



REPUBLIC OF ZAMBIA



FIRST DRAFT
NATIONAL INFORMATION
AND
COMMUNICATION TECHNOLOGY POLICY

Ministry of Communications & Transport
P. O. Box 50065
Fairley Road
Lusaka

November 2003

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AND
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FOREWORD

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MINISTRY OF COMMUNICATIONS AND TRANSPORT

ACKNOWLEDGEMENT

Permanent Secretary

MINISTRY OF COMMUNICATIONS AND TRANSPORT

TABLE OF CONTENTS

FOREWORD	I
ACKNOWLEDGEMENT	II
WORKING DEFINITIONS	VI
LIST OF ACRONYMS	VIII
PART I - BACKGROUND	IX
CHAPTER 1: INTRODUCTION	1
1.1 DEFINITION	1
1.2 IMPORTANCE OF ICT – DATA, INFORMATION SOCIETY AND DEVELOPMENT	1
1.3 IDENTIFICATION OF PRIORITY SECTORS	2
1.4 THE NEED FOR AN ICT POLICY	2
1.5 ORGANISATION OF THE DOCUMENT	4
CHAPTER 2: SITUATION ANALYSIS	5
2.1 ICT SECTOR OVERVIEW	5
2.2 GLOBAL TRENDS - CONVERGENCE ISSUE	5
<i>2.2.1 Emerging Issues</i>	<i>5</i>
2.3 LEGAL/REGULATORY FRAMEWORK	6
<i>2.3.1 Legal Framework</i>	<i>6</i>
<i>2.3.2 Regulatory Framework</i>	<i>6</i>
<i>2.3.3 Emerging Issues</i>	<i>6</i>
2.4 TELECOMMUNICATIONS	6
<i>2.4.1 Public Switched (Fixed) Telephone Network</i>	<i>7</i>
<i>2.4.2 Mobile Communications</i>	<i>7</i>
<i>2.4.3 Internet Services</i>	<i>7</i>
<i>2.4.4 Data Networks</i>	<i>8</i>
<i>2.4.5 National ICT Infrastructure Backbone</i>	<i>8</i>
<i>2.4.5 Emerging Issues</i>	<i>9</i>
2.5 BROADCASTING	9
<i>2.5.1 Television Services</i>	<i>10</i>
<i>2.5.2 Radio Services</i>	<i>10</i>
<i>2.5.3 Emerging Issues</i>	<i>10</i>
2.6 COMPUTER TECHNOLOGY	11
<i>2.6.1 Hardware</i>	<i>11</i>
<i>2.6.2 Software</i>	<i>11</i>
<i>2.6.3 Emerging Issues</i>	<i>11</i>
2.7 POSTAL SERVICES	12
<i>2.7.1 Courier/Mail Services</i>	<i>12</i>
<i>2.7.2 Money Transfer</i>	<i>12</i>
<i>2.7.3 Emerging Issues</i>	<i>12</i>
2.8 OTHER INFORMATION SERVICES	12
<i>2.8.1 Print Media Services</i>	<i>12</i>

2.8.2	<i>Internet Services</i>	12
2.8.3	<i>Library Services</i>	13
2.8.4	<i>Emerging Issues</i>	13
2.9	HUMAN RESOURCES	13
2.9.1	<i>Training Providers</i>	13
2.9.2	<i>Emerging Issues</i>	14
	REFERENCES CONSULTED	15
	PART II - POLICY FRAMEWORK	17
	CHAPTER 3: VISION & MISSION	18
	CHAPTER 4: RATIONALE	19
	CHAPTER 5: GUIDING PRINCIPLES	20
	CHAPTER 6: POLICY GOALS, OBJECTIVES & STRATEGIES	21
6.1	POLICY STATEMENT	21
6.2	OVERALL POLICY GOALS	24
6.3	OVERALL POLICY OBJECTIVES	24
6.4	PRIORITY SECTORS (AREAS)	25
6.4.1	INFRASTRUCTURE	25
6.4.1.1	<i>Background:</i>	25
6.4.1.2	<i>Sector Goal:</i>	25
6.4.1.3	<i>Objectives:</i>	25
6.4.1.4	<i>Challenges and Threats</i>	27
6.4.2	EDUCATION	28
6.4.2.1	<i>Background:</i>	28
6.4.2.2	<i>Sector Goal:</i>	28
6.4.2.3	<i>Objectives:</i>	28
6.4.2.4	<i>Challenges and Threats</i>	29
6.4.3	HEALTH	31
6.4.3.1	<i>Background:</i>	31
6.4.3.2	<i>Sector Goal:</i>	31
6.4.3.3	<i>Objectives:</i>	31
6.4.3.4	<i>Challenges and Threats</i>	32
6.4.4	AGRICULTURE	34
6.4.4.1	<i>Background:</i>	34
6.4.4.2	<i>Sector Goal:</i>	34
6.4.4.3	<i>Objectives:</i>	34
6.4.4.4	<i>Challenges and Threats</i>	35
6.4.5	E- GOVERNMENT	37
6.4.5.1	<i>Background:</i>	37
6.4.5.2	<i>Sector Goal:</i>	38
6.4.5.3	<i>Objectives:</i>	38
6.4.5.4	<i>Challenges and Threats</i>	39
6.4.6	E- COMMERCE	42
6.4.6.1	<i>Background:</i>	42
6.4.6.2	<i>Sector Goal:</i>	42
6.4.6.3	<i>Objectives:</i>	42

6.4.6.4	<i>Challenges and Threats</i>	43
6.4.7	TOURISM, ENVIRONMENT AND NATURAL RESOURCES	45
6.4.7.1	<i>Background</i>	45
6.4.7.2	<i>Sector Goal:</i>	45
6.4.7.3	<i>Objectives:</i>	45
6.4.7.4	<i>Challenges and Threats</i>	46
6.4.8	YOUTH AND GENDER	47
6.4.8.1	<i>Background</i>	47
6.4.8.2	<i>Sector Goal:</i>	47
6.4.8.3	<i>Objectives:</i>	47
6.4.8.4	<i>Challenges and Threats</i>	48
6.4.9	HUMAN RESOURCES DEVELOPMENT	49
6.4.9.1	<i>Background:</i>	49
6.4.9.2	<i>Sector Goal:</i>	49
6.4.9.3	<i>Objectives:</i>	49
6.4.9.4	<i>Challenges and Threats</i>	50
6.4.10	ICT SERVICES	52
6.4.10.1	<i>Background:</i>	52
6.4.10.2	<i>Sector Goal:</i>	52
6.4.10.3	<i>Objectives:</i>	52
6.4.10.4	<i>Challenges and Threats</i>	53
CHAPTER 7:	MEASURES	55
7.1	BACKGROUND:	55
7.2	THE ROLE OF GOVERNMENT	55
7.3	THE ROLE OF PARLIAMENT	56
7.4	THE ROLE OF THE PRIVATE SECTOR	56
7.5	THE ROLE OF HIGHER EDUCATION AND RESEARCH INSTITUTIONS 57	
7.6	THE ROLE OF CIVIL SOCIETY	58
7.7	THE ROLE OF CO-OPERATING PARTNERS	58
7.8	OTHER ISSUES	59
7.8.1	<i>Emergency Response</i>	59
7.8.2	<i>Regional and International cooperation</i>	59
7.8.2	<i>Multilateral trade</i>	59
CHAPTER 8:	IMPLEMENTATION FRAMEWORK	61
8.1	INSTITUTIONAL FRAMEWORK	61
8.1.1	<i>Sector Restructuring</i>	61
8.1.2	<i>Coordination of Programmes</i>	62
8.2	LEGAL AND REGULATORY FRAMEWORK	64
8.2.1	<i>Legal Framework</i>	64
8.2.2	<i>Regulatory Framework</i>	64
8.3	RESOURCE MOBILISATION	66
8.4	MONITORING AND EVALUATION	67

WORKING DEFINITIONS

Broadcasting	A term referring to the distribution of information using radio, television, internet and intranets or webcasting
Digital Divide	a term used to reflect the technological gap between countries that have fully exploited ICT and those that have not. The digital divide is often associated with the resulting gap in terms of economic development.
Electronic Commerce (E-Commerce)	refers to business activities involving consumers, manufacturers, suppliers, service providers and intermediaries using computer networks such as the Internet
Electronic Government (E-Government)	refers to the delivery by Government of services, policies and the engagement of stakeholders in civic and government matters through the use of Information and Communication Technologies in order to achieve Government to Consumers, Government to Business and Government to Government interaction and transactions
Information Based Economy	refers to a country or region where ICT is used to develop the economic foundation and market transactions
Information Society	refers to a country or region where information and communication technology has been fully exploited and is part of everyday life as an enabler of socio-economic development
Information and Communication Technology	a generic term used to express the convergence of telecommunications, computing, broadcasting and communications. One prominent example is the Internet
Internet Service Provider	also known as Internet Access Providers - a company that provides access to the Internet via dial-up, ISDN, T1, or any other connection to the general public.
Information Technology	embraces the use of computers, telecommunications and office systems technologies for the collection, processing, storing, packaging and dissemination of information
Knowledge Based Economy	refers to a country or region where ICT is extensively used to enhance the knowledge of society in general so that higher human capital brings further improvement to the economy.
Local Area Network	a computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via such technologies as telephone lines and radio waves.
Regulator	The converged authority on regulation of telecommunications, broadcasting, computing and postal services
Wide Area Network	A computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local-area networks (LANs). Computers connected to a wide-area network are often connected through public networks, such as the telephone system. They can also be connected through leased lines or satellites. The largest WAN in existence is the Internet.
Wireless Local Loop	A flexible communication technology used for wireless telephone

