vice-President, and Cabinet Ministers. The Cabinet is now the major policy making body. Under the cabinet are ministries and departments responsible for translating and implementing policies formulated by the cabinet.

2.12.4 Economic Development

Zambia's economy is dependent upon mineral mining, in particular copper. From 1960's to 1970's the favourable copper prices on the world market provided government with revenue. Massive investments were made in physical and social infrastructure development. The falling of the copper prices in mid 1970's moved the country into deficit. Since then the deficit has not been reduced.

Mining. The copper industry has continued to dominate the economy because of the inadequate level of natural development. Copper accounted for 93% of the total country's foreign exchange and contributed 10% of the GDP in 1990. The MMD, like the previous government emphasis is on shifting from dependence on mining to agriculture (MMD, 1991).

Industry. Manufacturing industry is another important contributor to Zambia's economy, second only to mining.

The manufacturing sector is mainly oriented toward the domestic market. The sector produces food stuffs, tobacco, textile, clothing, wood products, chemicals and metal products. Like in the majority of Subsaharan Africa, the industrial sector in Zambia is dependent upon imported raw materials, spare parts and equipment which has an adverse effect with shortages of foreign exchange. The sector is dominated by state firms a trend which the MMD government has already set out to redress by establishing the Zambia Privatization Agency (ZPA) in 1992 to sell all unprofitable parastatal companies.

Agriculture (including fisheries, and forestry) contributes 17% to GDP. Since independence the government has allocated substantial amount of resources to boost production but not much has been achieved due to several factors, such as, lack of skilled manpower, rural-urban migration, absence of a stable and organizational framework (Basic needs in an economy..., 1981). The present government aims to encourage investment in agriculture.

2.12.5 Education

At independence in 1964 Zambia had a severe shortage of trained manpower. Hence the government embarked on

various programmes to reverse the situation. New schools (primary and secondary), teacher training colleges, vocational and technical colleges and a university were established. More recently (1988) another university was inaugurated on the copperbelt. In 1988 it was estimated that 80% of the children in the school-age group were attending primary school while in secondary school it was only 15%. Currently there are 3,489 primary schools, 480 secondary, 12 technical and vocational colleges, 14 teacher training colleges and 2 universities (Ministry of Higher Education, 1989). The illiteracy rate has considerably reduced since independence. In 1969 the illiteracy rate was 48.6% and by 1990 it had reduced to 27.2% (Zambia National Alliance, 1993).

2.12.6 Communication

At independence Zambia was poorly served with transport facilities. There was a single rail line running from the copperbelt through Lusaka to Livingstone and linking Zimbabwe. The government spent substantial amount of funds to improve transportation facilites. The country has now 2,164 km of rail line including the Tanzania-Zambia Railway linking Zambia to the port of Dar-es-Salaam. The eight provincial centres have been linked

with tarred roads-from Lusaka; however, a number of feeder roads are in a poor state.

There are 71,700 telephones in Zambia. In 1974 the government commissioned the Mwembeshi Earth Satellite Station which led to an improvement in international telephone services, telex and other telecommunication facilities. From 1972 to date a number of telecommunication facilities such as international telex exchange, improvement of inter-territorial communications, national trunk network automatic exchange and local distribution networks have been installed (PTC, 1990).

2.12.7 Research

Research is conducted by the two universities, various ministries which have research branches, and the private sector. Realizing the need for a strong well established scientific, industrial and technological infrastructure the government established the National Council for Scientific Research (NCSR) by an Act of Parliament in 1967 to spearhead research in the country. Besides conducting research the "general function of the Council is to coordinate and promote scientific research in Zambia with the view to ensuring that requirements of the

country's development plans are properly supported by scientific research...." (NCSR annual report, 1975). Research activities, as elsewhere in Subsaharan Africa are hampered by lack of financial resources.

SOME SOCIAL AND ECONOMIC INDICATORS OF COUNTRIES UNDER STUDY

Demographic Indicators

COUNTRY	POPULATION IN MILLIONS MID 1990	URBANIZATION AS AS A PERCENTAGE OF TOTAL POPULATION 1990	ILLITERACY RATE 1990
BOTSWANA	1.3	28	26
ETHIOPIA	51.2	13	29
MALAWI	8.5	12	55
TANZANIA	24.5	33	17
UGANDA	16.3	10	50
ZAMBIA	7.8	50	27

SOURCE: World Bank, World Development Report 1992

PRIMARY AND SECONDARY EDUCATION

COUNTRY	PERCENTAGE OF AGE GROUP ENROLED IN EDUCATION	
	PRIMARY	SECONDARY
BOTSWANA	111	37
ETHIOPIA	38	15
MALAWI	67	4
TANZANIA	63	4
UGANDA	77	13
ZAMBIA	95	20

SOURCE: World Bank, World Development Report 1992

Some Economic Indicators

COUNTRY	GNP PER CAPITA 1990	AVERAGE ANNUAL RATE OF INFLATION 1980 - 1990	AGRICULTURE GROWTH RATE 1980 - 1990	MANUFACTURIN GROWTH RATE 1980 - 1990
BOTSWANA	2,040	12.0	-4.1	5.3
ETHIOPIA	120	2.1	-0.1	3.1
MALAWI	200	14.7	2.0	3.6
TANZANIA	110	25.2	4.1	-0.4
UGANDA	220	107.0	2.5	5.2
ZAMBIA	420	42.2	3.7	3.5

SOURCE: World Bank, World Development Report, 1992.

CHAPTER 3

INFORMATION INFRASTRUCTURE

3.0 SCOPE

In the preceding chapter a general background to economic, social, political and physical aspects of each of the six countries in this study was outlined.

This chapter gives a general overview of existing information infrastructure in each of the six countries under study. Such an overview will enable:

I. an assessment of the existing information resources and services capacity in each country; and

II. an understanding of principal elements of the existing information or related policies;

These points will to some extent, provide a general picture of each country's capabilities to provide information services.

The capacity of the different institutions concerned with the generation, processing, transmission, storage and

dissemination of information generated within a country or acquired from outside the national borders make up a country's information infrastructure. These institutions include libraries (academic, public, school and special), archives, museums, the mass media, publishing industry, information technology industry, information professionals and professionals in related fields.

Traditionally libraries have been the major suppliers of information and information sources. The library as an institution has evolved into different types, such as academic libraries, designed to serve institutions of high learning; public libraries, serving a wide range of the general public; school libraries, attached to schools (Primary and Secondary); and special libraries, serving the needs of specialized user groups (researchers, professionals, planners, decision makers, executives) in institution of different types. Archives and museums are important component of a country's information system. Archives contribute in preservation of information source materials, terminology, information dissemination and use. Museums preserve cultural and historical materials which are also of value to a country's information source. Publishing industry helps in capturing the information that is generated into physical formats. The mass media facilitates the dissemination of information to a wide audience and therefore constitute important

information dissemination component of the national information system.

3.1 BOTSWANA

3.1.1 Libraries, Documentation centres and Archives

National library: Some of the functions of a national library are performed by the Botswana National Library Services (BNLS) which produces the National Bibliography of Botswana; and the National Archives which preserves, among other information materials, public information documents.

Academic Libraries: The University of Botswana which was formally established in 1982 has a library which is growing steadily in terms of staff, equipment and collection owing to the favourable economic situation currently prevailing in the country. Libraries also exist in other higher education institutions such as Botswana Agriculture College and the seven Teacher Training Colleges.

Schools libraries: School libraries exist in most of the 169 secondary schools. Most of the primary schools especially in the rural areas are served by the Book Box programme of BNLS.

Special libraries: do exist in government ministries, parastatal and private institutions. Most noted of government libraries are the Ministry of Agriculture library, Agriculture Research Station Library, Veterinary Laboratory Library, Geological Survey Library etc.

Documentation: The most notable documentation centre is that of the National Institute of Development Research and Documentation (NIR). The Institute was established in 1975 as a documentation centre for the University of Botswana. It developed into a research institute in 1978. The functions of the NIR documentation centre include building up national socio-economic development information, collection of national grey literature and to link up with other information centres of Africa to exchange information.

National Archives: Botswana has a National archives which has a legal deposit act to receive and preserve of public records.

Public libraries: The public library system is under the Botswana National Library Service (BNLS) established by the Act of 1967. BNLS has 22 branch libraries, a mobile library operating in and around Gaborone, book boxes for schools and village reading rooms. It offers research facilities at the National Reference Library which is housed at its headquarters in Gaborone (Datta, 1988b). Under the National Library Service Act, BNLS is mandated to receive books and other published materials by legal deposit. The National Bibliography of Botswana is based on the materials received through legal deposit.

3.1.2 MASS MEDIA

Newspapers: Botswana has 1 daily newspaper, Dikgang Tsa Gompieno (Botswana Daily News) published in Setswana and English. The weekly newspapers include Botswana Guardian, the Gazette, Kutlwano (Setswana and English), Mmegi (Setswana and English), News link, Northern Advertiser, the Reporter, and the Sun. According to Datta (1988b) the establishment of the Botswana Press Agency (BOPA) in 1981 improved local news coverage. The distribution of newspapers is confined to urban centres.

Radio and Television: Radio Botswana began its first transmission during the colonial period at Lobatse. At independence in 1966 Radio Botswana was broadcasting 36 hours per week, by 1974 transmission had increased to 119 hours (Maruapula, 1982). In 1989 there was an estimated 140,000 radio receivers and 15,000 television receivers in Botswana (Unesco Statistical ... 1990) TV Association of Botswana transmitters relay South Africa Broadcasting Corporation (SABC)-TV and Bophuthatswana (BOP)-TV programmes from South Africa. Plans are underway to set up a local television station.

3.1.3 Publishing and Printing

Printing and publishing in Botswana goes back in history to the beginning of this century. Much of the early printing was dominated by missionaries. Currently the Government Publishing House, Department of Information and Broadcasting, Longman Botswana Ltd, MacMillan, Botswana Publishing Company and Printing and Publishing Company Botswana Ltd, have maintained a dominant influence in the publishing industry in Botswana. In 1980 the National Book Promotion Council was established to encourage local publishing (Datta, 1988b) Much of the publishing is done in English.

3.1.4 Information Personnel Training

Training in Library Science is provided by the department of library studies at the University of Botswana. Certificate, diploma and degree courses are offered, and MSc in information studies started this year. The Department is a founder member of the Consortium of Schools of Information Studies for Africa, along with SISA in Ethiopia, ARCIS in Nigeria and EBAD in Morocco. In service courses are offered by University of Botswana and BNLS (Datta, 1988a). There is no formal training leading to Bsc in computer Science as of now. However, there is a variety of short courses offered by private organizations and dealers of computer hardware and software.

3.2 ETHIOPIA

3.2.1 Libraries, Documentation Centres and Archives

Libraries in Ethiopia, though not in their present day sense, began in the fourth century. The introduction of Christianity into the country around A.D 330 brought religious text into the country (Pankhurst, 1972).
A sample directory of libraries and information services

in Ethiopia (ESTC, 1991c) listed 67 libraries and information centres. The directory is not complete as indicated in the introductory pages.

National libraries: Ethiopia has a national library which was inaugurated in 1944. The library has a research division, public division and a museum. The the National library did not have a legal Deposit Law until 1976 which mandates it to receive and collect all national publications for preservation. It publishes a bibliography under the title "Ethiopian publications" twice a year.

Academic Libraries: Addis Ababa and Alemaye University libraries are the leading academic libraries in the country. Addis Ababa University Library system has eleven departmental libraries scattered in the various campuses. The University Library system is relatively better organized despite financial constraints. It has a collection of about 793,300 volumes and subscribes to 1,539 periodical titles. Teacher training colleges, agriculture and several other vocational and technical colleges are served by their own libraries.

Public libraries: There are 16 public libraries in all major provincial cities of the country. The country still lacks a well developed public library system. Currently public libraries fall under the Ministry of Culture and Sports Affairs.

School Libraries: School libraries are a responsibility of the Ministry of Education. The Ministry has a department which deals with school libraries. The aim of the department is to improve the status of school libraries in terms of personnel and collection development. Not all schools have libraries and where they exist their standards are low.

Special libraries: In the mid 1970's libraries attached to specialized institutions flourished as a result of an official requirement for all government institution to have information support units for planning and implementing government policy (Abebe, 1992). There are also special libraries attached to international organizations such as the one at the United Nations Economic Commission for Africa. Currently, special libraries are making progress and improvements in many aspects of library and information work such as using modern information technology.

Documentation Centres: Ethiopia has a national documentation centre established in 1986 under the Ethiopian Science and Technology Commission (ESTC). The centres emphasis is on scientific and technological information. The centre, National Science and Technological Information and Documentation Centre, is responsible for collecting, processing and disseminating scientific and technological information activities, the creation and promotion of national scientific and technological network and ensuring access to international databases (ESTC, 1991b). Another notable documentation centre is that of International Livestock Centre for Africa (ILCA).

Museums: Ethiopia by virtue of its ancient history has well established museums in Addis Ababa and in the northern part of the country.

Archives: Ethiopia has no National Archives. The functions of national archives is performed by the Institute of Ethiopian Studies (IES) which collects and documents social science information, and the National Library. The IES library, however, has no legal deposit law.

3.2.2 Mass Media

Newspapers: Currently there two daily newspapers, Addis Zemen published in Amharic and Ethiopian Herald published in English. There are several weekly and monthly newspapers that have emerged after 1991.

Radio and Television: Voice of Ethiopia broadcasts in local languages: Amharic, Afar, Oromia, Tigrinia as well as English and French. Ethiopian Television broadcasts from Addis Ababa to 18 regional stations. Television broadcast is confined to large towns. According to Unesco there were 9 million radio receivers and 200,000 television receivers in 1990.

3.2.3 Printing and Publishing

The nationalization of the printing industry in 1975 marked the beginning of its progress and development in Ethiopia. The Ethiopian Printing Corporation (EPC) was established to administer the whole network of the printing trade under the Ministry of Industry. (Tafesse, 1991). ECP has 6 printing presses, 4 of which are located in Addis Ababa, 1 paper converting factory and a training centre. Publishing houses include the Kuraz

Publishing Agency, Ethiopian Book Centre and the Government Publishing House. The rest of the printing and publishing houses are small in size and are privately owned. Government printing and publishing capacities account for 85%, the rest being covered by private concerns. The industry is faced with several problems which include lack of skilled manpower, dependence on foreign inputs, absences of support facilities such as, for servicing and maintenance.

3.2.4 Information Personnel Training

The Department of Library Science at the University of Addis Ababa established in 1966, offers a two year diploma and four year Bachelor of Library and Information Science (BLIS) started in 1988. There is also a regional school currently under UNESCO/IDRC sponsorship which offers a two year post graduate masters degree in information science. The postgraduate school caters for Eastern and Southern Africa subregion. Since the organisation of formal training in the field of librarianship about 1025 trainee have graduated with undergraduate diploma and 150 with undergraduate degrees (Getachew, 1993). A diploma course in computer science is offered by Addis Ababa University.

3.3 MALAWI

3.3.1 Libraries, Documentation Centres And Archives

National Library: Malawi, like Botswana, Tanzania, Uganda and Zambia has no designated national library. Again like in those countries some functions of a national library are performed by the National Library Services and the National Archives.

Academic libraries: The University of Malawi established in 1965 has expanded to five colleges. Each college has its own library with a collection pertinent to its fields of specialization. Besides offering services to teaching staff and students the University library system also offers research facilities to local and foreign researchers. The University library system has a legal deposit mandate which enables it to receive publications produced within the country. In 1988 it undertook a project to compile a comprehensive Malawi National Bibliography (Uta, 1988). Various types of vocational and technical colleges have their own libraries.

Public libraries: The public library system is run by the National Library Service (NLS) established by an Act of Parliament in 1967 and became operational the following

year. The NLS has a mandate to expand, promote, establish, equip, manage and maintain public libraries in Malawi. So far it has established 7 branches in the country, 3 of which are regional centres in each of the three regions of the country. Currently it offers the following services:

Rural community library services, school libraries service, consultancy to public and private institutions on how to establish libraries, and postal service for library users in areas without library facilities.

School libraries: Primary schools are served by the school library service of the NLS; however, not all secondary schools have their own libraries.

Special libraries: There are a variety of special libraries ranging from small to large and well organised ones. Among the notable ones are those in research institutions such as the Chitedze Agriculture Research Library, Malawi Institute of Education etc (Somba, 1993).

Documentation centres: There are a number of documentation centres. The most notable are: The National Documentation Centre in the National Science and Technological Commission of Malawi; and that of the Department of Environmental Affairs.

Archives: The creation of the National Archives dates back to the colonial period. The National Archives has a mandate to collect and preserve the public information documents and those emanating from other sources other than the government.

3.3.2 Mass media

Newspapers: Currently Malawi publishes 10 newspapers. Out of the 10, 2 are dailies, 2 are weeklies, 6 are monthlies; 4 are published in English, 3 in Chichewa and 3 in Chichewa and English. Since the ratification of the constitution in 1993 to allow plural politics, several newspapers have emerged.

Radio and Television: Malawi Broadcasting Corporation was established in 1964. The services are broadcast in English and Chichewa. There was an estimated 2 million radio receivers in use in 1989. There is no television service.

3.3.3 Printing And Publishing

Notable publishers include: Christian Literature Association in Malawi - publishes general and religious books in Chichewa and English; Likuni Press and

Publishing House - publishes in Chichewa and English; Popular Publications - publishes general and religious materials; and the Government Publishing House.

3.3.4 Information Manpower Training

Apart from the certificate course offered by the Malawi Library Association for library assistants, there is no other training for librarians, documentalists or archivists. University of Malawi Chancellor College offers Bsc in computer science. Computer Society of Malawi and the Government Computer Training Centre offer training on a small scale in programming and word processing.

3.4 TANZANIA

3.4.1 Libraries, Documentation Centres And Archives

The 1984 directory of libraries in Tanzania listed 172 libraries including special, academic documentation centres and public libraries (Munisi and Nguli, 1989) From the literature review it is apparent that Tanzania has no national library. However, some of the functions

of a national library are performed by the Tanzania Library Services Board (TLSB).

Academic libraries: There are two university libraries: the University of Dar-es-Salaam and Sokoine University of Agriculture designed to support teaching and research. The University of Der-es-Salaam has a branch library at the Faculty of Medicine. The library at Dar-es-Salaam University acts as a legal deposit library by the legal deposit act of 1962. Libraries of other educational institutions include those of colleges and training institutes in various fields of learning.

Public libraries: Tanzania Library Services Board is responsible for public libraries. It has branch libraries in 14 regions and 13 districts. The headquarters library in Dar-es-Salaam acts as a national library and national documentation centre (Mascarenhas, 1989). The Board was established by the Tanganyika Library Service Board Act of 1963 which gave the Board mandate to develop all types of libraries. In 1975 the Act was replaced by the Tanzania Library Services Board which gave the Board wider responsibilities of advisory, executive, operational and coordinating powers. Services provided by TLSB include;

a) Lending at National Central library, regional, districts and village libraries.

b) Reference and reading facilities are provide in all major libraries

c) Documentation and information services. TLSB houses the National Documentation Centre which disseminates information to specialists in various fields.

d) Bibliographic services. TLSB through the National Bibliography Agency and its legal deposit act produces the Tanzania National Bibliography since 1969.

School libraries: None of the 10,000 primary schools and only a few of the 300 secondary schools have libraries.

Special libraries: These include libraries within government ministries, departments and parastatal organizations. Out of the 23 ministries only 15 have libraries and out of the 400 parastatals only 30% have libraries. Most of these libraries are poorly equipped and run (Mascarenhas, 1989).

Documentation centres: Documentation centres are a new phenomenon in Tanzania. Tanzania Library Service runs a documentation centre which is aimed to document all

information on the country. Other important documentation centres include the Tanzania Research Information Services (TANRIS) in the National Commission for science and Technology, designed to document science and technology information. Tanzania Industrial Studies and Consulting Organization, and the SADC industrial documentation centre in the Ministry of Trade and Industries concentrate on industrial information.

Museums: The number of museums in not significant. These institutions are under the National Museums board.

National Archives: The National Archives of Tanzania is mandated by the Act of Parliament of 1965 to collect organize and preserve public records. The national archives operates five regional centres.

3.4.2 MASS MEDIA

Newspapers: There are three daily papers presently. These include the Daily News, government owned; Uhuru owned by the ruling party and is published in Swahili; Kipanga, published in Swahili by Information and Broad casting services. There are also weekly papers, a Swahili paper and the English Sunday News. There are also a number of privately owned papers that have emerged in

recent years (Sekimang'a, 1992). The newspapers are geared toward the urban audience, few of them reach the rural areas. There are some rural newspapers which are designed as part of literacy programmes.

Radio and Television: There are two national radio services, in Dar-es-Salaam and in Zanzibar. The services broadcast domestic services in Swahili, schools services in Swahili and English.

3.4.3 Printing And Publishing

There are several publishers in Tanzania. The leading ones are Printpak and National Printing Company, these publish books, magazines, scholarly periodicals and newspapers; Adult Literacy Press established in 1970 to print literacy campaign materials; Dar-es-Salaam University Press; Government Press; Central Tanganyika Press; Inland Publishers etc. The major problem affecting printing in the country is the rising cost of paper and lack of foreign exchange for machinery, spare parts and other accessories.

3.4.4 Information Personnel Training

The general state of affairs concerning information manpower is that most institutions are being run by insufficient number of professionals as there is a shortage of qualified personnel. Most of the training facilities are under the TLSB. Higher level training is sought outside the country and require foreign exchange which is in short supply. University of Dar-es-salaam offers BSc in computer science.

3.5 UGANDA

3.5.1 Libraries, Documentation Centres And Archives

Uganda has no national library. Makerere University library by the legal deposit act of 1957 and 1964 serves as a legal deposit library. The National Documentation Centre by the act of 1969 also acts as a legal deposit library. However, neither of the two perform the functions of a nation library (Bamuhiiga, 1992).

Academic libraries fall under the Ministry of Education. The leading academic library is the Makerere University Library which has its origin in the 1920's. It has five

branches in the various faculties of the university. The Islamic University and the University of Science and technology are setting up their libraries. There are also libraries in colleges of various types.

Public libraries. The Public Library Board was established by the Public Libraries Act of 1964. It is charged with the responsibility to establish, equip, manage and maintain libraries. The Library Board presently falls under the Ministry of Local Government. It operates the main public library in Kampala. Of the 38 districts only 19 have public libraries. There are no public libraries in the rural areas.

There are no libraries in primary schools, but there are some libraries of one form or the other in secondary schools.

There are various specialized libraries in government ministries, research institutions, and industries (both private and parastatals) etc.

There is one documentation centre which was established by the Act of 1969 as a legal deposit library and documentation centre. The centre was meant to document information in public administration. According to

Bamuhiiga (1992), the collection of the centre is in a miserable state.

Uganda has a national museum collects and preserves the national culture information.

National archives. Uganda has a national archives established by the British colonial government in 1949 and it became fully organized in 1955. At independence in 1962, it was placed under the Ministry of Public Service and Cabinet Affairs. There is no known legislation regarding its establishment (Bamuhiiga, 1992). Free access to any document is permitted ten years after the document is deposited. Permission to use the National Archives has to be sought from the Office of the President through the National Council for Science.

3.5.2 Mass media

Newspapers. The history of print media goes back to colonial period with the first papers published by Christian missionary societies. Currently there are 14 newspapers published in Uganda. Out of the 14, 6 are daily papers, 3 are weeklies, 3 are published twice a week and 1 four times a week. Three of the fourteen

papers are published in Luganda, a local language. Circulation of these papers is limited to large towns. The improvement of the press is hampered by multiplicity of languages, high illiteracy rate, and a majority of the people can not afford to buy newspapers due to poverty and hence, the smallness of the market, lack of logistic capabilities and trained personnel and the whole situation is marred by lack of financial resources.

Radio and television. The first radio broadcast began in 1953 while television transmission began in 1963. Radio Uganda which is under the Ministry of Information used to broadcast in 22 languages, including English, French, Arabic, Swahili, and other vernacular languages. The radio, and television broadcasting are state controlled, programmes are mainly in English, Swahili and Luganda. In 1989 it was estimated that there were 1.8 million radio receivers and 150,000 television sets in Uganda. Television transmission is confined to towns and not all rural areas are served by radio broadcasting.

3.5.3 Printing and Publishing

There are a number of publishing and printing houses. The major ones include: Centenary Publishing House, specializing in religious publications; Longman Uganda

Limited; Uganda Publishing House, specializing in primary and secondary school textbooks; and the Government Printer.

3.5.4 Information Personnel Training

The East African School of Librarianship at Makerere offers BA degree in librarianship. The content of the course has not changed with time. There is no component of information technology in the course content (Abidi, 1991). The Institute of Computer Science at Makerere offers postgraduate diploma in computer science. Generally there is a shortage of trained manpower.

3.6 ZAMBIA

3.6.1 Libraries, Documentation Centres And Archives

Like in other African countries, Libraries in Zambia have historically been the major suppliers of information.

Zambia has no national library at present. The functions of a national library are, however, shared by four institutions:

- University of Zambia Library - Reference

- Zambia Library Service - Lending
- National Archive - depository
- National Council for Scientific Research - Documentation.

Of the four institutions, it is only the National Archives of Zambia that was established through legislation of the Printed Publication Act of 1964. The rest of the libraries have been designated as such through compulsion or obligation (Lungu, 1988). This arrangement is therefore superficial as there is no coordination between them, and the roles they are supposed to play are not funded.

Academic Libraries. The University of Zambia's collection is about 400,000 volumes. It used to subscribe to more than 2000 journal titles but in recent years this number has fallen due to dwindling budget. It has two branch libraries at the School of Medicine and Veterinary Medicine (UNZA Library, 1990). The Copperbelt University Library (CBU) established in 1988 has a collection of 16,000 volumes and subscribes to about 160 journals. Several technical, business and teacher training colleges have libraries. Except for the libraries of Post and Telecommunication Staff Training college, Zambia Institute of Management and Zambia State Insurance Business Trust College, that are relatively

better funded and managed, the rest have problems ranging from lack of funds to shortage of qualified personnel.

Public Libraries. Currently there are three categories of public libraries:

a) the Zambia Library Service (ZLS) which falls under the Ministry of Higher Education has no legal mandate. It has six provincial public libraries, and one district library. In each of the nine provinces it has library centres situated in primary schools, welfare centres, prisons etc. These centres run on a voluntary basis (Longwe, 1988);

b) Those under the city councils;

c) Those of foreign embassies, the British Council and United States Information Agency.

Except libraries in the last category the rest have problems of funding and qualified personnel. The majority of these have had no book budget for years.

School Libraries. There are virtually no libraries in primary schools except for those run by the missions and a few that act as library centres for the Zambia Library Service. Only a few secondary schools have libraries. Where they exist there is an absence of or only have outdated reading materials and are not managed by

qualified personnel (Lundu, 1984). However, a few schools run by international communities, parastatal companies have well established libraries.

Special Libraries. There are several special libraries run by different institutions, government parastatals, private and international/regional organizations. Those that are run by government ministries generally range from small collections in offices to more organized libraries. They are faced with the usual problems of funding and qualified personnel. Apart from those run by the government the rest of the special libraries are generally well organized in terms of personnel and funding. Important ones include; the Zambia Consolidated Copper Mines (ZCCM) Technical and Information Services, Mount Makulu Agricultural Research Station, International Red Locust Control Library, Tropical Disease Research Centre Library and the most recent the Preferential Trade Area (PTA) and the SADC Regional Gene Bank Libraries.

Documentation Centres. Except for the National council for Scientific Research documentation centre, there is no other documentation centre in the country.

Museums. Museums are an important element of a national information systems. They are meant to collect and

preserve national culture. Besides the National Museum located in Livingstone with branches in Ndola there are also private museums.

Archives. The National Archives of Zambia as mentioned above was established by the Printed Publications Act of 1964. It is mandated to collect and receive national publications through legal deposit and to preserve the nation's publication. The national archives provides research services and publishes the Zambia National Bibliography. The national bibliography has shortcomings in its coverage due to the problem of enforcing the legal deposit act. Many organisations do not deposit their publications in the national archives (Mukula, 1988).

3.6.2 Mass Media

Newspapers. The history of newspaper publishing goes back in history. The first newspaper was published in 1906 (Kasoma, 1986). Since then several newspapers are being published in English:

Title	Frequency	Ownership
The Times of Zambia	Daily	Government
Zambia Daily Mail	"	"
Sunday Times	"	"
The Weekly Post	2/week	Private
Financial Mail	Weekly	"
National Mirror	Fortnightly	Church
Mining Mirror	Monthly	Mines
Workers Voice	Bi-Monthly	Trade Union
Worker Challenge	Fortnightly	Church

These newspapers are confined to large towns. Until the 1980's, the Zambia Information Services, used to publish local language newspapers in six major languages. These were circulated in the rural areas. In 1991 the publication of these papers was revived (ZIS, 1992).

Radio and Television. The first radio station opened in 1941 by the British Colonial Government (Kasoma, 1986). Since then it has developed and undergone several changes and it has still remained under government control. Until 1987 Zambia Broadcasting services (ZBS) operated as government department under the Ministry of Information and Broadcasting. By the Act of Parliament of 1987 it was transformed into a corporation known as the Zambia National Broadcasting corporation (ZNBC). It broadcasts in three channels: Radio 1 broadcasts in the seven major languages, Radio 2 broadcasts in English and Radio 3 broadcasts in English and is devoted to commercial programmes.