(WILL)	connectivity between customers unable to be connected via traditional copper wire telephone to the nearest exchange. This is applicable in rural or peri-urban areas surrounding a telephone exchange
Voice over Internet Protocol	also known as Voice over Internet, IP telephony or Internet Telephony - A telephone service provided over the Internet as the transmission medium

LIST OF ACRONYMS

CAZ	Communications Authority of Zambia
IBA	Independent Broadcasting Authority
CISCO	Cisco Systems Incorporation, USA
GDP	Gross Domestic Product
IS	Information Society
ICT	Information and Communication Technology
IMIS	Institute for Management of Information Systems
ISP	Internet Service Provider
IT	Information Technology
KBE	Knowledge Based Economy
LAN	Local Area Network
MCT	Ministry of Communications and Transport
MIBS	Ministry of Information and Broadcasting Services
MSTVT	Ministry of Science, Technology and Vocational Training
NIEC	National Import and Export Corporation
PTC	Posts and Telecommunications Corporation
PSRP	Public Sector Reform Programme
PRSP	Poverty Reduction Strategy Paper
TICAD	Tokyo International Conference for African Development
TNDP	Transitional National Development Plan
UNDP	United Nations Development Programme
USA	United States of America
VoIP	Voice over Internet Protocol
WAN	Wide Area Network
WILL	Wireless Local Loop
VSAT	Very Small Aperture Terminal
WTO	World Trade Organisation
ZAMIM	Zambia Institute of Management
ZAMPOST	Zambia Postal Services Corporation
ZAMTEL	Zambia Telecommunications Corporation
ZCAS	Zambia Centre for Accountancy Studies
ZIBC	Zambia Business Insurance College
ZICA	Zambia Institute of Certified Accountants
ZNBC	Zambia National Broadcasting Services

Part I - Background

CHAPTER 1: INTRODUCTION

Information is increasingly recognised as one of the major drivers of the evolving global economy, a factor of production alongside land, labour and capital – critical to economic growth and sustainable development. It has often been said that information is power, without which decisions are untimely, irrational and misdirected. It makes it possible to link producers and consumers to the markets. Availability of information enables the public to participate meaningfully in governance issues, promotes transparency and accountability in the management of national affairs. If poverty reduction programmes are to succeed, information has to be availed to people at all levels in Zambia in order to increase opportunities for wealth creation as well as guarantee active participation in poverty reduction programmes.

Over the last two decades, the advances made in the telecommunications industry and the convergence with computing and broadcasting technologies have made it much easier and faster to process, distribute or access diverse information resources. The way information is now accessed and transmitted around the world, for example through Internet has fundamentally altered how societies organise and govern themselves and conduct commerce and trade. Today, ICTs form the backbone of industries such as global financial industry, travel and tourism, distance learning and are increasingly becoming a value-adding component in everyday life events such as education, health, security, entertainment and communication. ICTs are also a critical component for accelerating innovation, business competitiveness, promoting efficiencies in delivery of services, democratic governance, human development and economic growth.

The extent to which Zambia can benefit from this revolution largely depends on the strategies and actions for development of its “information infrastructure” – the increasing integrated mix of telecommunication networks, computing hardware and software, and value-added services required for the efficient collection, processing, storage and transmission of information, together with the legal and institutional frameworks.

1.1 Definition

ICT for purposes of this document is a generic term used to express the convergence of telecommunications, computer science, broadcasting, postal and information services in the delivery of social and economic services and products.

1.2 Importance of ICT – Data, Information Society and Development

On a daily basis, new activities are carried out at various levels of society. Many of these activities result in data being created through statistical records such as new patient cases or prices of agro-produce and indeed the identification and acquisition of new customers in particular industries at local, national, regional or international levels.

This data is what constitutes the bulk of the investment in form of inventory (paperwork, computer data, databases etc) especially in the public sector. However, the data is *only useful* when it is turned into information and the same information is appreciated and assimilated in the form of knowledge. The knowledge one possesses is what improves the decision-making capability at individual, community and national level. Therefore, one of the keys to social and economic development is turning the data stocked in Government, public and private sector

into information by sharing it with relevant individuals, organisations and communities through ICTs in order to improve decision-making in the nation. Better decision-making is then judged by the timeliness, efficiency and effectiveness of the outcomes arising from public and private investments made at various levels. The investments could be in the education, health, commerce sectors etc.

For example, poor information in the health sector because of non-availability of the right data, untimely access to the right information or not sharing the right information with other colleagues means poor health decision making in the service delivery chain leading to undesirable impacts such as prolonged sicknesses or death of capable citizens in the population, thereby leading to unproductive citizens resulting in little or no developmental activities in the nation. The current impact of the HIV/AIDS scourge has increased partly because of wrong or delayed decision making coupled with inadequate access to health information by citizens.

This impact can be reduced tremendously through integrating and use of ICTs to increase knowledge through education, leading to informed citizenry about health and developmental issues resulting in efficient and an effective workforce thereby increasing wealth creation (empowerment) opportunities and chances of development at personal, community and national levels.

1.3 Identification of Priority Sectors

ICT is crosscutting in all sectors of the economy, however, for practical reasons the policy is focused on achieving maximum impact in the shortest time possible using as minimum resources as is possible in the implementation process. Therefore, sectors earmarked as priority in chapter 6 are drawn from national development frameworks such as the Poverty Reduction Strategy Paper and the Transitional National Development Plan. However, the ICT concept and importance equally applies to other sectors not addressed in this document.

1.4 The Need for an ICT Policy

The scenario discussed above is representative of one sector. However, this example fits in all the sectors of the economy. This means that ICT is crosscutting in all sectors. Therefore, to integrate and use ICT in a holistic manner requires a sound national policy framework.

However, despite this recognition Zambia lacks an integrated Information and Communication Technology Policy. The lack of an integrated ICT Policy and coordinated institutional framework in the introduction and deployment of ICTs has resulted in:

- Fragmented government efforts in the sector resulting in (with many units active, and sometimes competing, in the provision of ICT-related donor assistance), duplication of efforts, inadequate and incompatible solutions and missed opportunities in the attracting investment to Zambia
- The continued execution (illusion) of pilot and demonstration projects and initiatives, with little or no coordination or monitoring of their design, funding, and impact
- Government's inability to optimise the use of its available resources for ICTs.
- Poorly coordinated approach in receiving advisory services due to lack of a clearly recognised institutional mechanism.

- Narrow government focus on traditional telecommunications sector and not on broader ICT strategic issues, for example, linkages with other sectors such as health and education
- Lack of recognition outside the ICT community that the efficient transfer of knowledge requires a solid foundation of a network infrastructure (i.e. levels of connectivity) that Zambia is still lacking and is far from being achieved without concerted effort
- The mistaken perception that the ICT sector is a profitable sector which can resolve its problems on its own with no need for a national roadmap.
- Missed opportunities in attracting Foreign Direct Investment and development of the ICT sector

In order to enable Zambia to seize and obtain maximum benefits from these *digital* opportunities and to become a relevant and successful competitive partner in the global economy, the country must have a roadmap, which clearly defines what is to be done, when, how it will be done and most importantly, who is going to do it in what time frame. Without a national strategy harnessed by political will and business-sector leadership, Zambia risks remaining a spectator to the evolving global economy.

Therefore, the country desperately needs an ICT Policy framework in order to;

1. Create a clear roadmap for ICT development in the country and set very clear public sector investment direction in the short, medium and long term time frame
2. Give guidance to the nation through the policy makers, regulators and operators (investors) in the ICT sector
3. Put in place institutional, legal and regulatory mechanism for the smooth operation of the sector
4. Spell out clear roles and responsibilities of different parties in the development of the ICT sector
5. Increase the integration of ICTs in national development initiatives such as Poverty Reduction Strategy Programmes and Transitional National Development Programmes
6. Increase coordination in implementing ICT programmes and achieving the desired impact
7. Increase Zambia's competitive participation in the global economy based on a sound National ICT Policy framework

Finally the need for Zambia to be part of the Global Information Society through an enabling policy environment dictates that appropriate steps be taken to develop a National ICT Policy.

1.5 Organisation of the Document

This document is organised into eight chapters. Chapter 1 sets the background to the recognition of ICT as an enabler in social and economic development. Chapter 2 provides a situation analysis currently prevailing in the ICT sector and the trends at regional and international levels. It also identifies key issues and problems that have hitherto constrained the accelerated development of the ICT sector in Zambia.

Chapters 3, 4 and 5 deal with the vision for ICTs in Zambia, rationale and guiding principles for policy development respectively.

Chapter 6 deals with the goals and objectives and also addresses priority sectors (areas) for ICT implementation in Zambia. Chapter 7 focuses on measures and strategies for successful implementation of the policy, while Chapter 8 discusses the implementation framework in terms of coordination mechanisms; as well as institutional, regulatory and legal frameworks required.

CHAPTER 2: SITUATION ANALYSIS

2.1 ICT Sector Overview

This section provides an assessment of the current ICT landscape in Zambia. It examines the policy, legal and regulatory environment, and the ICT market structure and identifies the issues arising from the current ICT sector.

The ICT sector in Zambia has experienced rapid changes over the last decade. Access to information and the capacity to communicate have increased with the advent of the Internet, digital satellite television and cellular networks over the past 5 years. Since 1993, the Zambian Government has taken a number of measures to reform the ICT sector. These have included the following:

- i. Separation of posts and telecommunications operations from PTC into two independent commercial entities, namely ZAMPOST and ZAMTEL respectively
- ii. Setting up of autonomous telecommunications and broadcasting regulatory authorities
- iii. Transforming ZNBC into a public broadcaster
- iv. Emergence of private media institutions in the country
- v. Liberalisation of the Telecommunications industry
- vi. Liberalisation of the broadcasting industry

2.2 Global Trends - Convergence Issue

The various information platforms that were separated as industries or sectors are now converging due mainly to changes in technologies as well as the consumer demand to access information wherever and whenever need arises. This convergence is accelerated by the introduction of communication and information systems such as multimedia mobile phones, Digital TV with Internet/Email access and personal digital devices.

Government is cognisant of the challenges of convergence in the field of information technology, media, computing, postal services, telecommunications and consumer electronics.

This policy document is founded on the understanding that information services provided by ICT in various sectors are converging; hence, the legal and regulatory framework proposed shall take into account this factor.

2.2.1 Emerging Issues

Some of the issues of concern in regulatory affairs are;

1. Regional and global trends in ICTs have recognised the need for a single regulator of telecommunications, broadcasting, postal and other services
2. The hybrid nature of ICT requires expertise from different fields of specialisation, which may not be available in the current set of independent regulators
3. Capacity gaps in the current regulators will require a lot of technical input in addressing some of the cross sector issues

2.3 Legal/Regulatory Framework

2.3.1 Legal Framework

The current legal framework in the ICT sector affects operations in the telecommunications, broadcasting and postal areas of ICT. Other areas are regulated by Acts of Parliament. Therefore, these areas are bound to the regulatory systems pertaining to each area wherever applicable.

2.3.2 Regulatory Framework

The main regulatory bodies in ICT are;

- The Communications Authority – its jurisdiction is mainly in the telecommunications industry. However, the Communications Authority also regulates the licensing and use of the radio frequency spectrum in the broadcasting industry for both radio and TV transmission.
- Independent Broadcasting Authority - due to the liberalisation of the radio and TV broadcasting industry, the IBA has been created by an Act of Parliament to regulate the operations in the broadcasting industry.

2.3.3 Emerging Issues

Some of the issues affecting the ICT sector from a legal/regulatory perspective are;

1. There is urgent need to address the inadequacies of multiple regulators amidst convergence of services in ICT
2. Ineffective legal and regulatory framework in a converging ICT market structure
3. There is need for a more transparent regulatory framework in the telecommunications sector
4. Predictability of regulatory decisions based on a clear legal and regulatory framework
5. The lack of clarity in the interaction of the policymaking and regulatory processes
6. Lack of effective enforcement mechanisms to ensure compliance in telecommunications industry

2.4 Telecommunications

In 1994, Parliament passed the Telecommunications Act, which resulted in the restructuring of the telecommunications sector resulting in the separation of the posts and telecommunications functions in the Posts and Telecommunications Corporation (PTC) into two commercial entities: ZAMTEL and the ZAMPOST. In addition, this included the removal of the regulatory functions from PTC by the establishment of an autonomous regulatory agency, the Communications Authority (CA).

The Ministry of Communications and Transport (MCT) is responsible for overseeing the activities of the telecommunications industry in Zambia. It oversees the functions of Communications Authority. The Ministry also oversees the activities of ZAMTEL and ZAMPOST.

The CA is responsible for regulating the provision of telecommunications services and products. Its specific functions include:

- Issuing licences and promoting competition amongst providers of Telecommunications services and products
- Promoting the interests of consumers and other users of ICT services and products
- Ensuring that Zambia benefits from investment made in the sector

In addition, the Radio Communications Act of 1994 gives the CA responsibility for administering the utilisation of the Radio Frequency Spectrum for broadcasting, communications, transmission purposes etc, including: approving sites, issuing licences and certificates, and preventing unauthorized disclosures and obstruction of radio transmissions.

2.4.1 Public Switched (Fixed) Telephone Network

The current telephone network coverage includes almost all the districts in the country except for Kaputa and Sesheke, which are connected to network via a Domestic Satellite system. The current network is based on analogue system although there is a systematic approach to digitalising the whole network.

Currently, ZAMTEL is the only licensed operator allowed to provide fixed (as opposed to mobile phones) telephone services to the public covering the whole country. This includes providing services to customer point (Last Mile Connection). This area of the industry is still exclusive to ZAMTEL thereby creating monopoly by law unlike in the mobile phone business.

Potential areas for competitive services include providing services from telephone exchanges to consumers as well as creating opportunities for increasing last mile connection which is lacking in many parts of the country at the moment. The international gateway for transmission and receiving of telephone calls is another area restricted to ZAMTEL. This includes Voice over Internet Protocol telephony for commercial purposes.

2.4.2 Mobile Communications

Currently the Regulator has licensed three operators in the Cellular market using Global System for Mobile (GSM) communication technology to offer services in all parts of the country. Services offered by many operators include standard voice, and value-added services such as voicemail, Short Message System (SMS) etc. However, since 1995, cellular phone services were mainly concentrated along the line of rail. Since 2002, expansion of cellular networks by some operators has extended coverage to Chipata, Kasama, Mansa, Chirundu, Siavonga and Kafue Gorge. Current expansion projections are that Mongu and Solwezi will be added to the network soon. This expansion will entail availability of cellular phone services in all provincial headquarters. However, much more needs to be done in areas with no alternative means of communication such as remote and rural areas, as well as areas outside the current network coverage.

2.4.3 Internet Services

Zambia was one of the pioneers of Internet services in Sub-Saharan Africa almost ten years ago. Unfortunately the growth and penetration of Internet has been very slow compared to many countries in Africa.

Various service providers have been licensed to operate Internet services but only five companies are operational.

Government recognises emerging interactive broadband products as being a key component of telecommunications business in the promotion of a wide range of high-speed access options. The regulator will tailor proper regulatory framework to facilitate the establishment of alternative infrastructure in the access network.

2.4.4 Data Networks

Internet Service Providers are some of the major promoters of data networks in the country. The financial sector dominated by commercial banks, pension and insurance service providers are also actively spearheading the expansion of private data networks across the country. Due to inadequate and poor ICT infrastructure, the main option for connecting corporate branches outside the line of rail is the VSAT technology. This technology is easy to deploy across long distances but has inherent high recurrent costs associated with lease of the space segment.

2.4.5 National ICT Infrastructure Backbone

There are considerable changes in the dynamics of operations in the telecommunications industry over the past decade or so. Today, most electricity carrier operators are seizing the opportunity created by Fibre Optic Technology in relation to existing power grid transmission networks. This is prompting many power utility companies in the region and internationally to invest in the telecommunications sector by obtaining licenses as Bandwidth Bulk Carriers based on Fibre Optic Technology.

Unlike other neighbouring countries which have made substantial investments in telecommunications infrastructure, Zambia lacks a modern fibre optic backbone covering the whole country, despite the fact that three countries have fibre networks terminating at Zambia's borders: Zimbabwe at Kariba, Botswana at Kazungula and Namibia at Katima Mulilo.

In Zambia, the Copperbelt Energy Corporation and ZESCO already operate private licenses for telecommunications. There is great desire for both companies to operate commercial Fibre Optic Backbones for re-sale to various bulk consumers such as banks, broadcasters, voice and data telecommunications operators.

The Copperbelt Energy Company (CEC) has installed a 24-core 520km optic fibre backbone on the Copperbelt covering all the mining towns, whose excess capacity may be made available for resale to potential users. Similarly, ZESCO has a 45km optic fibre cable between Lusaka and Kafue and is planning to install a Fibre Optic Backbone covering the whole country based on value adding to the existing power grid network.