Television broadcasting falls under ZNBC as well. Television broadcasts are in English and the seven major local languages. Both the radio and TV broadcasts transmit various programmes ranging from development issues to entertainment. Television transmission is confined to large towns due to lack electricity in rural areas.

3.6.3 Printing And Publishing

Publishing began during the colonial period with the establishment of the Northern Rhodesia Publications

Bureau in 1947. Currently there are over 30 publishers, but the active ones are few. The most notable ones are the Zambia Publishing House - general and primary and secondary school textbooks, the University of Zambia Press - scholarly publications, Printpak Zambia Limited - general and school textbooks, the Bible Society of Zambia - general and religious materials, the International Book Publishing Company Africa Limited - general, and the Government Printers - mostly government documents. Most of the publications are in English.

3.6.4 Information Personnel Training

There are no figures of qualified personnel in information and information related fields. Generally, there is a shortage of librarians, documentalists and Archivists despite having a Department of Library Studies at the University of Zambia. The Department offers Bachelor of Arts degree in Library Studies. Diploma and certificate courses were phased out in 1990 and 1975 respectively (Kaniki, 1991). The Post and Telecommunication (PTC) Staff Training College and Evelyn Hone College run certificate courses in library studies. Postgraduate and higher degrees in libraries are obtained from outside the country.

The training of mass media personnel is done by four institutions:

Institution	Training Offered
1. University of Zambia department of Mass communication	4 year Bachelor degree in Mass communication
2. Evelyn Hone College	3 year Diploma course in Journalism
3. African Literature centre	1 year diploma in Journalism
4. Zambia Institute of mass communication	In service training in various fields of masscommunication.

CHAPTER 4

INFORMATION TECHNOLOGY

4.1 AN OVERVIEW

The quality of life for man is dependent upon communication of information. For human society communication is a means of survival through cooperation to overcome biological, space, and time constraints. Man has communicated information through several ways. For example, through sound (talking, singing), signs (gestures, smoke) etc. In ancient times communication took place mainly through personal contacts. It was unorganized and devices used were primitive. Cave drawings, stone tablets, and parchments were some of the media used to store information. Each of these could only store a limited amount of information. The stone tablets were not easy to carry about and cave drawings were limited in terms of dissemination to those that lived within the vicinity. As human society developed, communication and its technology also developed. Today communication of information and the technology used has developed to an appreciably sophisticated level.

4.1.1 Information Technology Definition

The term information technology (IT) was coined in the United Kingdom in the early 1980's to describe technologies that are used to process and communicate information and information products (Hunt, 1989). Information technology includes; computers, peripherals, office equipment, microforms, business forms, printing and graphic equipment, time sharing, etc.

4.1.2 Information Revolution

The amount of information in the world is growing all the time and this is referred to as 'information explosion'. The information explosion has necessitated changes in handling the ever increasing volume of information in a bid to effectively record, store, retrieve and disseminate information. The changes in handling information has become to be known as information revolution (Marghalani, 1987). The revolution is seen in terms of the power and speed with which information is generated, collected, processed, stored and disseminated. The information revolution is mainly as a result of computer and related technologies, and telecommunication applications to information handling activities. Below is the table showing the changes that have taken place in information handling activities.

Table 4.1

CHANGES FROM CONVENTIONAL TECHNOLOGIES TO NEW TECHNOLOGY IN INFORMATION HANDLING/PROVISION OF SERVICES.

INFORMATION ACTIVITY	CONVENTIONAL TECHNOLOGY	NEW TECHNOLOGY
1. Generation of data and information	Writing; Typing; Carbon copy; Type Type setting; Dictionary for spell checking	Word processing; Character recog; Instrument recog; Voice recog; Spell checks
2. Record/Store data and information	Paper; Microform; Handbook; Filing cabinet	Magnetic medium; Video cassette; Electrical filing Database; CD-ROM
3. Organization; Indexing; Retrieving of data and information	Card index; Punched card; Abstracting; Indexing	Database management systems; Retrieval systems; Automated processing; Hardware solutions
4. Manipulation; Indexing; Retrieving of data and information	Centralized data processing; Calculator; Manual graphics ; Manual dairy	Distributed data processing software; Software solutions; Electronic scheduling; Intelligent based systems/Expert systems
5. Communication and dissemination of information	Post; Telephone; Telex; Personal communication	E-Mail; Telefax; CD-ROM; Viewdata; Computer cnferenci-ng; Electronic doc delivery; Laser optic disc
6. Weeding out; Destruction	Shred; Burn; Destroy medium	Magnetic and Optic erasure; Re-use medium

Source: Neelameghan, A. (Class notes)

The major developments in information technology that have significant impacts on information systems and services include:

- The development of microelectronics, the microchip has increased the storage capacity of computers and reduced cost of data storage and processing,
- Time sharing systems and data communication through electronic communication,
- Resources sharing systems and data services through national and international systems interconnections,
- Powerful portable software and systems integration, and
- The decreasing cost of micro and mini computers.

4.1.3 Information Technology and Information Services

Information technology has significant impact on the traditional information institutions in terms of information storage and retrieval, and various house-keeping activities. These institutions are now able to provide their clients with better and more efficient services through the use of information technology. It is possible to access a remote database online: Information technology provides the link between information centres and remote databases containing a wide range of data and information through computer terminals, telephone lines and

data communication networks. House-keeping activities in libraries, such as, acquisition, cataloguing and classification, serials control and circulation control can now be automated for efficiency of operations. Electro-optic Technologies, such as, CD-ROM have tremendous impact on the information storage space. Reference publications, such as, abstracts, bibliographies, and encyclopedias that accumulate and pose space problem can now be stored on CD-ROM which offer increased storage density for information. For example, approximately 250,000 pages of standard text can be stored on a 4.72 inch thin rigid plastic CD-ROM disc (Manson, 1986). The hypertext enables the storage and retrieval of multimedia - text, graphics, and sound simultaneously. It is expected that the future development of 5th generation computers will enable storage and access of even more data than it is possible with present day machines. The application of Information Technology results in overall improvement in performance of libraries and related information institutions as is evident in the increasing number of these institutions automating their operations.

4.1.4 Impact of Information Technology on Society

Information technology is changing the world by affecting the cultural, economic, political and social aspects of

life everywhere. The development of IT is providing people an enriched information environment. In the home, the number of services available is growing: videotext, home banking, home shopping, educational programmes, electronic mail etc. In education there are computer assisted instructions. A teacher can reach out to a number of classes or groups of students simultaneously located in different places through the use of IT facilities. Experts in different parts of world are able to hold conferences in their fields of specialization by teleconferencing without converging together in one place. Repetitive routines in the office are made more efficient by word processing and other office automation processes. Transfer of funds from one bank to another no longer require bulk paper work as it can be done electronically. In industry programmed robots are used in more hazardous work environments where people could risk their lives. On production lines faults are detected by computers and even rectified and production processes regulated. Executives and managers use experts systems to make crucial decisions. Indeed almost all human activities have been penetrated by IT.

There are, however, some IT aspects which may be perceived to have adverse impacts on aggregate employment. This has been debated since the 1950's when IT was first introduced in organizations. It is argued that workers in the tertiary

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sector may suffer from the consequences of automation in that those with outdated skills will be replaced or have to be retrained. Since automation is one way of maintaining and improving productivity, more and more employers (especially the private sector) will acquire cheap computers available on the market to save cost and provide better customer service in order to compete effectively on the market. This may lead to reduction in the demand for labour (both physical and intellectual) in both the private and the public sectors. The displaced employees are the white collar and blue collar workers, the professional, technical, administrative, clerical and other service workers. These have been the backbone of political institutions and the government, providing the necessary stability and support for economic growth. Should this class be threatened with massive unemployment, they could become radicalized and thus pose a danger to the stability of the political system, for their knowledge and organizing ability can pose a serious threat to any government.

However, the trends elsewhere are contrary to the above view. For example, studies in the United States of America have shown that, since the 1950's the most rapidly growing sector of employment has been the information sector. Over 50% of all the jobs are related to the production or dissemination of information, and the information component

of all jobs is increasing (Davis and Olson, 1985). Further, in a seven nations study it was shown that there might be no correlation between heavy investments in technology and loss of employment. Between 1963 and 1973 Japan had the highest rate of investment in new technology and during that period it also had the highest growth in employment record; Britain whose investment in technology was the lowest, recorded the greatest loss of employment; The United States showed similar trends to those of Japan; West German, Sweden, France and Italy showed markedly individual patterns; and employment is the net results of many converging policies and factors.

The use of IT has become part of economic development activity of the developed world. The Commission of European Communities, for example, in 1981 embarked on a series of three year plans to develop information services within the Community. The Commission is advised by the Committee for Information and Documentation in science and technology with two representatives from each member country. The Commission is concerned to ensure that the benefits of IT are fully exploited in Europe and it is supporting proposals for systems which increase the availability and accessibility of document by electronic means (Anthony, 1981).

IT is changing the world within which African countries are struggling for survival and growth. The Western societies are being transformed from industrial to post industrial economies by advances in IT. These changes and their means can not be ignored by African countries if they are to survive in this information age. For example, the capacity to generate over 90% of scientific and technological information rests with western countries and a major proportion of this information is in demand in the third world (Neelameghan, 1981). Such information is increasingly being produced in non-conventional formats, for example, CD ROM. The capacity of these technologies to store large quantities of data and information, process and disseminate such data with high degree of speed and accuracy over time and space makes there use in information handling very imperative. To be competitive in the global economic order Africa must participate and take advantage of the developments of the information age. It is against this background that efforts to develop information systems and services in Africa should as a necessity include IT. The national policies on information systems and services should accord appropriate priorities on the acquisition and use of IT in the country.

4.2 INFORMATION TECHNOLOGY: THE AFRICAN SCENARIO

The use of IT in Africa for information systems management has its genesis in the 1960's. The project initiated by the Commonwealth Secretariat in 1987 to study public sector computerization in Africa indicated the period in which the countries in the sample began using computers (Kaul and Kwong, 1988):

Table 4.2

COUNTRY	IT INTRODUCTION
Ghana	Early 1960's
Nigeria	Early 1960's
Zambia	Early 1960's
Kenya	Early 1960's
Sierra Leone	1963
Tanzania	1965
Malawi	1966
Zimbabwe	1970
Mauritius	1972
Gambia	1980

Source: Kaul and Kwong, 1988.

Most of these systems were installed in the public sector because of the cost and size of the equipment available at the time (main frames) and also to control massive volume of data in government transactions. From the 1960's the rate of development in IT application in Africa has been very slow vis-a-vis the rate in the developed countries were IT application in organizations started almost at the same time (1950's). This is because IT application in

Africa is not indigenous. It falls in the usual flow of technology transfer from the developed countries to developing countries. This has proved to be a major constraint to IT application as has been the case with other technologies emanating from the developed countries.

Some surveys on the application of IT in Africa have been carried out. These include the Kaul and Kwong (1988) on IT in government; Adeyemi (1988) on the use of computers and telecommunication facilities in libraries and research institutions in Anglophone West Africa; Birindelli (1989) on IT and development ; and the PADIS (1988 and 1989/90) survey on the use of microcomputers in documentation and information centres in Africa. For the purpose of this study a summary of the PADIS survey is given in the following section for an overview of IT application in documentation and information centres in Africa. This study is given because it is the most readily available.

4.2.1 Summary of PADIS 1988/90 Survey

The PADIS survey on the use of microcomputers in documentation and information centres in Africa was initially conducted in 1988. It was repeated in 1989/90. In order to facilitate comparability of the two studies, the same questionnaire was sent to libraries and documentation

and information centres on the PADIS mailing list in Africa. In all 61 completed valid questionnaire were returned.

4.2.2 Computerization

Of the 61 responses 75% had computer equipment. In the 1988 survey this figure was 58%. Of the 75% with computer equipment 39.3% had the facilities within the centre while 18% were within the parent institution. In 1988 only 32% had computers within the centres. The figures show that there is an increase in the number of computers from 1988 to 1990 by 17%.

4.2.3 Types of Computers in Use

Out of the centres with computers, 93% were using microcomputers, 17.4% - minicomputers, 11% mainframes. This shows that the development of computer use in information and documentation centres followed the development of microcomputer technology, mainly because of it is more affordable, manageable and requiring much less stringent environmental conditions than the minis and the mainframes.

4.2.4 Number of Microcomputers Per Centre

The 1989/90 survey showed that there was an increase in the number of microcomputers per centre from 1988. While in 1988, 43% of all centres had only one microcomputer, in 1989/90 the figure came down to 35%. The 1988 survey showed that only 9 centres had 3 or more microcomputers, in 1989/90 there was an increase in the number of centres with 3 or more microcomputers to 18.

4.2.5 Utilization of computers

Table 4.3

PURPOSE	PERCENTAGE OF USES
- BIBLIOGRAPHIC/LIBRARY DATABASE MANAGEMENT	57.4
- WORD PROCESSING	54.1
- FINANCIAL/MANAGEMENT APPLICATIONS	16.4
- NUMERICAL/STATISTICAL APPLICATIONS	16.4
- OTHER APPLICATION	8.2

This table (figures for 1989/90) implies that most of these computers are used for bibliographic and library database management and word processes.

4.2.6 Computer Acquisition Policies

Table 4.4

CATEGORY	PERCENT
No policy	48.8
No restriction on purchase ...	20.9
Local purchase only	18.6
Brand restriction	9.6
Other considerations	2.3

Conclusions drawn from the survey show that libraries, documentation and information centres are acquiring microcomputers at an increasing rate and the percentage of computerized centres is growing and the number of computer based services provided to users is also increasing. It is also becoming clear that information technology offers many low-cost possibilities to Africa to participate in the "Information Revolution" (UNECA, 1990). Developments in IT are taking place at a pace that leaves little time for national authorities to understand, assimilate and evaluate their likely impact on social, political, economic and cultural aspects of the country. IT is changing conventional organizational hierarchical structures and the patterns of information flow. These changes if not addressed could disadvantage a nation. In order to derive optimum benefits and advantages from the use of computers, it is important that the growth of this industry and the application of this technology are properly planned. Computerization in most African countries have been

installed without planning and there are no comprehensive policies to guide the acquisition, development, and application of this technology. This is as a result of lack of national information and informatics policy.

4.3 CONSTRAINTS AFFECTING INFORMATION TECHNOLOGY APPLICATION IN AFRICA

The major factors militating against the effective application of IT in Africa have been cited by a number of authors, Inganji (1990), Kaul (1988), UNECA (1992), and Zwangobani (1988). The constraints are highlighted in the following section.