2.4.5 Emerging Issues

1. Lack of a clear policy framework to guide the sector created arbitrary and sometimes conflicting decisions
2. Lack of a digital, high capacity and reliable national ICT infrastructure backbone capable of meeting telecommunications, broadcasting, media, computing and entertainment industry needs
3. Most operators are willing to share excess capacity in the current networks on commercial terms
4. Current mobile phone operators are unwilling to invest in National ICT infrastructure but are willing to become “customers” on good networks such as Fibre Optic Backbone
5. Lack of clarity in the levels of interaction of the policy-making body, regulator and operators thereby providing room for speculation and delays in decision making
6. Inadequate legal and regulatory framework in a converging ICT market structure.
7. Lack of effective enforcement mechanism to ensure compliance by the regulator
8. Inadequate funding affecting the effectiveness of the regulator in carrying out its functions especially with respect to monitoring compliance to existing standards.
9. The perceived protection and monopoly by the incumbent (ZAMTEL) through “unofficial” exclusivity conditions favouring ZAMTEL in certain market segments such as international voice gateway is contributing to high cost of associated services due to lack of competition
10. Insufficient participation of Zambians in the provision of licensed ICT services
11. Perceived high cost of license fees for certain licensed services
12. Insufficient promotion and adoption of new technologies that can accelerate the universal service and access rollout
13. There is need for a single regulator in view of the rapid convergence in technology and the application and management of frequency spectrum.
14. Lack of mechanisms for sharing of ICT infrastructure which has resulted in duplication leading to wastage of resources
15. The apparent lack of universal access/service obligations for licensed operators is contributing to the poor growth in new service provision in remote and underserved areas
16. The role of the incumbent in a deregulated market is not very clear with respect to other operators and service providers
17. Capacity constraints in the regulator to address new concepts and technologies in the telecommunications industry arising from the dynamics in the highly changing sector
18. The need to license service providers of satellite and cable TV

2.5 Broadcasting

Broadcasting in Zambia dates back to 1941 when the colonial government opened a radio station in Lusaka. Until after the re-introduction of multi-party politics in 1991, broadcasting in Zambia was a preserve of the state, either as a Government department or as a statutory body. Since 1994, Zambia has made significant advances in liberalising the airwaves and allowing private sector participation.

2.5.1 Television Services

The Zambia National Broadcasting Corporation (ZNBC) is the major player in the broadcasting industry, operating a free-to-air television and three radio channels. ZNBC is a statutory body created under the Zambia National Broadcasting Act of 1987. By the obligations within the Act, ZNBC is a public broadcaster. In 1994, the government liberalised the airwaves and ushered in a new era of broadcasting that officially ended the ZNBC monopoly but still remain a dominant operator due to lack of new competitors in the TV broadcasting. However, four private investors have been licensed to operate TV broadcasting services in Lusaka and Copperbelt areas.

Other players in the market include Trinity Broadcasting Network, CASAT and pay-TV provider - MultiChoice Zambia Limited.

In terms of transmission networks;

- ZNBC uses the ZAMTEL-owned microwave links to relay its signals to different parts of the country.
- ZNBC has installed new FM transmitters in all the provincial centres
- ZNBC is in the process of introducing satellite radio and television broadcasting

2.5.2 Radio Services

The radio broadcasting has seen tremendous growth with the liberalisation of the industry. Much of the growth can be attributed to the establishment of private commercial and community radio stations especially along the line of rail.

New radio broadcasters include the Catholic Church (which owns Radio Ichengelo, Yatsani Radio, Radio Maria, Radio Chikuni, Radio Chikaya, Radio Liseli and EadioYangeni), Christian Voice and Radio Phoenix FM. The government has also licensed new private radio broadcasters (such as Radio Choice FM and SKY FM, Radio Breeze, , Radio Phoenix, 5-FM, Q FM). There are also a few community radio stations such as Radio Mazabuka, Radio Dove (UNZA Mass Media), Radio Lyambai, Hone FM and Radio Mano.

2.5.3 Emerging Issues

Some of the issues affecting the radio and TV broadcasting in the country are;

1. TV has a limited geographical coverage. In some places TV coverage extends only to the Provincial Headquarters but the quality of signal transmitted requires significant improvements.
2. Limited radio coverage
3. Limited choice of public broadcasting stations especially on the TV side
4. Content development capacities for the public broadcasters in radio and TV requires significant improvements
5. Inadequate and poor recording facilities in most radio/TV stations
6. Inadequate skilled personnel in the industry
7. High cost of end user broadcasting equipment such as TVs and radio transmission equipment
8. Inadequate access to electric energy and high cost of energy for end user radio equipment. Consideration for low energy consumer sets e.g. 'winder' radios in rural areas can contribute to the penetration of ICTs in the country.

2.6 Computer Technology

Computer technology or Information Technology is taking root in most organisations in the public and private sector. The number of ICT products such as computers, printers and other accessories bought is an indicator of the adoption and use of computer technology.

The number of Information Technology service providers is increasing especially along the line of rail. However, the majority of the service providers fall in the category of Small and Medium Enterprises. This means that a lot of growth is required to ensure that quality and efficient services are provided.

2.6.1 Hardware

All the hardware equipment associated with ICT in the country is imported. As such it entails that both the skills and costs to implement ICT solutions may be obtained at much greater expense. This expense constitutes the bulk of the cost products and services to such an extent that foreign suppliers of goods and services are at an advantage when bidding for services.

The problem is compounded by the inadequate centres of excellence in terms of computing technology such that manufacturing and assembly of local ICT hardware is supported through research and development.

2.6.2 Software

Software development capacity is one of the pre-requisites for launching a successful ICT programme in the country. In the mid-eighties, the Zambia Consolidated Copper Mines Limited and Zambia Railways Limited provided the framework for skills development in computing technology especially in software development.

However, the reforms in the public sector through the liberalisation of the economy and privatisation of state ventures have resulted in non-core activities such as software development centres to collapse. Therefore, there is currently a serious skills gap to fill in order for the country to launch itself in the ICT arena.

2.6.3 Emerging Issues

Some of the issues in computing technology are:

1. The global trend indicates shortage of IT skilled persons especially computer based skills. This has triggered the uptake of IT related skills requirement in industry. However, Zambia may not have the required ICT skilled persons in view of projected investments in the ICT sector.
2. There is need to introduce ICT Centres of Excellence at CBU, UNZA, Evelyn Hone and other colleges offering ICT courses
3. There is need to encourage the entrance and expansion of initiatives such as the CISCO Academy at UNZA Computer Science Department to other centres of higher education
4. The level of available equipment and resources for teaching ICT in institutions of higher learning is low
5. Lack of professional body to regulate the operation in the computer industry leading to poor service provision

2.7 Postal Services

The liberalisation in the postal industry has seen the emergence of other service providers other than ZAMPOST. However, the type of service provided new entrants is mainly courier business dealing with corporate customers. ZAMPOST has the largest network of post offices around the country. Therefore, ZAMPOST still happens to be the sole provider of mail service to the general public. Money transfer is also another area of service while POSTNET offers box rentals to the public just like ZAMPOST as well as other counter services. ZAMPOST is currently collaborating with CopperNET to introduce computer based mail systems (“mailnet”) within the existing postal mail delivery system.

2.7.1 Courier/Mail Services

Some of the key players in courier service other than ZAMPOST are DHL, FEDEX and SKYNET. This service is mainly concentrated along the line of rail. The above courier operators also service some of the provincial headquarters.

2.7.2 Money Transfer

Money transfer business other than in the commercial banks is restricted to ZAMPOST using the network of post offices around the country. ZAMPOST has partnered with WESTERN UNION to provide countrywide money transfer services.

2.7.3 Emerging Issues

Some of the issues affecting the ICT sector are;

1. There has been an exponential slump in surface mail traffic (snail mail) passing through ZAMPOST mainly due to the impact of the email and Internet among potential users of the traditional postal mail delivery system
2. The Postal system worldwide is now faced with the challenge of incorporating ICTs in their product and service portfolios in order to diversify and meet customer demands
3. The role of the postal system in promoting E-Commerce among the public needs to be incorporated in the design and implementation of E-Commerce solutions
4. There is gross under-utilisation of the existing large network of Post Offices around the country

2.8 Other Information Services

Various service providers are offering products and services in the area of information delivery. Strong among the providers is the print media especially the public media houses. Private sector newspapers are also gaining market share in the distribution of information. Internet is also another growth area among the youth and middle and high-income groups.

2.8.1 Print Media Services

Government has re-introduced vernacular newspapers to provide information to communities not catered for by mainstream electronic and print products. This is besides three daily newspapers, namely, Times of Zambia, Zambia Daily Mail and The POST.

2.8.2 Internet Services

Internet services are slowly spreading to many parts of the country but more concentration is around the line of rail. The major constraints to the growth of Internet are;

- Inadequate and poor ICT Infrastructure backbone in the country
- High cost of Internet access/services
- Lack of access to ICT tools such as computers, phones to enable many people to access the Internet either from offices, homes or public Internet cafes
- Limited investment in public internet access points such as telecenters (Internet Cafes)

2.8.3 Library Services

The Ministry of Education operates the largest number of public libraries through the Zambia Library Service. Currently, there are six (6) major public libraries across the country, most covering provincial centres. The Copperbelt University, Mindolo Ecumenical Foundation and UNZA have some of the biggest libraries in the country. Various private libraries exist in schools and colleges. However, access by the public is restricted.

The process of equipping public libraries under the Zambia Library Service with ICT tools including Internet connectivity has started. However, the installed capacity needs to be increased in terms of hardware and Internet bandwidth.

2.8.4 Emerging Issues

Some of the issues affecting the print media and library functions are;

1. Circulation of newspapers takes too long to reach areas outside the line of rail especially rural areas.
2. The regulation of the print media, either by professionals themselves or statute needs to be resolved.
3. The fragmentation of media personnel into many associations is creating divisions
4. High entrepreneur start-up costs associated with license fees, computers and networking equipment in areas such as Internet Cafes
5. Affordability of prohibitive Internet services is almost non-existent for an average Zambian without strong policy incentives to lower cost of access
6. Ill-equipped and under-utilised public library centres

2.9 Human Resources

The current educational system is not designed to incorporate ICTs in the curriculum due to the massive investment in form of computers and infrastructure required. However, the Ministry of Education has realised the need for ICT in the education system.

On the other hand Zambia has built a calibre of skilled manpower at various levels. This has been the case because of the then strong public sector institutions such as ZCCM, ZAMTEL Staff Training College, Zambia Railways as well the Copperbelt University and UNZA.. However, this trend has been on the decline in the past ten years mainly due to collapse of the public sector.

2.9.1 Training Providers

The major training providers in ICT are;

University of Zambia, Everlyne Hone College and Copperbelt University. Over the years, ICT has proved as a good career path for many school leavers. Therefore, colleges such as ZAMIM, ZIBC, ZCAS and NIEC School of Business are actively offering tuition for ICT courses such as IMIS accredited in the United Kingdom. The CISCO Academy at the

University of Zambia is offering specialised professional courses in conjunction with the CISCO Incorporated of USA.

2.9.2 Emerging Issues

Some of the issues are;

1. Standardisation of course offerings such as a development of national qualification programme to be the foundation for higher ICT training and education
2. Equipping training providers with adequate equipment and human resource to deliver high quality training
3. Development of Centres of Excellence in ICTs across the country

REFERENCES CONSULTED

- 1) African Information Society Initiative Report
- 2) **African Connection: Satellite and Wireless Connectivity for Rural Schools & Development Report**, December 2002
- 3) **Draft Policy for Information and Communication Technologies, Commission for Information and Communication Policy**, May 2000
- 4) **COMESA Model Information and Communication Technology Policy**, COMESA Secretariat
- 5) **Computer Society of Zambia** – Submission to the National ICT Policy, November 2003
- 6) Draft ICT Policy for Uganda, Uganda Communications Commission, Republic of Uganda
- 7) Draft ICT Policy for Rwanda, Republic of Rwanda
- 8) Draft National Telecommunications Policy, August 2003, Republic of Mauritius
- 9) **Electronic Government Services for the 21st Century**, UK Performance and Innovation Unit, September 2000
- 10) **Guidelines for Developing Cabinet Documents**, Cabinet Office, July 2002
- 11) India ICT Policy
- 12) **National Information and Communication Infrastructure Stakeholder Workshop Report**, Mulungushi International Conference Centre, Lusaka, 1998
- 13) **National Gender Policy**, Gender in Development Division, Cabinet Office, March 2000
- 14) **National Transport Policy**, Ministry of Communications and Transport, May 2002
- 15) **National Science and Technology Policy**, Ministry of Science, Technology and Vocational Training, May 2002
- 16) **New Partnership for African Development**, E-Africa Commission Report
- 17) **Poverty Reduction Strategy Paper**, Ministry of Finance and National Planning
- 18) **Nigeria Policy for Information Technology**, Ministry of Science and Technology, 2001
- 19) **SADC Telecommunication Policies and Model Telecommunication Bill**, Southern Africa Transport and Communication Commission – Technical Unit, May 1999
- 20) **Tanzania National Information and Communication Technology Policy**, Republic of Tanzania
- 21) **Transitional National Development Plan 2002-2005**, Ministry of Finance and National Planning
- 22) Minutes of Telecoms Infrastructure Sub-committee meeting with Stakeholders
- 23) Minutes of Legal/Regulatory Sub-committee meeting with Stakeholders
- 24) Chinyama Collins, *Implementation of Telemedicine Project in the Healthcare System in Zambia*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 25) Dgidonu Clement (Professor), *The ICT for Accelerated Development Process: Learning from the experiences of selected African countries*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 26) Franze Michael, *Technology options for the rapid rollout of ICT Infrastructure*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka

- 27) Habeenzu Shuller, *ICT in Zambia: a Baseline scan*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 28) Lungu Charles, *The Internet & the Youth: A library of Information resource*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 29) Lungu Christopher, *The role of ICTs in Tourism, Environment and Natural Resources Management*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 30) Mbewe Emmanuel, *Network Infrastructure requirements for a telemedicine project*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 31) **Media ICT Network for Development (MIND)** – Submission to the National ICT Policy, November 2003
- 32) Mubemba C. & Sitwala N, *ZESCO Telecommunications (Transport) Network: Existing and Planned System*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 33) Munyati Cris, *Universal Service vs Universal Access: Challenges and Opportunities*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 34) Mutesha Douglas, *Current and Future ICT Rollout: Carrier of Carrier and Last mile connection*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 35) Nkula Dennis, *Computer-Based Pilot Patient Care Information System in Lusaka: A Case Study of ICT and Health Care*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 36) Mwanza Richard, *ICT Convergence: Challenges and Opportunities for Telecoms/Broadcasting Regulators*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 37) Mwanza Richard, *The role of Regulatory Authorities in ensuring ICT sector growth*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 38) Saasa Oliver (Professor), *Keynote Address: Information and Communication Technologies: Key for Accelerated Socio-Economic Development*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 39) Shalala Sepiso, *Youth and the ICT Age – Challenges, Opportunities and Participation in the Information Society*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 40) Soko Jonathan, *CEC Current and Planned ICT Infrastructure Rollout*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 41) Thomas Rajeev, *ZAMFON: Zambia Fibre Optic Network*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 42) Ubaru Moses (Dr.), *Nigeria ICT Policy Process: The experiences of Nigeria Information Technology Development Agency*, paper presented at the National ICT Policy Symposium, 25-26 August 2003, Intercontinental Hotel, Lusaka
- 43) **Zambia Rural ICT Market Opportunity Report**, Intelcon Research & Consultancy Ltd., October 2002

Part II - Policy Framework

CHAPTER 3: VISION & MISSION

The Vision:

“A Zambia, which is a knowledge based economy by 2020”

The Mission:

“To enhance and accelerate sustainable economic growth and social development through the provision of affordable and universally accessible ICTs”

The cornerstone of development in the 21st Century is centred on how much competitive advantage one possesses as opposed to the next person, community, organisation or nation which could be a competitor, producer, buyer and so on.

The basis for such advantage is information, which if assimilated becomes knowledge and it is the knowledge that largely contributes to the positive performance of a nation in terms of effectiveness and efficiency of the individuals in public sector, private sector or civil society. The major resource for Zambia is the individual citizen. This is the target for the vision of the ICT Policy, which collectively reflects in the realisation of the national vision for social and economic development.

Therefore, the vision and mission statements of the country are based on the need to create knowledge in various sectors of the economy. The global village is characterised by competitiveness in commerce and trade based on the advantage created by among other things, the information and knowledge in the workforce, intellectual property accruing to the companies as well as the differential knowledge reflected in investment choices and decisions made by investors or price margins and market segments in commerce and trade.

Therefore, for many Zambians, the adoption of ICT in everyday life events is partly the basis for wealth creation and development, but will largely depend on among other things, how ICT will;

1. Be made affordable and cost effective to become an “enabler” resource in people’s livelihoods
2. Be made available as where and when it is required by consumers
3. Make people connected to factors of empowerment and production such as land, financial capital and other empowerment services such as education, health, commerce and trade.

CHAPTER 4: RATIONALE

It has been demonstrated that countries that have achieved sustainable economic growth and social development have largely done so through the adoption and exploitation of ICTs. The country's socio-economic development and success is enhanced by its understanding, collection, management and effective use of information and knowledge resources to the benefit of its people.

The Global economy is currently dependent and is shaped by the benefits arising from ICTs. However, participating in such an economy requires country level strategies and programmes in the form of policies and implementation plans. Therefore, Zambia being a member of the Global village needs a policy framework that supports effective participation and competitiveness through local and Foreign Direct Investment.

Therefore, the rationale for developing the ICT Policy is based on:

1. The need for co-ordination of various initiatives by government departments/agencies, companies, individuals and other stakeholders that are all participating in the ICT sector who require a policy framework in order to optimize resource allocation and utilisation.
2. The urgent need to provide a framework for effective and efficient delivery of Government services using ICTs
3. The global shift by countries to knowledge based societies and economies as propagated in world bodies such as the World Trade Organisation (WTO) dictates that if Zambia is to effectively participate in the global market, ICTs must be embraced through an appropriate ICT Policy framework.
4. The need for a policy that would guide and stimulate national ICT infrastructure development, commercial and industrial growth, facilitate commerce and trade as well as linkage of rural and urban communities thereby uplifting the socio-economic status of disadvantaged groups.
5. The need to facilitate implementation of some of the provisions of the Constitution in respect of national aspirations and development (press freedom, access to information etc); therefore, it is desirable to develop a policy framework that addresses constitutional matters.
6. The need for a transparent and effective legal/regulatory framework derived from the ICT Policy that will assist in overall development of ICTs in the country.
7. The current pace of technological advancement entails that focused attention is desirable if the country is to keep up to-date or even take advantage of the available opportunities arising from ICTs.
8. The development of content and general dissemination of information, be it for governance, illiteracy eradication or any other development agenda requires appropriate ICTs in order to ensure effectiveness and achieve the desired impact.
9. The need to address concerns in the areas of intellectual property rights, privacy, security of information, confidentiality, piracy, censorship and info-ethics, which have become major issues to technological advancements.
10. The desire to enhance the physical and faculty capacities of the existing tertiary institutions in order to achieve an increase in the numbers of ICT professionals.