4.3.1 Shortage of Qualified Manpower

The shortage of computer specialist is increasingly being experienced as more and more IT is introduced in library, documentation and information centres. This shortage is compounded by the lack of training facilities locally in most of the African countries. Training has been restricted to certificate and short courses by a few institutions both public and private and by various computer vendors found in these countries. In the last few years, however, there has been introduction of first degree courses in computer science in a number of countries; Kenya, Malawi, Ethiopia,

and Zimbabwe etc. but these courses have heavy bias towards programming languages. The School of Information Studies for Africa (SISA) and the African Regional Centre for Information Studies (ARCIS) established in 1990 in Ethiopia and Nigeria respectively and now the School of Information Studies in Botswana are designed to train information scientist with special emphasis on IT at postgraduate level. Despite these efforts the scarcity for qualified manpower continue to be a pressing problem. Training in the developed countries require foreign currency which is in short supply in the majority of the African countries.

4.3.2 Scarcity of Foreign Currency

Almost all African countries are experiencing the scarcity of foreign exchange to purchase/import computers from other countries. The fact that indigenous computer industry is not developed in Africa makes IT imports to compete with other pressing needs such as food, medicine and other capital goods.

4.3.3 Inadequate Telecommunication Facilities

Development of a broadbased IT infrastructure is dependent upon an efficient telecommunication infrastructure as it facilitates transmission and exchange of data and

information over networks. Telecommunication infrastructure in Africa is underdeveloped. Transmission lines are confined to urban areas. Hence the transmission of data and information to rural areas is very poor.

4.3.4 Deficiencies in Planning and Policy on Information Technology

In view of the many pressing problems Africa is facing, there is need to plan and formulate policies that are aimed at making IT application viable and effective, to deal with issues pertaining to the acquisition, adoption and application of IT. Such policies and plans are lacking in many of the countries. Where they exist they are deficient. Thus IT has been installed without a clear view about what it is supposed to be used for and without necessary supporting facilities such as qualified staff, servicing and maintenance, training etc. The development has been haphazard and without coordination. Therefore, a national information policy that will take into account the impact of IT and its implication on a nation becomes necessary.

CHAPTER 5

NATIONAL INFORMATION POLICIES IN AFRICA

5.1 NATIONAL INFORMATION POLICY

Policies are statements of intent and obligation, formulated as guidelines for desired goals and actions. Policies evolve as a result of a government or an organization's activities. A policy of any kind and at any level is designed to give direction to the desired activities and at the same time to be compatible with the organization's objectives. "A policy is a set of principles and strategies which guide a course of action for the achievement of a given goal. Policies may be developed at the organization, national, regional or international levels," (Montviloff, 1990).

Policies are derived from the prevailing situation because that is where factors that necessitate policy are found. Such factors include political stability, and availability of financial, human and other resources. Constraints to the objectives are identified. This is why emphasis and content of policies, though having the same objectives, differ from

country to country or organization to organization.

Further, policies are designed to define roles of different parties involved in a given activity or activities and in so doing provide the bases for accountability. The essence is to have a systematic way of approaching and solving problems. Policies, thus help to minimize ad hoc actions in solving fundamental problems pertinent to the overall objectives of a government or an organization. Policies are emboded in declaration, laws, decrees, acts of parliament, ordinances and directives by authoritative bodies with the aim of influencing behaviour and work of society or any substantial section of it.

An information policy will, therefore, have the above characteristics to provide guidance and strategy for the development and use of information resources, systems and services.

5.2 RATIONALE FOR NATIONAL POLICY ON INFORMATION

5.2.1 Information and Development

Development is the achievement of progress toward a desired direction. Such as the increase in yields and better quality of crops produced by agriculture. In the case of a

nation it means improved quality of life for the mass of the people, in terms of provision of the basic needs of life such as health facilities, food, shelter, education, etc. Development also implies that people are able to plan in advance, shape and influence the future events for the benefit of all. Development can be realized by the ability possessed by individuals, groups or nations to solve existing problems and replace them with desirable conditions, situations and products. To attain development, resources are required among which information is one. Any development effort requires data and information to enable planners to select the best options in a given context. A major application of information is resolving uncertainties in decision making and problem solving. For example, if a farmer wants to embark on the cultivation of new crop introduced in the country, he will need information such as, the maturing period of the crop, amount of rainfall required, type of pests and diseases that are likely to attack the crop, availability of seeds and the cost, prevailing market producer price, etc. It is on the basis of this information that he will decide whether he has the capacity to grow the crop or not. In terms of a nation it could be any situation that causes or threatens deterioration or stagnation of standard of living. To solve such problems, requires understanding them and their causes clearly. This requires timely availability of

reliable and adequate information about the elements of problems and on how to solve them. With available information alternative solutions can be weighed and pursued.

Information is needed by everybody in society. Decision makers, planners, researchers, teachers, professionals and semi professionals, technicians, and the population at large. All these categories of people need and use information in one way or the other in their daily lives both in official and private endeavours. For example, decision makers and planers need information on the available natural resources and the means to exploit them, such as sources of finance, manpower, equipment, etc in order to make the right decisions and control their exploitation. No effective and meaningful planning can take place except on the basis of adequate, accurate and timely information.

However, this does not mean that information is an end in itself. It is rather an essential component for the development process to succeed. Therefore, as much as the provision of information is indispensable to create a sustainable development, information as a resource may not lead to desired development if other resources are absent

and if the social and economic conditions are not conducive for development.

5.2.2 Uses of Information

Information, as already mentioned, is used for decision making and problem solving. Other uses of information include stimulation of research. Research is the quest to find answers to unanswered questions. When pursued the unanswered questions become topic of research out of which more information will be generated. Thus use of information also generate more information. Information helps to improve productivity by minimizing the chances of unnecessary duplication. In today's world of competition, information about competitors help a producer to improve the quality of his goods and services. In education information is used to acquire skills and knowledge. There is also need of self fulfilment, if a person is confident of what he is doing because of the available information, he does it well. Unknown to many people is that they adopt to changing environment as a result of the available information about the changes taking place. The list of the use of information is long, here we just mentioned a few.

5.2.3 Need for National Policy on Information

As already mentioned in the preceding pages, any nation needs information for decision making and planning at all levels in all sectors of national development. As such a national policy on information to guide and direct information activities of a nation is necessary.

Scientific research and the result thereof has become increasingly important for economic progress or for national defence. It has become a source of power for those nations that have the knowledge. In such situations policy is necessary to introduce limits to the freedom to exchange or publish scientific data and information.

Removal of restrictive practices to information which have evolved over time or to stimulate supply of information to under-provided areas or groups of people need to be guided by policy. Hill (1989) writes, "in such cases policies have to be formulated because there are conflicting interests and the balance between them has to be clarified."

When new situations arise or are created as is the case these days, so that old practices can no longer meet the requirements, the need for policy arises. For example, legal deposit laws in most of the Subsaharan African

countries have not changed with time as evident in the literature reviewed. Materials to be deposited are limited to printed publications. New information carriers such as video tapes, and other machine readable forms that have come into being as result of rapid developments in information technology, are not covered.

Related to the above reason and one which calls for immediate need for policy on information is the massive volumes of new information created by new information and telecommunication technologies rate. If not taken into account may consequently disadvantage groups of individuals, organisations, or even state interest in information provision. Information policy is needed to provide guidance for maximum benefits from these new technologies.

The overall need for information policy is to harmonize the activities of information generation, gathering, processing and dissemination to various users.

5.2.4 Functions of National Information policy

Functions of a national policy on information include the following (Montviloff, 1990) :

- Ensure communication of relevant and timely information to all actors involved in national development by ensuring the establishment of the necessary infrastructure.

- Prepare and implement plans for creation and development of national information systems and services, and creating a mechanism for coordination of various components of the national information system and those systems outside the national borders to enable the flow of information from outside.

- Ensure the creation of supporting elements to the national information system, such as manpower, new technologies, facilities, etc.

- Ensure systematic development of national information system by providing guidelines for areas of responsibility, financial arrangement so that whole national information system is compatible with the country's national development objectives and plans.

5.3 BACKGROUND TO NATIONAL INFORMATION POLICIES IN AFRICA

5.3.1 Factors Leading to the Current Situation

It is difficult to precisely pinpoint when deliberate efforts toward developing coherent national information systems in the Subsaharan Africa began. There has been concern at the state of information systems and services in Africa at national, regional, and international levels. Perhaps this can be seen at national level by the establishment of library associations in the 1970's with the aim of fostering librarianship as a profession as well as the library system as an important component of national development. At sub-regional level efforts in groupings such as the Standing Conference of Eastern, Central and Southern Africa Librarians (SCECSAL) with visions of creating avenues for cooperation in the field of librarianship in the region were initiated. These early efforts relate to the field of librarianship because libraries have been viewed as the traditional providers of information.

Of particular importance, however, is the role played by UNESCO. Since its inception in 1946, its aim has been the promotion of the development of information capabilities within and between the Member States. In particular

UNESCO's effort has been to encourage developing countries to establish coherent and effective national information systems and formulate national policies on information. For this purpose UNESCO has been organizing and sponsoring seminars, workshops, and consultancy missions in the field of library and information in various countries, particularly in developing countries.

Out of these efforts UNESCO established various departments and programmes, namely UNISIST and the National Information Systems (NATIS). The former was more concerned with the improvement in the flow of science and technological information and the latter with the development of libraries and information services for national development. NATIS was more of a reaction to UNISIST bias towards science and technological information. Both of these programmes were absorbed by the General Information programme (PGI) established in 1977 (Kisiedu, 1988).

UNISIST's objectives included promotion of the coordination of existing trends toward cooperation to act as a catalyst in development of scientific and technological information. Emphasis was on information sharing at international level and its standardization among existing systems.

The NATIS programme launched in 1974 at the International Conference on Planning of National Information Systems in Paris had the following objectives:

a - Information policy formulation to take care of the needs of all sectors of the national economy and integrating the national information policy in a country's national development plan;

b - Coordination of functions of all libraries, documentation centres and archives through a central body to form NATIS so as to ensure optimum use of resources;

c - Training of information personnel;

d - Legislative backing to support planning and implementation of NATIS; and

e - Ensuring the creation and improvement of a mechanism for national bibliographic control to enhance the objectives of universal bibliographic control (Neill, 1991)

With creation of PGI the objectives of the two programmes were merged.

Other international agencies and regional bodies that have contributed toward the effort to improve information systems deserve mention here.

The International Development Research Centre (IDRC) through its Information Sciences Division has programmes dedicated to enhancing information and informatics capabilities in developing countries. Notable among its projects in Africa are its support to the Pan African Development Information System (PADIS) and the establishment with Unesco the information science programme at masters level at Addis Ababa University and at University of Ibadan in Nigeria.

The German Foundation for International Development (DSE) has also played important role toward enhancing information systems in Africa. It has organised and sponsored workshops and seminars in the field of information. In Eastern and Southern Africa Botswana, Malawi, Kenya, Lesotho, Tanzania, Uganda, Zambia and Zimbabwe have benefited from the DSE programmes.

The Pan African Development Information System (PADIS) has also been involved in the promotion of information activities in Africa. It was established in 1982 as a project for United nations Economic Commission for Africa

on regional bibliographic information development of information resources, networking and databases.

5.4 INFORMATION POLICY DRAFT PROPOSALS

In this section a brief background to the events that led to the formulation of draft proposals on national information policy is given for each of the six countries. Basically the beginning point in this effort for almost all the six countries under study is the NATIS concept launched in 1974 by Unesco. From that point on, there are slight variation in the way each country has pursued the issue of national information policy.

5.4.1 Botswana

5.4.1.1 Background to information policy

Botswana's effort on organizing her information systems and services in terms of policy is unique from the rest of the countries in the Eastern and Southern Africa Sub-region. Botswana has produced a draft proposal not on policy, but on a coordinating agency which is envisaged to formulate a national policy on information for the government.

The 1985 Unesco/IDRC seminar on resource sharing in southern and central Africa, held in Tanzania, seems to mark the beginning of Botswana's effort in this area. Among its recommendations the seminar resolved that for resource sharing to be effective and meaningful, national information systems in each of the participating countries should be strengthened. It was out of this recommendation that the formulation of a national policy on information was identified as a means to strengthen national information capabilities. Unesco commissioned a consultant to survey information activities in Botswana, Malawi, Zambia, and Zimbabwe. In Botswana the consultant recommended the Information and Documentation Coordinating Committee (IDCC), born out of the now defunct Southern African Documentation and Information System (SADIS) conference held in Harare in 1982, to take up the responsibility of setting the ground for formulating a national information policy for Botswana. Information and Documentation Coordinating Committee organized a national conference to consider establishment of an information council that would be responsible for formulating policy on information for Botswana. Two seminars were held (in February and July, 1987) within this context. The outcome was the draft proposal on a coordinating body, the National Coordinating Council for Information (NCCI). When NCCI is approved and established it would embark on the formulation

of a national information policy (Awuah, 1988).

5.4.1.2 The draft proposal

The body responsible for drafting the proposed coordination of information system for Botswana is the Information and Documentation Coordinating Committee.

The document presents the background which led to the draft report. The current information scene in the country is reviewed. Included in this review are issues such as publishing and publishing industry (more than half of the review dwells much on this issue); mass media (newspapers and radio); research; libraries; rural information provision in relation to illiteracy; and mentions the prolification of computer technology in the country.

The document gives the justification of the proposed council and recognises the fact that information is a resource in national development though not in detail. The major objectives of the council is given as that of creating a national information system and specifically comprise the following:

1. To create a national information system by bringing together various - public, parastatal, and private -

and by establishing institutional links;

2. To coordinate the activities of these information agencies for effective administration of the national information system once it has come into being;

3. To formulate with the approval of the relevant government body, a national information policy; and

4. To execute such a policy after it has been formulated.

It further outlines the functions of the council. The structure, finance and budgeting of the council are given, and finally conclusion and recommendations.

Botswana has opted for a narrower approach to information system and this is made very clear in the proposal. The documents points out "...the proposed council to concentrate, in the first place, on the improvement of library and information services i.e, on the storing and dissemination of knowledge. It is at the later stage that the council could expand its operation to include other fields of public knowledge and numerical data and cover such operations as generation of knowledge." (Datta, 1988b)

5.4.2 Ethiopia

5.4.2.1 Background to information policy

Attempts at organizing information systems and services in Ethiopia began seriously in 1977 when a study to establish a scientific and technological information centre was launched. This was, however, suspended until 1984 when the need to revive the study led to a seminar on national information policy organised by the Ethiopian Science and Technology Commission (ESTC) in collaboration with UNESCO. The seminar considered, besides the issue of information policy, the feasibility of establishing a permanent coordination mechanism and to review and assess existing science and technological information systems. These two aspects constituted the recommendations of the seminar (Kebede, 1988).