CHAPTER 5: GUIDING PRINCIPLES

Based on a full appreciation of the social and economic challenges Zambia is facing, the ICT Policy implementation process will be guided, among others by the following considerations, which are essential for success:

1. Implementation of this policy shall be guided by principles of good governance such as transparency, accountability, indigenous knowledge, service delivery to the underserved, rule of law, right to information as enshrined in the constitution.
2. Public-Private Partnerships shall be the overriding factor in the implementation of the ICT Policy especially in matters and projects of national character and importance.
3. Government will take leadership in facilitating the development and mobilising investment required for the National ICT infrastructure as well as the implementation of the ICT Policy.
4. The ICT Policy will be accompanied by legislation passed to support effective separation of powers for policy formulation and guidance, ensure transparent and effective regulatory functions based on convergence principles and establish institutional mechanisms for policy implementation.
5. The vision outlined above is premised on the development and availability of a suitable National ICT Infrastructure covering all the districts in the country.
6. Close alignment of ICT implementation with current and future short, medium and long-term national development objectives such as Poverty Reduction Strategy Paper (HIPC Initiative) and Poverty Reduction Growth Facility (PGRF) and National Development Plans.
7. Development and upgrading of supporting infrastructures such as roads, electric power and water/sanitation provisions should also be taken into account as complimentary services to the successful ICT penetration in the country.
8. Establishment of coordination mechanisms at different levels to allow integration and ensure sustainability of ICT programmes and projects.
9. A deliberate and accelerated ICT manpower development policy and implementation plan shall form the basis for human resource development at all levels in the country.
10. The ICT policy implementation will be supported by accompanying intensive public awareness activities at all levels of society.
11. Mainstreaming of youth and gender issues is important during formulation, review and implementation of the ICT Policy.
12. The ICT policy shall take into account regional and global policies and practices in transforming the nation into an information society.

CHAPTER 6: POLICY GOALS, OBJECTIVES & STRATEGIES

6.1 Policy Statement

- I. The Government of the Republic of Zambia (GRZ) *recognises* the strategic opportunities and benefits that Information and Communications Technologies can offer to accelerate social and economic development in the country.
- II. The Government has also *realised* that access to information and knowledge are some of the pre-requisites for effective participation in the 21st century Global Village and is key to wealth creation and economic prosperity of Zambians.
- III. The Government furthermore *recognises* the critical role that a high capacity, reliable and geographically distributed ICT Infrastructure covering the entire country can offer in providing access to information and knowledge resources, domestic and global markets, as well as in wealth creation for all Zambians.
- IV. Government *acknowledges* the need for integrated national planning to ensure that other sectors of the economy benefit from the deployment of ICTs.
- V. The Government is also *aware* that the transition to a knowledge-based economy will depend on visionary leadership as well as the availability of quality human resource needed to steer the nation into a knowledge based society.
- VI. The Government is *cognisant* of the global and regional trends of the need for a converged regulator as a result of convergence of technologies, services and products in telecommunications, computing, broadcasting, multimedia information and postal services
- VII. In view of the above, Government is *committed* to transforming the nation into a knowledge-based economy largely driven by adopting ICTs through directing, deploying ICTs through pooling investment and integrating ICTs in everyday life events in all sectors of the economy.

Therefore, Government *declares* ICT as a priority sector alongside agriculture, education, health and tourism and environment, and is henceforth strongly committed to:

1. Providing leadership in ICT development by;
 - a. Setting the roadmap and developing a coordination mechanism to ensure focused implementation and utilisation of ICTs in Zambia, led by a high profile national champion at the highest level of Government
 - b. Integrating ICT development in the broad national economic and development plans.

- c. Developing short, medium and long-term ICT development plans in line with the national development planning cycle
 - d. Promoting the utilisation of ICTs in Government and public sector institutions
 - e. Leading in the adoption of ICTs by making Government as a model user in the delivery of electronic services to the citizens of Zambia.
 - f. Ensuring that there is development of ICT infrastructure to support service delivery in telecommunication, broadcasting, postal and courier services, media and other sectors.
 - g. Setting ICT development targets and attaining universal access to ICTs by 2010
 - h. Promoting universal access to information and knowledge for the benefit of all the people of Zambia, especially in rural and underserved areas.
 - i. Implementing access to ICTs in all key Government and Public sector institutions such as educational institutions, health centres, police stations and government ministries/departments.
 - j. Installing ICT public access facilities within one kilometre of a community in urban settlements by 2010
 - k. Installing ICT public access facilities within five kilometres of a community in rural areas by 2010
2. Developing and implementing a Human Resource Development programme by;
 - a. Promoting broad-based ICT skills development and awareness among Zambians
 - b. Developing and implementing a comprehensive ICT human resource development programme to facilitate realisation of the objectives of this policy.
 3. Developing appropriate local multimedia content by;
 - a. Accelerating the implementation of the national cultural policy by using ICTs
 - b. Promoting the production and dissemination of products and services that reflect the needs, interests, cultural values and realities in the country
 - c. Encouraging the harnessing and development of local knowledge resources.
 4. Promoting commerce and trade by;
 - a. Encouraging export of ICT products and services
 - b. Developing comprehensive and aggressive resource mobilization programmes such as local and Foreign Direct Investment
 - c. Creating an enabling environment and incentive to promote public and private sector investment in the ICT industry in Zambia.
 5. Promoting regional and international cooperation by;
 - a. Pro-actively collaborating, within the context of NEPAD and the African Information Society Initiative (AISI), with multilateral/bilateral cooperating partners, regional and international organisations, to promote accelerated diffusion of ICTs in Zambia.
 - b. Promoting international collaboration among stakeholders

- c. Developing necessary capacity to enhance Zambia's participation in regional and international ICT affairs.
6. Developing ICT implementation structures by;
- a. Establishing appropriate and sustainable institutional, legal and regulatory frameworks to coordinate, support and facilitate the bold implementation of the ICT Policy, Strategies and Plans

6.2 Overall Policy Goals

- 1) Increase wealth creation and improving livelihoods by adoption and use of ICTs
- 2) Attain pervasive and affordable universal access to ICT products and services by 2010
- 3) Promote and ensure a competitive environment based on a level playing field, which encourages local and foreign investment in the ICT sector
- 4) Make ICT a significant contributor to the national Gross Domestic Product (GDP)
- 5) Deployment of a nation-wide ICT infrastructure
- 6) Increase the ICT literacy levels in the country
- 7) Promote affordable access to ICT equipment and services
- 8) Harmonise and mainstream ICT in other sectors
- 9) Develop human resource capacity in ICTs to meet changing demands of the national and global economy
- 10) Develop standards, practices and guidelines to support the deployment and exploitation of ICTs.
- 11) Provide mechanisms for empowering local participation of Zambians in the ICT sector

6.3 Overall Policy Objectives

The objectives of the policy are;

1. To create awareness among the general public and all stakeholders about the importance of integrating ICTs in Zambia's development process
2. To promote and enable the building and establishment of an appropriate ICT infrastructure that supports development and at the same time meets universal access goals.
3. To identify and establish innovative financing mechanisms that address specific needs for ICT development.
4. To promote the use of ICTs in the stimulation of production, storage, and dissemination of in-country information and knowledge in both the public and private sector.
5. To facilitate the broadest possible access to public domain information
6. To promote development of local content and applications
7. To create an effective ICT institutional, legal and regulatory framework.
8. To encourage and support Research and Development in ICTs
9. To accord due regard, recognition and protection of intellectual property rights.
10. To enhance collaboration and co-ordination at the national, regional and international levels.
11. To ensure cross-sectoral linkages and co-ordination in ICT development.
12. To mainstream gender and youth issues in ICT implementation

6.4 PRIORITY SECTORS (AREAS)

Drawing from the definition of ICT and the Government priorities as identified in the Poverty Reduction Strategy Paper (PRSP) and the Transitional National Development Plan (TNDP), the following have been identified as core priority areas for the successful realisation of the ICT vision and policy objectives. However, this does not negate the importance of the other areas (sectors) not listed hereafter. Therefore, all sectors not included in this chapter are equally affected by this policy framework.

6.4.1 INFRASTRUCTURE

6.4.1.1 Background:

The deployment of a high capacity, and reliable ICT Infrastructure of national coverage, capable of supporting telecommunications, broadcasting, computing and other needs is a core requirement if Zambia is to benefit from developments in ICTs such as the Internet, Mobile Cellular Communication, Digital TV broadcasting, Telemedicine and Distance Education. Without adequate and reliable connections to information and knowledge networks, both externally and internally, citizens and businesses in Zambia will be excluded from participating fully in the global economy.

Therefore, Zambia must focus attention on creating conditions that will foster the development of ICT Infrastructure. It is especially critical for citizens and businesses operating in rural and remote communities to be connected to the infrastructure. This is an important first step in bridging the “digital divide”.

Key stakeholders include:

- Telecommunications Network Operators
- Mobile cellular Operators
- Private Network Providers
- Internet Service Providers
- Local Content Providers
- Equipment Manufacturers
- Content and software developers
- Computer Equipment Suppliers
- Technical and Industrial Research Organizations (NISIR etc)
- Professional Services Providers
- Broadcasters

6.4.1.2 Sector Goal:

Increase equitable, affordable and cost-effective universal access to ICT products and services to all stakeholders

6.4.1.3 Objectives:

Objective 1: Deploy a national Information and Communication Technology Infrastructure backbone of high capacity and reliability, capable of supporting multimedia information distribution.

Strategies:

The Government through the Ministry responsible for the ICT portfolio in conjunction with the private sector shall:

- a. Facilitate the planning, designing and development of a scalable ICT Infrastructure backbone of national coverage based on optic fibre and other supporting technologies through public-private investment
- b. Adopt the open standards approach in selecting appropriate, easy to use and scalable technology for building the ICT Infrastructure over a long period.
- c. Promote public-private partnerships in resource mobilisation and implementation of the national ICT Infrastructure backbone

Objective 2: To provide leadership and vision to guide ICT infrastructure development

Strategies:

The Government through the Ministry responsible for the ICT portfolio shall:

- a. Create the National ICT Agency to oversee deployment of ICT infrastructure and projects
- b. Through the ICT Agency ensure the establishment of a Government wide network covering national and provincial levels

Objective 3: To provide easily accessible and affordable service to all users and stakeholders.

Strategies:

The Government through the Ministries responsible for ICT and commerce portfolios, and the Zambia Investment Centre in conjunction with stakeholders shall:

- a. Develop incentives for attracting public-private sector investment in the deployment of the ICT infrastructure backbone
- b. Develop special incentives for rollout and provision of affordable services in under served areas
- c. Promote the growth and emergence of Small and Medium Enterprises through financial and technical support to incubator projects to support universal access goals

Objective 3: To provide reliable and scalable ICT Infrastructure within public sector institutions

Strategies:

The Government through the Ministries responsible for Education, Health, Local Government and ICT portfolios shall:

- a. Ensure that reliable and scalable ICT Infrastructure is extended to all Teacher Training Colleges at provincial level
- b. Ensure that reliable and scalable ICT Infrastructure capable of supporting Telemedicine projects is extended to all General Hospitals at provincial level and other health facilities identified for such projects
- c. Ensure that reliable and scalable ICT Infrastructure is extended to all Municipal Councils at provincial level
- d. Ensure that reliable and scalable ICT Infrastructure is extended to all Government ministries and provincial administration centres to support establishment of public access centres for development planning, agriculture information, media information, e-government etc

6.4.1.4 Challenges and Threats

Effective implementation of the strategies above requires identifying and anticipating the potential challenges, at both domestic and international levels, that affect the effective deployment and use of ICT infrastructure. Some of the challenges are;

Inadequate legal/regulatory and investment environment that encourages the required development in the ICT sector.

The incumbent PSTN operator maintains a monopoly in certain segments of the market (fixed telephone and international voice calls), which may create a disincentive for competitors to enter the market

The Regulator should be given the absolute powers and incentives to effectively discharge its mandate, including the revision of the relevant legislation.

High technology acquisition, deployment, and access costs

Due to the fact that backbone networks require huge investments for equipment and construction, which is especially true for rural and remote communities where points of presence may be widely spaced, there is need for Government to offer incentives for operators in rural and remote sites. The small subscriber base in rural and remote communities makes it difficult for services to be provided on a commercial basis.

Inequalities and disparities in access to Internet, PCs, phones and other accessories

Telephone connections in the country are still limited to the line of rail. Access to computer terminals, modems, fax, printers, scanners and other accessories is still very inadequate and expensive for most individuals and small businesses.

High costs and disparities in content development and other Services

Lack of local language support for web sites is hampering diffusion of educational and development programs through Internet mediated applications. High fixed costs for content creation and development often deter potential entrepreneurs from investing in this sector.

Security of Transactions

Problems with developing and maintaining secure networks slow the adoption and diffusion of network-related applications and services. Reports of highlighting the activities of computer hackers, fraudulent use of credit cards, and non-delivery or return of purchased goods are discouraging many users from executing online transactions

Protection of privacy and intellectual property rights

Apart from concerns of security of data, there are issues of confidentiality and integrity associated with the sharing of information over open networks like the Internet. This is particularly crucial when data is shared between databases. There is increased potential for unauthorized disclosure of information to third parties as well as misuse of intellectual property rights vested in individuals, government or other initiators.

6.4.2 EDUCATION

6.4.2.1 Background:

Proficiency in ICT skills is now regarded as important as basic reading and writing skills. In order to achieve computer literacy among the entire population, ICTs should be incorporated into both the formal and informal education system of Zambia. However, it must be noted that this process does not begin and end with putting computers in schools. Maximum use and benefits can only be derived through corresponding changes in the approach to teacher training, curriculum development, content development and education management/administration system.

Key stakeholders include:

- Education Institutions
- Communities
- Pupils, Students, Teachers
- Libraries and Resource centres
- Policy planners and administrators
- Student loan and financial aid providers
- Career guidance and training providers
- Employees and employers
- Educational service providers

6.4.2.2 Sector Goal:

To attain ICT literacy and application at all levels of the education system in Zambia

6.4.2.3 Objectives:

Objectives 1: To promote the integration of ICTs at all levels in the education sector

Strategies:

The Government through the Ministry responsible for the Education portfolio in conjunction with the private sector shall:

- a. Introduce teacher education in ICTs at all teacher training colleges in the country
- b. Introduce and integrate ICTs in the school curriculum
- c. Develop partnerships with stakeholders in the quest for increased ICT literacy
- d. Develop and promote special ICT training programmes for differently-abled persons, girls and women
- e. Identify and implement flagship ICT projects in the education sector

Objective 2: To improve the education delivery and learning mechanism at primary, secondary and tertiary levels

Strategies:

The Government through the Ministry responsible for the Education portfolio in conjunction with private sector shall:

- a. Equip the CBU, Mulungushi University and UNZA with appropriate capacities to deliver academic programmes through distance learning at

Teacher Training Colleges or such other appropriate infrastructure available in the provinces

- b. Promote and accelerate the extension of CBU/UNZA degree programmes to Teacher Training Colleges through distance learning
- c. Review and integrate ICTs in the school curricula
- d. Through the Examinations Council of Zambia, develop a National ICT qualification system at primary, secondary and tertiary levels
- e. Provide affordable ICT tools in schools (computers, internet access, etc) in conjunction with private sector and civil society organisations

Objective 3: To strengthen the administration and decision-making capacity in the education system

Strategies:

The Government through the Ministry responsible for the Education portfolio shall:

- a. Enhance existing and develop appropriate Education Management Information Systems for public and private education to support administration, monitoring and evaluation of the performance of the education sector

Objective 4: Increase access to research facilities and materials

Strategies:

The Government through the Ministries responsible for the primary, secondary and tertiary education portfolios shall:

- a. Equip libraries managed by the Zambia Library Service with appropriate ICT tools and resources
- b. Identify and develop Centres of Excellence for ICT education
- c. Develop inter-networks to improve access to shared data repositories

6.4.2.4 Challenges and Threats

The need to embed ICT in the Zambian education system poses major challenges due to limited ICT resources and awareness currently prevailing. The following challenges and threats need to be addressed.

Lack of ICT awareness and skills among policy makers

There is general lack of ICT knowledge and expertise among education administrators and policy makers resulting in inadequate ICT adoption. There is a general belief that merely purchasing computers for every institution is sufficient action for ICT penetration. Little attention is paid to important issues such as integration of ICTs in school and teacher training curricula to use the technology effectively. In many situations, this results in equipment being under-utilized.

Lack of a coordinated National Planning mechanism

Procurement of hardware, software and educational courseware is usually done at the individual institutional level and not at national level. This lack of coordinated planning and foresight sometimes results in waste of scarce financial resources.

Another disadvantage is that there is no standardisation of hardware and software across institutions, making collaboration and exchange somewhat difficult in many cases.

High opportunity cost of technology

The high cost of equipment makes it difficult to justify spending huge sums on what seems a *luxury*, when many institutions are still lacking basic amenities and educational supplies.

Limited budget allocation for maintenance

In cases where the investment is made, limited budget allocations usually make provisions for initial purchase and completely ignore later allocations for maintenance and upgrading. This usually results in breakdown and shortened life spans for the equipment, if an institution is unable to maintain them on its own.

Shortage of teachers with ICT Skills

Low salaries paid to teachers coupled with poor working conditions make the teaching profession unattractive to trained ICT Personnel, who are in great demand elsewhere in other industries.

Resource constraints

The critical lack of financial resources needed to implement most Government programmes and projects may delay successful execution of the goals and objectives

6.4.3 HEALTH

6.4.3.1 Background:

Information and Communication technologies (ICTs) are playing a vital role in the organization and delivery of health services through out the world. In the future they are expected to radically transform the structure and organization of health services as well as content delivery of those services. Consequently, focus on the role of ICTs is vital for any strategic planning for the health sector.

Key Stakeholders include:

- Patients
- Physicians and Medical practitioners
- Health services workers
- Health maintenance organizations (HMOs)
- Hospitals and clinics
- Pharmaceutical companies and medical equipment manufacturers
- Medical suppliers and retailers including drug stores
- Insurance providers
- Regional & international development organizations

6.4.3.2 Sector Goal:

Improve the delivery of better healthcare through the adoption and integration of ICTs in the health sector.

6.4.3.3 Objectives:

Objective 1: To use ICTs for the establishment of improved healthcare information systems in primary, secondary and tertiary healthcare facilities.