As a follow up to the recommendations and as a result of the attention given by the Government, the National Scientific and Technological Information and Documentation Centre (NSTIDC) was established in 1986 under the ESTC. In line with the 1984 seminar recommendations it was the NSTIDC that was to take up the responsibility of coordinating information activities and formulate a national policy on information for Ethiopia. On its

establishment in 1986 the Centre did not right away embark on the formulation of a national policy on information. Priority was rather given to strengthening and developing the Centre in terms of official designation, infrastructure, manpower, policy, finance and physical facilities. In July 1991 NSTIDC drafted a national information policy proposal. In November the same year a seminar was organized with financial assistance from PGI of UNESCO to critically review the draft policy proposal, make necessary amendments and finally submit it to the government (ESTC, 1991b).

5.4.2.2 The Draft Proposal

The document opens with the preface in which the aims and the basis of the draft proposals are set out. The policy has three major aims:

(1) Sensitise national authorities of the need for the development of information systems,

(2) create awareness and general consensus among institutions and information professionals regarding relevant elements and strategies in the development of information systems, and

(3) to provide a framework for discussion among professionals who will be involved in the ratification of the subject.

The basis of the proposal according to the document are:

(a) past institutional activities on information policy;

(b) an inventory of facilities and services of Ethiopian libraries and information centres made in 1987, and

(c) an assessment of current situations and problems regarding information related issues carried out recently.

The purpose of these reviews were to identify the existing capabilities, problems and future prospects in the field in relation to global activities in general and to Ethiopia's needs in particular. Definitions of the major terms used in the policy proposal are given.

Part 2 sets out the basic principles of national policy on information then follows the scope of the policy in part 3; part 4 constitutes information policy implications, integration in the national development plans, existing

national policies and plans related to information systems, and part 5 comprises the policy statements.

The draft covers various activities of information from generation to dissemination. The document makes it clear that particular attention is given to library and information practices because of their relative significance to the provision of information services. In addition to libraries and related services the document includes specialized information, such as, statistical, extension, standards and patent information. It also covers the utilization of information telecommunications and the mass media.

5.4.3 Malawi

5.4.3.1 Background to information policy

Malawi's effort toward formulating a national information policy began with the formation of the Malawi Library Association in 1976. On the basis of UNESCO's NATIS concept, the Malawi Library Association became convinced that the formation of one functional national-wide information system would lay a lasting foundation for the country's development. In 1977 the Association identified

the National Research Council (NRC) in the Office of the President and Cabinet Affairs as an organ of government to unify information resources and services in Malawi. In the same year the Association submitted to NRC a document explaining the NATIS concept that would help Malawi harmonise her information systems and services. The Council was requested to coordinate all efforts to achieve the NATIS objectives. The National Research Council has since changed its name to the Department of Research and Environment Affairs. As a result of the submission, a preliminary meeting was held in 1978 and recommended the creation of a National Documentation and Information Committee (NDIC). In 1987 the NDIC organized a seminar on national policy on library and information services under the sponsorship of UNESCO with the collaboration of Malawi National Library Service. The objective of the seminar were threefold:

1. To draw the attention of the Government to the need for a national policy on library, documentation and information services in Malawi;

2. To sensitize all sectors in Malawi involved in or concerned with the collection, processing, dissemination, and use of documentary information on the need of information policy as a basis for planning

the effective coordination of information activities in the country; and

3. Lay the foundation and institute procedures for, designing and formulation of such a policy.

It was this seminar that gave raise to the draft policy on information.

5.4.3.2 The draft proposal

The 11 page document is laid out in 3 sections:
The preamble - gives a brief background to the development of the policy effort and the need for information for development;

The second section sets out the scope of the policy as "the policy on library, documentation and information services is deemed the basic principles hence, covers the entire national infrastructure with a view to:

1. Set national goals according to national development needs and plans;

2. Set coherent and systematic modalities for achieving the set goals; and

3. Take an integrated nature though respecting sectoral responsibilities with the overall national goals.

The second part of section 2 outlines ten objectives of the policy, with the general objective being the provision and progressive maintenace and improvement of the entire national information infrastructure in order to effectively contribute to national development.
The last section constitutes the policy statement and strategies for implementation.

5.4.4 Tanzania

5.4.4.1 Background to information policy

Like the rest of the countries in the sub-region, Tanzania's attempts at organizing her information systems and services go back to the NATIS concept of 1974. The implementation of the NATIS concept was, however, not realized. Tanzania attended a series of conferences organized by UNESCO in this regard. The 1985 conference on resource sharing held in Dar-es-salaam referred to above, recommended national information policies for participating countries and again the 1986 conference on training of

library, documentation, and archive personnel held in Dar-es-salaam recommended the need for a national policy. A committee was recommended to lay the ground for the preparation of a national information policy with special emphasis of bringing libraries, archives and documentation centres together. In 1989 a seminar on establishing a national information and documentation network in Tanzania was held. One of its major objectives was to assist in the formulating a national information policy. Unfortunately none of the papers presented were on policy (Sekimang'a, 1992). Since then a national information policy proposal was formulated and adopted at a seminar organized by the Tanzania Library Association in 1993.

5.4.4.2 The draft proposal

The document presents a detailed background of existing information systems and services, including legislation and information related policies, and outlines achievements and problems. There is a section devoted to the need for information policy in relation to the need for information for national development. The section on the policy statements and strategies for implementation begins with the national information policy objectives and they are outlined as follows:

1. To see to it that information is recognised as a national resource by national authorities and all sections of society;

2. To make sure that use of information contributes to national development and consequently improve the quality of life of citizens by promoting emergence and creation of an information society; and

3. More specifically to attain full and effective utilization of data and information as well as specialized and professional knowledge and expertise within the country and elsewhere.

The scope of the policy is articulated as: "...will be concerned with the development of national information systems ... will cover all matters related to data and information in textual, factual, numerical and graphical forms; recorded in conventional and non-conventional media; the information industry and data and information handling in both conventional ways as well as through application of modern information technology".

5.4.5 Uganda

5.4.5.1 Background to information policy

The 1973 conference on development documentation and information networks in East Africa held in Nairobi marked the beginning of Uganda's effort to systematically develop her information systems and services. Several resolutions were passed among which were the need for member countries to urgently formulate documentation policies and to create a government body to guide, stimulate and coordinate all information services. As a result the Advisory Committee on Documentation and Information Network (ACDIN) was established in Uganda. The NATIS concept further stimulated Uganda's efforts in this regard. ACDIN advised the Government to establish NATIS in Uganda. However, because of the political turmoil the country went through between 1979 and 1985 these efforts grounded to a halt.

In 1986 the National Information Agency Advisory Committee (NIAAC) was established charged with the responsibility to formulate a policy on information for Uganda and to coordinate information systems and services. The name was later changed to National Information Policy Coordinating Agency (NIPCA). A bill to institutionalize it was drafted

in 1992 and updated in 1993 ready for submission to the Parliament.

In 1987 NIPCA, the then NIAAC, prepared a project proposal for consideration for funding by UNESCO which was approved and resulted into a UNESCO consultancy mission in 1989. The objective of the mission was to survey the existing information systems and services upon which to form a basis for designing a coordinated national information system and appropriate information policy. At the end of the consultancy mission a national consultative seminar was organized whose recommendations provided the basis for the draft information policy (NaKkazi, 1990).

5.4.5.2 The draft proposal

The document opens with an introduction on the need for information policy for Uganda and its functions in the light of the need for information support for development. It gives a brief survey of the existing information infrastructure and problems and gaps therein. It also gives the objectives of the policy. The rest of document deals with the proposed policy statements. Under each policy statement strategies for implementation are outlined. The policy document purports to take a broader approach to national information policy.

Of all the draft policies under study, Uganda seems to have made much progress in terms of moving toward approval. The draft was approved by the Cabinet in 1990, but the Parliament is yet to deliberate on it (Ogwang-Ameny, 1994).

5.4.6 Zambia

5.4.6.1 Background to information policy

The starting point with regard to policy on information in Zambia was the proposal to establish the Southern Africa Documentation and Information System (SADIS) in 1982. However, the effort to develop organized information systems was stimulated, as in the rest of countries in the sub-region, way back in the 1970's by the NATIS concept. The Zambia Library Association (ZLA) in 1982 appointed a committee to prepare a report on the development of information services in Zambia with particular reference to the proposed SADIS. Following the preparation of this report a seminar on the need for development-oriented national information policy in Zambia within the context of SADIS was organized by ZLA. The seminar recommended a working party to prepare a document for the establishment of a national information policy and library legislation for Zambia. The working party failed to prepare the report.

The UNESCO/IDRC sponsored conference on resource sharing further encouraged efforts toward national information policy as Zambia was one of the four countries surveyed by UNESCO in this regard. The survey was followed by a UNESCO sponsored National Information Policy Seminar for Zambia in 1987 and gave rise to the present draft proposal (Zambia Library Association, 1988).

The draft proposal was submitted to the then ruling party under the one party rule as the party was responsible for policy approval. Since the transition to plural politics and change of government in 1991 there has been no follow up on the part of ZLA.

5.4.6.2 The draft proposal

The policy is laid out into two major parts. The first deals with the usefulness of information as a national resource and justifies its systematic organization if it is to be useful in the development process. It gives a brief background of the existing information infrastructure. Identifies current socio-economic priority areas and their information requirements.

Part two deals with the proposed policy statements. It begins with a general information policy aims for Zambia,

and then the policy statements and their strategies of implementation. The document implies a broader and integrated national information policy.

5.4.7 General Remarks on Policy proposals

The Botswana proposal make it clear that it is a library policy. It is aimed at developing activities and processes to facilitate the flow of information through documentation and library services.

The Ethiopian document also gives particular attention to library practice with the inclusion of specialized information services, such as, patent, standard, and statistical information. The policy is evidently more concerned with the development of scientific and technological national information system.

The Malawian and Zambian proposals imply integrated systems but with heavy emphasis on libraries. Tanzania and Uganda proposes an integrated systems.

Overall, the main thrust of national information policy initiatives is from librarians with the exception of Ethiopia whose need for a national information policy seems to have come with the desire to develop an industrial base

for the country. Hence, the initiative in the Ethiopia case has a strong influence from professionals in the science field.

CHAPTER 6

EVALUATION OF NATIONAL INFORMATION POLICIES

6.0 SCOPE

There are certain steps and actions that need to be undertaken in formulating a national information policy. In line with the objectives of this study, parameters for an analytical framework for a comparative study of national information policies have been identified. The analytical framework will be used to compare the elements of the national information policies. The parameters are adopted from Montviloff (1990) with slight modifications.

6.1 Assessment of National Information Environment

The first parameter will take the form of studies carried out preparatory to formulation of the policy proposals. For a policy to be meaningful and effective its formulation should be based on past experiences, the prevailing situation and the future expectations. Therefore, there is need to survey/study the national information environment for this purpose. There are three broad areas to be surveyed: (a) general indicators, (b) indicators on information systems and services, and (c) indicators on

information related policies. These indicators have an impact on the development of the present information systems and services and the policies governing them.

6.1.1 General indicators

General indicators describe environmental conditions and developmental goals of a country. The former relate to physical, economic, social, political and cultural aspects of the country while the latter indicate the government's priorities in its endeavour to develop the nation. For examples of these indicators see Annex ... at the end of the chapter.

6.1.2 Information Systems and Services Indicators

The survey here is concerned with collecting information on institutions engaged in information activities i.e. generation, gathering, processing and dissemination. In doing this the aspects to emphasize include: collections of information, available manpower, physical facilities and financial resources available, including the type of users. Ultimately the aim of the survey is to provide information

information systems and services and to identify information requirements for achieving the country's

socioeconomic development goals. It is expected that the survey will provide specific information such as:

- types of information systems and services in existence
- deficiencies and overlaps in information systems and services
- information systems and services required for developmental goals
- areas that need improvement are reflected.

For examples of information system and services indicators see Annex ... at the end of the chapter.

6.1.3 Indicators on Information Related Policies

Knowledge of the existing information and information related policies and the set of mechanisms for making policy are as crucial as the general and information systems and services indicators. The type and scope of policies to be formulated will be determined to some extent by the existing information related policies. It is from such a survey that contradictions, inconsistencies and overlaps in the existing legislation will stand out and hence provide a basis for amending, or creating new legislation where they do not exist.

6.1.3.1 Assessment of National Information Environment in Countries Under Study

The picture obtained from the six countries on national assessment is a mixed one.

Malawi and Zambia as is evident from the draft documents did not carry out national surveys. In Malawi papers presented by participants at the 1987 national information seminar ~~where~~ were used as basis for formulation of the policy proposal. In Zambia the 1985 seminar on the need for a development-oriented national information policy appointed a working party to carry out a survey and prepare a document for 1987 national information policy seminar. The working party failed to produce the report for the next national seminar which was in essence a national consultation seminar. "The Seminar participants in February 1987 had to rely on a discussion paper prepared by Dr. Lundu" (Zambia Library Association, 1987).

Tanzania and Uganda conducted what appears to be extensive assessments in all the three broad areas namely the general, information systems and services, and information related policies.

In Ethiopia the draft policy proposal asserts that the national assessment was based on three methods: (a) past institutional activities, (b) an inventory of facilities and services of libraries and information centres made in 1987, and (c) and assessment of current situation and problems regarding information related issues. It was out of this assessment that the first draft was prepared in July 1991 and in November the national consultation seminar considered the draft proposal and amendments were made. More consultations are expected before the draft is finally submitted to the government.

In Botswana the first seminar (February 1987) appointed a drafting committee to draft a proposal for National Coordinating Council for Information (NCCI). The drafting committee based its national survey on documents, personal interviews, and questionnaire. The second seminar which constituted the national consultative seminar adopted the proposal and recommended an abridged version of the draft proposal to be submitted to the government through the Ministry of Labour and Home Affairs in 1989.

What is not clear in the last two cases (Botswana and Ethiopia) is whether a survey of general physical, economic, cultural and political situation was conducted.

As already pointed above these have a bearing on the present policies and the policies to be formulated.

It is often the case to overlook the assessment of national information environment as we have shown in the first two cases on the assumption that those responsible for formulating policy know their field sufficiently well. Without such an assessment it is likely that some important elements can be overlooked and subsequently resulting into a policy with gaps and deficiencies. A national assessment is imperative if a meaningful and effective policy is to be formulated as it will provide a good understanding of the country's major goals and priorities in national development and how to link these goals and priorities with information systems and services so that appropriate information systems and services are developed to provide pertinent data and information.

6.1.3.2 Preparation for Preliminary Documentation

For Malawi and Zambia having not conducted the assessment of information environment meant that they had no reports to present at national consultation seminars. This oversight is a weakness in the process of formulating a national information policy. There is a tendency to look at what other countries have done to allow a broader

perspective. In the absence of a national survey of national information systems and services it is likely that information policy elements as seen in policies of other countries are included. It is true that such elements may be relevant to a country trying to formulating a national information policy, but what should be borne in mind is that although general policy elements are similar from country to country, actual situations vary from country to country. Thus, the extent to which a given element will be emphasized in a given policy will also vary from country to country. Reliance on papers presented by seminar participants as a main tool for collecting evidence to shape policy recommendations can yield some useful insights into the problems which the various information institutions face. However, such papers are unlikely to dig deeper to reveal fundamental problems and weaknesses of the institutions. The evidence in these papers is from the perspective of those who run the information systems leaving little room for critical and balanced evaluations. It is only when a properly planned national survey of information systems and services is carried out that a balanced reality is represented and oversights avoided. It is therefore, important to have a national assessment which will provide information for preliminary documents. The preliminary documents serve a number of purposes:

1. They provide a solid ground on which the national survey of information systems and services is used as a case study for reference during policy formulation,

2. It is upon these reports that the national consultation will base the formulation of national information policy, and

3. They will enable organizing and analyzing the information collected during the national survey so that crucial areas or problems which would influence policy are extracted out.

The other four countries Botswana, Ethiopia, Tanzania and Uganda despite what form these preliminary reports took show evidence that such reports were prepared.

6.1.3.3 Organization of National Consultation

It can be safely said that the all important national consultation meetings of one form or another were held in all the countries.

The national consultative meetings can take three forms:

(a) holding national consultative meetings,

(b) individual personal interviews, and

(c) enquiring by questionnaire.

Botswana used all the three methods while the rest of the countries considered in this study relied on organizing meetings.

The national consultation is used basically to discuss policy elements selected by working groups at national level and ultimately to gain a national consensus of the important elements to be included in the national information policy. It is also used to draw the attention of national authorities to the need for a national information policy, sensitize all institutions involved in information collection, processing and dissemination as well as the users of information at all levels of the need for a national information policy, and lay the foundation and institute procedures for design and formulation of information policy.

6.1.3.4 Identification of a Leading Agency to Coordinate Activities for the Formulation of National Information Policy

The identification of a leading agency to coordinate and organize all activities necessary for the formulation of a national information policy is a very crucial step to be taken. The lead agency could be a public or private body. Its function will include such activities as: setting up a working party which will be assigned to carry out various activities such as work plans and assigning responsibilities among its members; preparing preliminary reports on national information policy; organizing national consultation meetings and any other matters that may arise. Without a lead agency it would be difficult to work. The lead agency will provide avenues for accountability and follow-up.

Botswana identified the Information and Documentation Coordinating Committee (IDCC) born out of the SADIS ad hoc committee and under the Institute of Development Research and Documentation, to lead the formulation of the proposal for the establishment of the National Information Coordinating Council. Since its inception in 1982, IDCC has been a focal point for national and regional information issues. It functions with the blessings of the Ministry of

Labour and Home Affairs from where it draws it funds, and it is chaired by the permanent secretary of the same ministry.

In Ethiopia the lead institution was identified to be the National Scientific and Technological Information and Documentation Centre (NSTIDC) through the Ethiopian Science and Technology Commission. When the need for a national information policy was expressed at the 1984 seminar priority was given to establish NSTIDC which would eventually organize and coordinate all activities relating to the formulation of policy on information. Indeed as indicated in chapter 5 NSTIDC was established in 1986 and is spearheading the information policy drive in Ethiopia.

In Malawi, the Malawi Library Association when awareness and need for national information policy arose, identified the Department of Research and Environmental Affairs (the then National Council for Research) in the Office of the President and Cabinet Affairs to unify information resources and services in the country. Under the Department of Research, the National Documentation and Information Committee (NDIC) was established to set up and carry out the work plan for the formulation of national information policy for Malawi.

In Tanzania, the Tanzania Library Association identified the Tanzania Library Service to carry out the functions of a leading institution in formulating a national information policy for Tanzania.

In Uganda, the Ministry of Public Services and Cabinet Affairs was identified as a lead ministry. Under this Ministry, the National Information Agency Advisory Committee (NIAAC) was established in 1986 to set up and carry out a work plan for the formulation of a national information policy for Uganda. The NIAAC which is in the process of changing its name to the National Information Policy and Coordinating Agency (NIPCA) is located at the Uganda Management Institute.

The Zambia situation on this aspect is different and it manifests the inadequacy involved. The Zambia Library Association which was spearheading the national information policy formulation has no permanent base to operate from. Its members are scattered in various institutions. When it appointed a working party to prepare a preliminary report, the working party was not attached to any institution. Hence, no leading agency was identified. Perhaps and most likely this points to the failure of the working party to compile a preliminary report for the national consultation meeting in 1987. This shows how serious the neglect of

certain steps and actions can misguide the whole effort of national information policy formulation. This may also be the reason for the lack of follow-up since the proposal was submitted for consideration to the then ruling party in 1989.

6.2 Key Elements, Coordinating Body and Structure of a National Information System

In this section key elements of a national information policy, coordinating mechanism and the structure of the proposed national information system are used as a set of parameters for evaluation of the information policy proposals.

6.2.1 Key Elements of a National Information Policy

Any policy on information whether sectoral or national in nature usually includes some key elements. For the purpose of this study, the presences or absence of key elements in the national policy proposals of the six countries under study are presented in tabular form below:

Table: 6.1

KEY ELEMENTS	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Long & short range goals of the nat info systems & services	N	N	M	P	P	M
2. Role & value of info in nat development	M	M	M	P	P	M
3. Mechanisms of nat level coordination of various info systems & services	P	P	N	P	P	P
4.Promoting the development of nat systems and services	P	P	P	P	P	P
5.Promoting development of indigenous info & info products	P	P	P	P	P	P
6. Provision of access to info	P	M	M	P	P	P
7. Promoting effective use of info	P	P	P	P	P	P
8. Acquisition, research, develop & application of info technology	N	M	P	P	P	P
9. Info manpower development. status, remuneration, training etc of various categories of info personnel	P	P	P	P	P	P
10. Participation in international info activities	P	P	N	P	P	P
11. Allocation of resources for info infrastructure development & activities	M	M	P	M	M	M
12. Research in information science, systems and services	N	P	N	N	N	M

Key to abbreviations: N = element not included in policy;

M = included but as minor element; P = included as principal element.

The table shows that Malawi, Tanzania, Uganda, Zambia have included the element on long and short range goals of the national information systems and services. It is important to include the goals as principal element at the outset so that professionals, information managers, decision makers, and the general population are aware and have a clear conception of what the proposed system is intended to achieve in the long term. In fact, the policies on the key elements are derived and should be compatible with the overall objectives which in turn are expected to be compatible with the national development goals set within the national socio-political, socio-economic and socio-cultural context.

All the six countries recognise the significant role information plays in national development. However, Botswana, Ethiopia, Malawi, and Zambia have treated this issue in the introductory part of the policy documents, but have not included the concept as a policy statement. Tanzania and Uganda have included this concept as a principal element. The rationale for advocating for a national information policy is based on this element. It is therefore appropriate that this issue be articulated clearly as a policy element. It is crucial to the whole effort of policy formulation. Under this element strategies on how to embed this concept at all levels of national

development should be clearly articulated if the role of information in national development is to be understood and appreciated and ultimately if advocacy for a national information policy is to make sense. It is here that the role of the government and other agencies begin to emerge more clearly.

The concept on establishing a mechanism for national level coordination of various information systems and services is set out as a principal element in all the countries except in the Malawi document. The Malawi proposal, however, realized the need for coordination as pointed out in the introduction, "In spite of the developments recorded in the delivery of the right information to the right end user at the right time ... social and institutional mechanisms to share, diffuse and utilize information once generated have not yet been developed fully. There are no mechanisms to harness the information for the benefit of the whole country." Having realized the need of coordination but not including it as a policy statement is a flaw in the policy proposal. The policy statements are intended to set out in some measure as to what constitute problems in the information field and strategies for overcoming them. When we talk of an integrated system, we are in essences talking about a coordinated system. Therefore a coordinating mechanism of one form or another is necessary to translate

the elements of a national information policy into action, assign responsibilities to different information institutions, formalize the jurisdictional relationships, promote and monitor developments in the national information systems and services, and securing appropriate legislative basis for the policy implementation.

The concept of building and developing national information systems and services is treated as a principal element in all of the policy proposals. What should be borne in mind here is creating information systems and services that will best serve national development goals. Thus, depending upon the level of development in the information infrastructure in the country, there may be need to modernize and improve information handling activities. To establish an information system that will capture, record, process and disseminate information generated within the country and provide mechanism to access and retrieve information outside the national borders will be the main thrust here.

Promoting the generation and establishment of effective means for capturing, recording, processing and disseminating indigenous information and information products is treated as a principal element in all policy proposals. Botswana, Ethiopia and Zambia limit the production of indigenous information products to printed

forms only whereas the other three countries include information recorded in other forms as well. In the wake of the information revolution information is produced, recorded, and disseminated in various media and they should all be covered in the policy statement.

The issue of provision of access to data and information in support of activities in various sectors of the national economy is treated as a minor element in the Ethiopian and Malawian documents while the other four countries have treated it as a principal element. (In the Ethiopian case the national policy on information is some what restricted or biased to the science and technology sector i.e. the policy is not one covering the whole of the socio-economic development spectrum). The differences here lie in the extent to which this element is articulated. In the Zambian document providing access is seen as creating information services where they do not exist which of course is true, but the provision of access to information is more than just creating services; it also implies identifying what are the obstacles to access to information and then adopting measures and strategies to overcome them. The obstacles could be legislative, administrative, financial, political and technical in nature. For example, how effective is the current legal deposit law. A national bibliography is dependent upon this law functioning

effectively. Without such tools as the national bibliographies it is difficult to know what is generated and published within a given country, and elsewhere about the country. Thus ineffectiveness of a legal deposit law may be reflected in poor access to information.

Promoting effective use and marketing of information and information services is treated as a principal element in all the policy proposals. The Malawi and Zambia documents limit this issue to user education, that is assisting users on how to use the existing information resources. They leave out the important aspect of aggressive marketing of information resources and services. The issues concerned with user studies are important if appropriate information resources and services are to be provided. For example, there is need to identify the potential users, their needs, what services would meet such needs, on what terms the user would make use of the services (ie information pricing) etc.

The Botswana document has no statement on IT. The reason given is that the technology is not fully developed although in the same document it is pointed out that the number of information institutions acquiring computers is growing rapidly. Ethiopia has treated the issue as a minor element, while the other four documents treat the issue as

a principal element. However, the Malawi and the Zambian document, despite treating IT as a principal element fall in the same category as Ethiopia. In these three documents the application of IT is rather implied. The potential impact and benefits on one hand and the possible problems that may have to be overcome in the application of IT indiscriminately, on the other, are not dealt with in detail. Leaving out this element or treating it as a minor one is a deficiency in the policy on information. The use of IT in recent years has had and continues to have a tremendous impact on all sectors of human endeavour and especially in information handling activities. The impact of IT on information handling is discussed in chapter 4.

All the documents have a statement on information manpower development. To leave this element would be a major flaw as effectiveness of information systems and services is dependent to a greater extent upon the quality of personnel operating the system and providing the services. From the review of literature on information services in Africa, lack of qualified manpower is one of the major problems. It therefore deserves to be treated as a principal element.

The Malawi document completely leaves out the element of participation in international information activities which again is another important oversight. In the wake of globalization of development issues, no country can exist in insolation. Although development is particular to each country in terms of needs, methods and pace, a country's strategy and policies must be sensitive to external environment. Participation in international information activities opens avenues for data and information flow to and from a country. Developmental information from outside the national borders is necessary and it can be acquired by participation in international information programmes which provide modalities of sharing data and information. The other countries have included this element as a principal issue.

Malawi's document is the only proposal that has treated the aspect of resource allocation for information infrastructure development and activities as a principal element. In the other policy proposal documents this aspect is obscured under some other element(s). This is a major issue that needs to be explicitly dealt with by policy on information. Lack of financial resources for development of information systems and services is a major problem in Africa. It is therefore an issue that should receive greater attention and emphasis in the policy statements.

Research in information science, systems and services is an important issue in the overall development of information systems and expertise in this field in a country. Research and development can promote and develop local capabilities, producing new ideas, methods and techniques which can suit local conditions. Ethiopian and Zambian documents have statement on research and development in the information field. This element need to be included and emphasized in national information policy statements. The information sector is crucial to national development. It therefore follows that, if the sector is to be effective continuous research and development has to be conducted and the concerned national authorities should make appropriate allocation for research in the field.

6.2.2 Coordinating Mechanism for National Information Systems and Services

Building up viable and integrated national information systems and services involve launching new and developing and upgrading existing information programmes and services. The question of a mechanism for achieving coordination does arise. After all the essence of a national information policy is the planning and harmonization of information activities and plans. The rationale is to avoid unnecessary duplication of effort and also to deal with conflicting

policies which arise between information institutions in their pursuit to provide services. This necessitates the creation of a coordinating mechanism. Based on the experiences in many countries this concept is widely advocated in the literature on information policies. The facts to be examined are what kind of a coordinating body, in terms of function, structure and position in government. The structure of such a body has three parts:

(a) The policy and decision-making arm. This part is to comprise inter-ministerial representatives, under the chairmanship of the highest-ranking officer (i.e. the Prime Minister or his representative). The representatives should be from relevant public or private sectors.

(b) The operation arm of the coordinating body. This is to provide a general framework for development in the field of information and facilitate the harmonization and coordination of information activities. This arm can be entrusted to an appropriate executive body. It could then be composed of an executive director of the rank and status of a permanent secretary in the government and supported by professional staff and administrative and secretarial services.

(c) The advisory function is to be entrusted to an advisory committee. This is a technical arm composed of experts in different areas of information activities. It should also include information user groups and the information industry.

The policy and decision making function will be concerned with endorsing the national information policy(ies) based on periodic reviews, evaluation and implementation of reports from the executive. The executive will be concerned with translating the policies into activities and programmes through the various information institutions. The advisory function will be concerned with the provision of specialized expertise on information requirements and on the ways and means of fulfilling them. It is further advocated that the coordinating body should be under the authority of the highest government institution ie the council of ministers or the cabinet (Montviloff, 1990). What follows below is brief descriptions of coordinating mechanisms proposed in the draft information policies of the six countries.

All the policy proposal documents, except that of Malawi, propose the creation of a national information coordinating body of one form or the other. The Malawi document remains silent on this aspect.

Botswana proposes a coordinating body with a two tier structure: (a) The Consultative Board comprising representatives of a large number of agencies active in information industry. The body would play an advisory role to the Executive Committee; (b) the Executive Committee is to carry out the day to day administration and is to be composed of representatives of the main agencies dealing with information in the country. It appears that the Executive Committee is to be responsible for both formulating and executing policy as there is no indication of a decision and policy making component.

Ethiopia, Tanzania and Uganda have proposed coordinating bodies with a three level structure: (a) Decision and policy making component, composed of one member from each of the priority economic sectors. The members to be at vice minister level; (b) The Executive, to endorse policy and implement programmes and activities; (c) The Advisory component is to provide expertise and knowledge to the Executive Committee on various aspects pertinent to the national information system. It is to be composed of representatives from the user groups, academics and information industry.

Zambia does not give the structure of the various functions to be performed by the coordinating body. To provide authority to the body a member of the Central Committee of the then ruling government in the one party state era was to be the chairperson of the body. The function of the body is to be mainly advisory in nature.

Botswana has proposed the coordinating body to function under the authority of the Ministry of Labour and Home Affairs and that the Permanent Secretary of this ministry be chairperson of the body. Botswana's choice of the Ministry of Labour makes sense in that the Information and Documentation Coordination Committee (IDCC) responsible for drafting the proposal draws its financial resources from this Ministry.

In Ethiopia the coordinating body is under the authority of ESTC which itself is in the Prime Minister's Office. The Commissioner of the ESTC is to be the chairperson of the body. As already mentioned, the national policy on information in Ethiopia focus on sciences and technology information.

In Tanzania it is proposed that the coordinating body should be under the authority of the Prime Minister's Office.

In Uganda the Directorate of Information which is already established (but awaiting institutionalization) is with the Ministry of Public Service and Cabinet Affairs. The Zambian document does not give the position of the coordinating body in government structure.

Ethiopia, Tanzania, and Uganda documents give elaborated structures of their expected national information systems, while Botswana and Zambia documents do not do so.

6.2.2.1 General conclusion regarding the coordinating mechanism

Malawi's silence on the issue of a coordinating mechanism for national information system is a shortcoming in the policy document. The aim of a policy document is to set out the problems that hinder or are likely to hinder the flow of information and the solutions/strategies for tackling them in clear and concise manner. The overall objective of a national information policy is to establish integrated national information system which necessitates a coordinating mechanism. Therefore, a policy on an integrated national information system should delineate principles aimed at achieving integration.

Zambia, despite including the coordination aspect, does not give the structure of the coordinating body nor its position in the national government.

Ethiopia and Zambia do not include the financial aspect of the respective coordinating bodies.

In national information systems and services, for problems to be tackled fully there is need to bring out the implications of the means and ways of overcoming them. The oversights weakens the argument for policy on information.

ANNEX TO CHAPTER 6:

SOME EXAMPLES OF GENERAL INDICATORS

PHYSICAL INDICATORS

Provide a measure of the geoclimatic conditions, ease of internal and international communication which make information activities easier or more difficult.

1. **Population density**

   It is assumed that the greater the density, the easier the intercommunication of information.

2. **Proximity to "information pole"**

   It is assumed that the greater the distance between a given place to the "information pole" within the country or abroad, the more difficult and expensive the access and use of external information.

3. **Climate appropriateness**

   It is assumed that extreme temperature and humidity hinder the preservation and use of documents and increase their cost.

Transportation Infrastructure

Provides a measure of the relative information transportation facilities from one point to the other of the territory.

1. **Density of roads (railways, waterways...)**

   It is assumed that the higher the density the easier the communication of information.

2. **Communication means (mail systems, telephone traffic, telecommunication, telex, facsimile, international meetings, international associations).**

   It is assumed that the better the communication the more important the flow of information among individuals and institutions.

Socio-cultural Environment

Provides a measure of the relative productivity and receptivity with regard to information.

1. **Concentration of population**

   It is assumed that the more dispersed the population, the difficult are the dissemination of, access to and use of information will be.

2. **Literacy rate**

It is assumed that the lower the literacy rate the more difficult the dissemination of, access to and use of information.

3. **Language, ethnic, religious homogeneity**

It is assumed that the greater the number of languages, ethnic and religious groups in a country the more diverse will be the information services required.

General Economics

Provides a measure of the overall economic resources of a country and therefore support and is an incentive for information activities.

1. **Gross National Product per capita**

It is assumed that the higher the GNP the higher the overall economic capacity of a country and in particulary the resources available for information activities.

2. **Gross domestic investment (as a percentage of gross domestic product)**

   It is assumed that the higher the investment the more active the economy and the greater the needs for information.

3. **Inflation rate/availability of hard currency**

   It is assumed that a high inflation rate reduces the availability of hard currency and jeopardizes the overall economic capacity of a country and in particular the resources available for information activities.

DEVELOPMENTAL INDICATORS

The developmental indicators show a government's choice of priorities in pursuit of its national goals.

Conceptual Priorities

Provides a measure of how the national conceives its developmental and administrative activities.

1. **Industrial diversification**

   It is assumed that the greater the emphasis on the diversity of public/private, small/large, national, multinational companies, the greater will be diversity of information services.

2. **Public administration structure**

   It is assumed that the more developed the public administration structure the more information will be generated and required by the public sector.

National priorities

Provides a measure of the relative national long-term goals in development, which can indicate priority areas for the development of information activities.

1. **Priority goals**

   It is assumed that the higher the priority given to a particular development goal (social, economic, ...) the more information is produced and used in this area.

2. **Priority sectors**

   It is assumed that the higher the performance in a broad sector of activity (i.e. education, health, agriculture, ...) the more information is needed in this sector.

3. **Promotion of research activities**

   It is assumed that the higher the support to research the more intense will be the generation and use of information.

ANNEX TO CHAPTER 6:

SOME EXAMPLES OF INDICATORS ON INFORMATION RESOURCES AND SERVICES.

Information Institution

Provides a measure of the relative number, size and capacity of the information infrastructure in the country and indicates the intensity of the economic activities devoted to information.

1. **Specialized information and documentation centre**

   It is assumed that the more numerous the centres, the better the information reference sources. These centres often exist in every place where there is a major discipline, mission or problem-oriented activity:

   - government ministries
   - university facilities
   - professional associations and societies
   - independent research laboratories
   - hospitals/museums/banks, ...
   - industrial /commercial business
   - international and foreign organizations

2. **National libraries and archives**

It is assumed that the larger the national library and archives, the greater the stores and use of information.

3. **Referral centres**

It is assumed the better and more numerous the referral centres, the easier the access to information sources.

4. **Information consulting and advisory services for entrepreneurs**

It is assumed that the better and more numerous these services, the better the access and use of information.

5. **Information and data analysis centres**

It is assumed that the better and more numerous such centres, the better the dissemination of and access to information. These centres extract information from various types of publications, evaluate it and prepare it in a format more convenient to the user.

6. **Publishers, printing services and enterprises; clearinghouses; information repackaging services; data processing.**

   It is assumed that the better and more numerous such services, the better dissemination of and access to information. These services supply information in various forms.

Institutional Resources

Provide a measure of the relative importance of the services the institutions mentioned above.

1. **Collections**

   It is assumed that the large the supply and the more diversified the collections, the more useful they to the users.

   - printed books, public documents ...
   - technical and research reports
   - patent, trade contract collections
   - internal records, surveys and inventories
   - proceedings of meetings
   - statistical and numerical data
   - AV collections, ...

2. Human resources

It is assumed that the more qualified and large number of skilled labour force, the better the services. These include training opportunities in the country and the status of information workers.

3. Physical facilities

It is assumed that the more the facilities are diversified and updated, the more varied and efficient the services and supply of information will be. The facilities to be included here rage from computers, microform, printing and reprographic equipment, to facilities for providing translation, SDI, online interaction, publication document dissemination, networking.

USERS

Provides a measure of the relative number, categories, and types of information users and indicates their information needs.

1. User groups

It is assumed that the larger the number and the diversity of user groups, the more important and complex the information needs.

2. **Institutional users**

It is assumed that the larger the number and diversity of collective users, the more important and complex the information needs.

3. **Users' services**

It is assumed that the most varied the assistance provided to the users, the easier the access to information.

CHAPTER 7

ELEMENTS AND ISSUES OF NATIONAL INFORMATION POLICY

7.0 SCOPE

A national information policy aimed at providing support for national development has to reflect the situation in a given country. Problems that need to be solved by implementing the policy and the various issues that are likely to hinder its implementation have to be addressed in the policy statements and strategies for overcoming them clearly articulated.

Having recognized information as an essential ingredient to development of any human society, the ultimate goal of a national information policy is therefore, to promote and ensure access to specialized and professional knowledge, scientific, technical, social and economic information and expertise generated and/or available within the country and elsewhere in the world as a problem solving resource and as a resource for development in all sectors of the economy and at same time ensuring its optimum utilization (Neelameghan, 1987).

This chapter highlights the key elements and some issues that are to be considered under each element. Comments are

given on what has been covered in the policy proposal documents. For easy analysis and comprehension, the issues are presented in tabular forms with commentary.

7.1 ROLE AND VALUE OF INFORMATION IN NATIONAL DEVELOPMENT

The related main policy element is to treat information and data, specialized knowledge and expertise as well as the related information industry in the country as resources essential to socio-economic development and as potential element in its development plans and programmes.

TABLE 7.1

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Incorporate nat info policy into overall nat development policy.	N	I	N	I	I	N
2. Inclusion of an info component with a separate budget line in all sectoral nat development plans.	N	I	I	I	I	N
3. Ensure & promote the acceptance of this concept by leading info managers, professionals in various sectors, decision & policy making authorities & the general population.	N	I	N	I	I	N
4. Define the appropriate role of the govt in development & use of nat info resources & services in the framework of nat political, social philosophy & govt structure	N	N	N	I	I	N

KEY TO ABBREVIATIONS: I = Included; N = Not included

All the documents recognize the role of information in national development as indicated in chapter 6. However, Botswana, Ethiopia, Malawi, and Zambia treat this element as a minor aspect. As a result, the issues to be considered are not covered in policies of these four countries except in the Ethiopian case as can be seen from the table above. Malawi seems to have included issue 2 although it is not very clear.

7.2 MECHANISM FOR NATIONAL LEVEL COORDINATION

As discussed earlier, national policy and coordination mechanism for the various information systems, services, programmes and activities and formalization of institutional and jurisdictional relationships should be clearly included as a key element in the national information policy.

TABLE 7.2

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Establish a nat info policy & coordinating body to deal with all matters relating to info activities.	I	I	N	I	I	I
2. Assigning of responsibilities to different institutions & organizations constituting the nat info system.	I	I	N	I	I	I
3. Translate info policy into medium term plan of action & implement it through yearly programmes.	I	I	N	I	I	I
4. Coordinating, promoting & monitoring developments in nat info system.	I	I	N	I	I	I
5. Establish legislation to institutionalize & to sustain nat info systems development.	I	I	I	I	I	I

KEY TO ABBREVIATIONS: I = Included; N = Not included

Issues under the coordination element shown above are

covered by all the policy proposals except Malawi which has no statement on coordination. However, issue 5 is included in the Malawi document although there is no statement on coordination. On the other hand Botswana, Ethiopia and Zambia, despite having included the element on coordination, some of the issues mentioned are not necessarily under the coordination element. Tanzania and Uganda have covered the issues under the coordination element.

7.3 BUILDING UP OF DATA AND INFORMATION RESOURCES

The related key policy element is to develop information systems and services to gather information generated within and outside the country, to process and organize, and disseminate such information for decision-making and problem solving purposes.

TABLE 7.3

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1.Ensure that all areas of the country are adequately covered by info infrastructure development & programmes.	I	I	N	I	I	I
2. Creation, development & upgrading all types of info gathering, processing, storage & dissemination infrastructure.	I	I	I	I	I	I
3. Establishment of other types of services (ie translation, literature searching, info analysis & consolidation, etc).	N	I	N	I	I	N
4. Info sharing programmes (ie inter-library loans, standardization).	I	I	I	I	I	I
5. Setting up of communication facilities to enable the flow of info from foreign sources (ie networks).	I	I	N	I	I	I

KEY TO ABBREVIATIONS: I = Included; N = Not included

Almost all the documents have included the issues in the above table. Issue number 3, however, is not covered in the Botswana, Malawi, and Zambia documents, although Zambia

mentions establishing new and expanding existing information institutions. Ethiopia, Tanzania, and Uganda include the issue but what remains to be seen is what type of 'other' information services are to be established.

7.4 INDIGENOUS INFORMATION

The related policy element is the promotion of the generation and establishment of effective means For the capture, recording, processing and dissemination of indigenous information and information products.

TABLE 7.4

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Encourage local info industry (ie. printing, publishing, data base building etc).	I	I	I	I	I	I
2. Recording, publishing, & distributing results of local scientific & technical research to areas of development.	I	I	I	I	I	N
3. Formulate & implement copyright laws to encourage those involved in indigenous info generation.	N	N	I	I	I	I
4. Promote local publishing of materials in local languages to to support literacy campaigns.	I	N	I	I	I	I
5. Support libraries & info centres to acquire local materials as a way of supporting indigenous publishing industry.	N	N	N	I	I	N
6. Support & improve production of local info carriers (ie. journals, reports, books, etc).	N	I	I	I	I	N

KEY TO ABBREVIATION: I = Included; N = Not included

All the policy proposal documents treat the element of promoting the generation of indigenous information as a principal element. The table above shows a number of

omissions on the issues to be included. The way the issues are articulated varies and some are not very clear. The meaning in some cases has to be inferred from the statements. For example, the issue dealing with formulating copyright laws to encourage those involved in indigenous information generation; some statements just mention creating conducive environment to encourage people to participate in indigenous information generation, while others go further to state that necessary legislative measures should be taken to create a conducive environment for generation of indigenous information.

7.5 PROVISION OF ACCESS TO DATA AND INFORMATION

The related policy element is the facilitation of access to necessary data and information to support activities in the various sectors of the national economy.

TABLE 7.5

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Identify obstacles to access to (ie. legislative, political, technical, etc).	I	I	I	I	I	I
2. Identify principles to overcome obstacles (ie. deposit laws, import/export regulation of info, nat bibliographies.	I	I	I	I	I	I
3. support projects & programmes for the creation, updating & maintenance of info tools & products that facilitate the identification, selection & location of info sources in the country.	I	I	I	I	I	I
4. Application of management principles to facilitate the flow of info within & outside	N	I	I	I	I	N
5. Undue dependence of the country on external info sources.	I	N	N	I	I	N
6. Nat security & corp privacy in relation to the info provided.	N	N	N	I	I	I
7. Individual privacy versus right to info.	I	I	N	I	I	N
8. Unauthorized use of info in info technology based systems.	N	N	N	I	I	N

KEY TO ABBREVIATIONS: I = Included; N = Not included.

The first four issues under the provision of access to information are covered in all of the policy proposals. However, in the Ethiopian and Malawian documents the first three issues are scattered in various statements. This is mainly because the element of access was treated as a minor issue. Despite having treated this element as principal element, Botswana and Zambia do not articulate the issues under it clearly well. Issues 5 to 8 are not covered in the majority of the documents. These are important issues in so far as the clearing of the conflict on what type of data and information should be accessed without restrictions and on correcting the situation of undue dependence on external sources of information.

Unauthorized access to sensitive information could lead to economic and political erosion of a country's sovereignty.

Undue dependence on external information sources has its implications, such as, (a) to access and use external information extensively will need hard currency, which is in short supply in Africa. Therefore, if measures are taken to correct this state of affairs there would be some savings on hard earned foreign exchange; (b) because of this dependence, suppliers of the data and information would be in a position to know what type of projects a nation is working on and in the long run could try to

interfere if the project has in their view political or economic interest. Interestingly, Ethiopia and Malawi brings out the issue of providing access to 'grey literature'. This is an important aspect as grey literature carries much of national data and information most often pertinent to national development.

7.6 INFORMATION USE PROMOTION

The related policy element covers the promotion of the effective use and marketing of information and information services.

TABLE 7.6

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Identifying the appropriate info resources & services that will best serve the needs of users in key areas of nat development.	I	I	I	I	I	I
2. Raise the awareness about availability of relevant info resources & services (ie. user sensitization).	I	I	N	I	I	N
3. On what terms would the user make use of info services provided (info pricing).	N	I	N	N	N	N
4. Assist users enhance their propensity & ability to seek & apply info to problem solving.	N	I	I	I	I	I
5. user education,to promote effective use of info.	I	I	I	I	I	I
6. Investigate the use of value-added info as a measure for evaluating user satisfaction.	N	N	N	I	I	N
7. Harmonize this aspect of nat info policy with relevant elements of nat education policy.	N	I	N	I	I	N

KEY TO ABBREVIATIONS: I = Included; N = Not included

Effective use of information was treated as a principal element in all the policy proposals and hence most of the issues in the table above were covered. However, the issues

dealing with marketing are not well articulated in some proposals and emphasis on user education is not adequate. Issue number 3 on information pricing is not included in all the proposals except in the Ethiopian document. This aspect is important in the light of the advocacy to free information and the high cost of producing information and information products. This may further help to embed the concept that information is an important resource like any other resource in national development and hence the appreciation of information systems and services at different levels in society.

From the above table it appears, apart from Tanzania and Uganda, the rest of the countries do not envisage provision of value-added information backed by information services, such as, information analysis and consolidation, and information repackaging. This aspect is important when we bear in mind the need to provide timely and relevant information for national development, the planners, policy makers, executives, etc are in need of and appreciate precise and evaluated information.

7.7 INFORMATION TECHNOLOGY

The policy relates to the acquisition, research, development and application of information technology (IT).

TABLE 7.7

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Use of IT to enhance efficiency of info handling processes.	N	I	I	I	I	I
2. Criteria for application & adoption of IT.	N	I	I	I	I	I
3. Investment in IT.	N	N	N	I	I	N
4. Franchise for the provision of public and private commercial services.	N	N	N	I	I	N
5. Cost & pricing for data & facsmile transmission.	N	N	N	I	I	N
6. Copyright legislation for machine-readable data banks.	N	N	N	I	I	N
7. Legislation relating to soft-ware production & distribution.	N	N	N	I	I	N
8. Transborder data flow policies & regulatory measures.	N	N	N	I	I	N
9. Storage & distribution of sensitive info in machine readable form & related matters of nat security, corporate & individual privacy & confidentiality.	N	N	N	I	I	N

KEY TO ABBREVIATIONS: I = Included; N = Not included.

Botswana has not covered any of the issues because it has no statement on IT as mentioned in chapter 6. Issues 4 to 10 are not covered by the majority of the policy proposals.

Limiting policy on IT to the first three issues only, is a deficiency in the Malawi, Ethiopia, and Zambian documents. If the full impact and implication of IT use are to be understood and its full benefits realized, then every one of these issues listed should be included. For example, IT industry is underdeveloped in Africa and thus policy consideration on investment in IT would be looking into ways of reducing dependence on foreign IT procurement. Here again, it is also important to prevent the erosion of the country's laws and policies by information and communication technologies and transborder data flow. With the increasing global nature of electronic information networks, sovereignty can no longer be viewed as simply a matter of physical borders and political allegiances, but also as including considerations of access to, control over and a degree of reliance on information sources (Neelameghan, 1990).

7.8 INFORMATION MANPOWER DEVELOPMENT

The policy relates to promotion of and supporting the development of personnel adequate in quality and number for the efficient and effective management, operation and development of information resources, systems and services in the country.

TABLE 7.8

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Formulate & implement a nat info personnel policy that is in harmony with nat info policy & nat education policy	N	N	N	I	I	N
2. Info manpower training opportunities.	I	I	I	I	I	I
3. Info manpower requirements at all levels.	N	I	I	I	I	I
4. Institutionalization of educational programmes in info field.	N	I	I	I	I	I
5. Upgrade the curriculum to meet the requirements of changing info needs.	N	I	I	I	I	I
6. Improve status & salary scales for different categories of info personnel to be at par with those of comparable professionals in the country.	N	I	I	I	I	I
7. Info professional associations	N	I	N	I	I	I

KEY TO ABBREVIATIONS: I = Included; N = Not included.

The different issues under information manpower development

are well covered in the policy proposals except issue number 1 and 7 on implementing a national information policy and professional associations. Botswana despite treating this element as a principal element has not fully elaborated the implications therein.

7.9 PARTICIPATION IN INTERNATIONAL INFORMATION ACTIVITIES

The policy element relates to interaction with and participation in international and regional information systems, programmes and activities that are conducive to the development of the national information systems and services.

TABLE 7.9

ISSUES TO BE CONSIDERED	COUNTRIES					
	BOT	ETH	MAL	TAN	UGA	ZAM
1. Support participation of nat institutions in regional/internat info networks.	I	I	N	I	I	I
2. participation of info personnel in internat meetings & programmes.	I	I	N	I	I	I
3. Ensure that info & experiences acquired from such activities is documented & circulated to all concerned parties.	N	N	N	I	I	I
4. Application of international standards, norms, guidelines, & tools in info processing.	I	I	N	I	I	I
5. Input of nat info into international info programmes.	N	I	N	I	I	I
6. Support the country's participation in intergovt agreements.	N	I	N	N	N	N
7. Cooperative activities with other countries ie. training activities,joint research projects	N	N	N	I	I	I
8. Utilization & absorption of scientific, technological & economic knowledge emanating from other countries.	N	I	N	I	I	I

KEY TO ABBREVIATIONS: I = Included; N = Not included.

Some aspects on participation in international information activities are covered while others are not. The Malawi document has no statement on this element, thus, it does not include any of these issues. These issues are important as they affect national policy on information in relation to regional and international cooperation in the information field. Today's orientation and emphasis in international and regional alliances (economic and political) is the issue at hand. The effective participation of a country in the development of and sharing benefits from regional/international information systems and networks as pointed out in chapter 1, to a large extent depends on a strong national information infrastructure. Such an infrastructure is facilitated by the formulation and implementation of an appropriate national information policy by the participating countries. Neelameghan (1991) points out that the objectives of a regional/international cooperation in information activities are likely to be achieved with fewer obstacles if there elements in the national information policies on information systems and services of the participating countries that support and promote such cooperation.

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSION

One major problem in examining national information policies arises from the fact that there is no prescribed method of formulating such policies. All the countries examined in this study, however, show some common trends. This is as a result of UNESCO's influence in these initiatives.

Parameters used for comparative study of national information policies reflect several deficiencies and omissions in the policy proposals.

8.1.1 Survey of the National Information Environment

Policies if they are to be meaningful and effective do not get formulated overnight as it were, except in rare circumstances. Problems or situations that necessitate policy need to be investigated/researched so that their causes and implications are fully understood. It is on the basis of such research that a comprehensive policy can be

formulated. It is apparent from the policy documents that Malawi and Zambia did not investigate their national information situation adequately before formulating their respective national information policies. The rest of countries did carry out such a study.

8.1.2 Preliminary Reports of the National Survey

Having investigated the information situation of a country, the need to sort out problems, balance of interests and alternatives between courses of action arise. This process is based on the report(s) prepared from the national survey of the information situation in the country. Malawi and Zambia again having not carried out a national survey did not prepare reports for national consultative meetings, while the other four countries prepared such reports.

8.1.3 National Consultative Meeting

All the countries organized national consultative meetings to gain a national consensus of the important elements to be included in the policy proposal document.

8.1.4 Lead Agency to Coordinate Policy Formulation

All the countries except Zambia, identified lead institutions to coordinate and organize all activities necessary for formulation of national information policy.

8.1.5 Key Elements of a National Information Policy

The comparison on the key elements included in the policy statement show a varied picture. Ethiopia and Uganda cover almost all the elements, followed by Tanzania and Zambia, and then Botswana and Malawi in that descending order. The major elements omitted in some proposal point to the inadequacies therein. These omission could also point to lack of critical surveys of national information systems and services and hastily organized national consultative meetings.

On the concept of coordinating body for national information systems and services, all the countries except Malawi propose some form of a coordinating mechanism.

Regarding details dealing with issues considered under each principal element depicts a varied picture as well. This study highlights the omissions and inclusions and the way the various issues are articulated.

8.1.6 Some Questions Arising From the Trend

Apart from what has been observed above some questions may be raised about the general trend of national information policy proposals in the sub-region. In several of the countries national information policy seminars were held between 1987 and 1991 and the policy proposals were drafted during the same period. Until now none of the policies have been implemented. Why is it taking so long? Is there a real conviction on the part of the information personnel or they went into policy formulation because UNESCO is ready to help or is it because they lack the political will? On the other hand taking into account what has been done, the difficulty in building sound information systems and services could not be entirely due to lack of political will or ignorance of what should done, but also due to insufficient expertise to translate desired intentions into reality. The inabilities seem logical given inadequate financial resources, insufficient qualified information manpower, and many pressing problems Africa is facing.

8.2 RECOMMENDATIONS

The major recommendations on various issues discussed in this study are presented below:

8.2.1 Preparatory Study

- National information policy statements and strategies should be based on thorough study and analysis of the problems to be solved. Such analysis forms the starting point for the treatment of specific policy elements in policy formulation. Thus an evaluative survey of national information environment should be a prerequisite to policy formulation.

- Exchange of ideas at regional and international levels between those that are practically engaged in the formulation and implementation of national information policies should be encouraged.

- Priority should be given to the establishment of a body within an already existing institution charged with the responsibility for spearheading all matters relating to policy formulation. This attempt is seen in the case of Botswana, Ethiopia, and Uganda.

8.2.2 Information Use Promotion

In view of under-utilization of information and information services, developing information markets should be emphasized in the policy statements.

- Promotion of information use culture. Activities to foster from childhood the habit of seeking information and using it as a problem solving resource, at home, at school, and at work should not only be articulated in the national information policy but also in the national education policy.

- Professionals in information services should jointly devise means to demonstrate in particular to decision-makers and planners the ways and to what extent information supports national development through presentations, sensitization seminars, etc and broadcasting programmes on radio and television.

- Rather than struggling along, first convince all partners involved in information generation, processing and dissemination of the need for national information policy.

- User studies should be conducted to facilitate

development of appropriate information systems and services. Such studies should be carried out to identify the following:

a) Who the potential users of an information service are,
b) What their potential needs for information are,
c) What services would meet these needs,
d) How the service can be produced and delivered, and
e) On what terms the users would make use of the service.

- The capability to providing information directly to the work place rather than through libraries should be emphasized.

8.2.3 Information Pricing

- For a long time now information has been taken for granted because it is offered free of charge. It has not been valued as a resource. Measures should be taken to value information and users may have to pay for specialized services. A balance should be struck in order not to disadvantage vulnerable sections of the society. This would, in the long run, help to cultivate the appreciation of information as a resource in decision

making and problem solving.

8.2.4 Value-Added Information

- To be successful, national policy on information should promote problem oriented information services. Users require relevant and immediately usable answers and this implies emphasizing the need for services which are able to collect, correlate, analyze and digest information and produce it in usable form.

- This calls for qualified manpower to provide not only information but answers to users' queries in the interest subject areas. A critical component of research training that must be explicitly catered for in information personnel training is the capacity for writing and publishing research work, as well as developing the ability to critically review ongoing research. More assistance and effort should be consciously directed at these aspects.

8.2.5 Information Legislation Issues

- Legislative backing should be formulated for information institutions to give them direction and authority. Without the necessary mandate information institution are constrained in their endeavour; programmes and plans cannot be carried out effectively without appropriate binding legal obligation, including the basis of claim for adequate funding.

- Existing information legislation should be amended to cater for new developments, processes and products.

- Legal deposit laws exist in these countries but they are not effective. To make the deposit law effective is the responsibility of the information personnel in the deposit centres. As long as they continue to despair that the depositors are not obliging, the law will be there and nothing will change. The following measures should be taken:

    a) Deposit centres should convince the publishers that by depositing their publications, they are actually contributing to the preservation of national heritage;

b) It should be explained that by responding positively to the deposit law the publishers are actually advertising (enhancing the awareness about) their materials through the national bibliography (assuming that it is compiled). An example is the wide use of the British National Bibliography as a selection tool in several major libraries and information centres in Africa. Marketing is expensive, therefore, if promotion of the publications can be achieved through the national bibliography publishers benefit by it.

c) It should be further explained, that as users/researchers visit the deposit centres for refernce materials, the newly deposited items displayed at the centre, will be brought to the attention of the researchers. They would recommend their respective institutions to acquire items of interest they notice.

d) Budget should be provided to acquire materials from small publishers with low business transactions who might feel that giving away a few copies free of charge would affect their revenue.

8.2.6 Indigenous Information

Often scholars and researchers publish their works outside their countries because local information products are inadequate in presentation, quality and timeliness. This creates a situation where locally generated information is sought from outside the national borders.

- Measures to reduce undue dependence on foreign information source should be emphasized. Facilities to capture, process and disseminate nationally generated research and industrial information should be developed.

- Efforts to improve the quality of domestic information and information carries (journals, reports, etc) should be supported.

8.2.7 The Private Sector

- The private sector engaged in information services should be involved in information policy formulation as they are part of the national information system.

8.2.8 Information Technology

- Developments in computer and related technologies have offered information and library personnel improved opportunities to monitor and control information flow within and outside an organisation and maximize its usefulness while minimizing the cost. These developments have provided great challenges in terms of understanding the process and knowing how best to harness the powers which the technologies afford. More attention should be directed toward this element in policy formulation.

8.2.9 Provision of Information to Rural Areas

- Governments in Africa are concerned with rural development to improve the quality of life of rural population. Measures for reaching out to rural people and providing information that they need in their daily activities to improve the quality of their lives should be given emphasis in planning and developing national information systems and services.

8.2.10 Position of Coordinating Body in Government Structure

- The task of coordinating and developing national information systems and services is complex and this calls for a permanent national coordinating body.

- The placement of such a body in government structure should be appropriate. Inappropriate placement may result in limiting the possibility of achieving the overall coordination. The trend is to place the coordinating mechanism, the interministerial body, in a government ministry responsible for policy making, such as the Prime Minister's Office. The choice of a ministry or structure which does not have any authority over the other ministries or structures limits the effectiveness of the coordination mechanism.

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