Strategies:

The Government through the Ministry responsible for the Health portfolio shall:

- a. Develop appropriate ICT Infrastructure at all levels of the health care system to support the collection, use, management and dissemination of health care information
- b. Enhance and develop the existing Health Management Information Systems (HMIS) at CBoH for the management and administration of health services.
- c. Develop a code of conduct for use of the HMIS and implement security measures to safeguard privacy of patient information inherent in health care records.
- d. Create comprehensive databases on pandemic and epidemic diseases and drug performance in the country

Objective 2: To use ICTs for sharing knowledge across national, regional and global frontiers.

Strategies:

The Government through the Ministry responsible for the Health portfolio shall:

- a. Use ICTs in the collection and practice of indigenous tradition medicine
- b. Create electronic information network for health professionals.
- c. Promote HIV/AIDS education and prevention activities
- d. To share best practices on disease treatment and drug performance
- e. Incorporate ICT training as part of the curricula for health care professionals

6.4.3.4 Challenges and Threats

The major challenges and threats are:

Lack of broadband capacity for audio/video streaming

Projects such as telemedicine require reliable and high capacity ICT Infrastructure to operate efficiently. However, the current infrastructure existing in most health care facilities require complete installation and/or upgrading.

“Brain drain”

Due to poor conditions of service, there is considerable movement of doctors and nurses to other countries in the region and the United Kingdom. Over time, this has created a critical shortage of manpower in the sector.

Privacy, security and confidentiality

Applications such as integrated electronic health records are seen as tools for reducing costs and increasing efficiency in health care delivery. However, there are threats from sharing vital health-care information due to misuse and sharing of private information. Giving access to medical records using applications over open networks such as the Internet increases security and privacy concerns.

Poor salaries and working conditions for health personnel

The current conditions of service for health personnel have led to the dis-engagement of many health workers from the service in search of better paying jobs in private health care facilities.

Lack of relevant laws in the Information age

Lack of appropriate and relevant laws and regulations to forestall fraud and criminal activity on networks such as Internet-enabled systems is hindering diffusion of benefits from ICTs to the masses. Government should review legislation to cater for crimes committed arising from the use of ICT products and services.

Resource constraints in acquisition of ICT facilities

The rising cost of ICT products and services has led to the slow adoption of ICT technologies in the health sector.

Content development

Availability of information, access to the right information, and suitability to specific areas, quality of content and adaptation to individual needs are important considerations in this regard.

Poor social and economic infrastructure

Rural areas in developing countries generally lag behind in basic amenities such as proper sewerage systems, drinking water, power supply and public transport. Priority for development in this country is the provision basic health necessities. In this situation it is difficult to justify the large capital expenditure necessary for introducing ICTs in the health sector.

Rising health care costs

Recent initiatives in health sector reforms in most developing countries address issues such as infant mortality, epidemic and pandemic diseases, and access to cost-effective medical care. The fact that more time and money is spent on *curative* rather than *preventive services* has resulted in limited financial resources available to procure efficient and cost-effective ICT products and services.

6.4.4 AGRICULTURE

6.4.4.1 Background:

In Zambia, agriculture accounts for a significant proportion of the micro and macro economy, and is closely interwoven with the economic, social and political conditions in the country. Consequently Zambia must adopt a developmental perspective that incorporates the use of Information and Communication Technologies (ICTs) to form the crucial link between agriculture and trade.

ICTs have the potential to radically change the approach and thinking about how the agricultural sector is structured and governed. For instance, ICTs may significantly alter information flows between farmers, consumers, and other market players, thus leading to significant improvements in the way agro-business is conducted in the sector. Agro-meteorology, early warning systems and crop yield monitoring are some of the areas that can benefit from emerging technologies such as Geographic Information Systems, Global Position System and Remote Sensing. Extensive use of such technology shall be promoted especially in planning and crop monitoring and forecasting.

Key stakeholders include:

- Farmers and farm worker associations
- Individual and commercial consumer groups
- The Ministry of Agriculture and Cooperatives
- Manufacturing and marketing associations for agricultural products
- Education and training institutions for agriculture
- Regional and local government institutions
- International/regional banking and financial institutions
- International developmental organizations

6.4.4.2 Sector Goal:

Improved agriculture productivity, trade and conservation of natural resources.

6.4.4.3 Objectives:

Objective 1: To support the physical and socio-economic planning processes in the Agricultural System

Strategies:

The Government through the Ministry responsible for the Agriculture portfolio shall:

- a. Create an integrated agricultural information system to provide strategic information for farmers, government authorities, and other stakeholders at national, provincial and district levels
- b. In conjunction with private sector and civil society organisations, create ICT awareness for all types of farmers at all levels.
- c. Integrate ICT in the provision of extension services to farmers
- d. Develop country-wide agro-meteorological databases and early warning systems

Objective 2: To increase the competitiveness of farmers in production, marketing and utilisation of agro-products

Strategies:

The Government through the Ministry responsible for the Agriculture portfolio and in conjunction with private sector shall:

- a. Establish online information on agro-technologies and techniques, pricing and market information for all agro products at national, provincial and district level
- b. Develop incentives for deployment of affordable ICT solutions to support rural connectivity of farmers in all Farm Training Centres
- c. Develop and promote ICTs skills development for extension workers and farmers

Objective 3: To monitor the sustainable utilisation of natural resources in agricultural production

Strategies:

The Government through the Ministries responsible for Agriculture, Lands, Meteorology, Environment and Natural Resources portfolios and in conjunction with the Zambia National Remote Sensing Centre shall:

- a. Collaborate in building spatial databases and development of nation-wide Geographical Information Systems to monitor agricultural land use and manage natural resources at national, provincial and district levels.
- b. Establish a coordination mechanism within the natural resources sector to develop a multi-sectoral natural resources information system

6.4.4.4 Challenges and Threats

In attempting to integrate the use of ICTs in agriculture Zambia faces a number of potential threats and some significant challenges. Some of these directly result from events and circumstances precipitated by globalization, economic liberalization, and regional integration. Zambia faces the challenge of learning how to make use of ICTs to integrate farmers into markets and to involve them in national decision-making processes.

Some of these challenges and threats are highlighted thus;

Stakeholder involvement in decision-making

Successful integration of ICTs in the agriculture sector requires involvement of all stakeholders in the sector. It also requires accurate and timely information from all sections of the agro-industry system. Establishing an efficient communication system to enable effective collaboration and exchange is a challenge to the successful implementation of policy matters and participation of stakeholders in decision-making.

ICT Infrastructure and access costs

Access to technology is restricted by factors such as high cost of equipment, and lack of enabling telecommunications infrastructure. This has proved a major obstacle to the widespread adoption of ICTs especially in rural areas.

Limited ICT Skills

Efficient information management is the key to success and is one of the greatest challenges for Zambia to overcome. It requires significant information processing, analysis, and communication skills that may not be readily available in the existing skills base.

Skepticism about benefits of adopting ICTs

Farmers and other key players must be convinced to make the necessary investments in ICT tools, personnel, and training, along with corresponding adjustments to their existing operations. The fact that returns on investments is not immediately apparent makes this a difficult proposition to sell.

Fear factor among potential ICT users

In Zambia, the level of education and functional literacy is low especially with respect to science and technology knowledge base. ICT is considered as very high technology, therefore, there is a fear factor among many potential users. This could present a barrier to the widespread adoption of ICTs among farmers.

6.4.5 E- GOVERNMENT

6.4.5.1 Background:

Electronic Government (E-Government) is defined as the delivery by Government of services, policies and the engagement of stakeholders in civic and government matters through the use of Information and Communication Technologies.

Currently, Government services are delivered through a single channel often involving paper based and face-to-face interaction with the consumer.

Therefore, the vision of E-Government is to move the delivery of Government services to Multi-Channel platforms implemented through public and private sector investment in the delivery of citizen-focused services. The achievement of this vision will radically;

- a. Transform Government operations, thus gaining efficiencies
- b. Improve services to the citizen as a consumer
- c. Reduce costs to the benefit of the tax payer
- d. Increase Zambia's social and economic performance through increased public sector productivity

Already, Government is implementing ICT projects as part of the Public Sector Reform Programme in areas such as Financial Management (IFMIS) and Payroll Management (PMEC). Government shall, as part of adopting ICTs, extensively use emerging technologies such as Geographic Information Systems especially in developmental planning.

The above strategy will be achieved by adopting a three-stage process for government-to-consumer, government-to-business, and government-to-government involving;

1. *Publishing* of information in order to provide users with information such as policies, news and relevant public documents
2. *Interacting* with citizens and other stakeholders in order to allow users to search and obtain information of particular interest such as medical records, educational results and so on
3. *Transacting* with citizens and other stakeholders in order to allow users to search for and purchase Government products and services such as documents, maps etc as well as submit vital commerce transaction information for processing such as VAT Tax returns, application and renewal of licenses

Key stakeholders include:

- Citizens
- Businesses
- Civil society organisations
- Private society organisations
- Government departments, ministries, Parastatals
- Parliament
- Civil service
- Judiciary
- Media

6.4.5.2 Sector Goal:

Improve the management of Government affairs and delivery of efficient and cost-effective services to citizens and other stakeholders

6.4.5.3 Objectives:

Objective 1: To develop an institutional and coordination framework for information management in Government and public sector institutions

Strategies

The Government through the Ministry responsible for the ICT portfolio in conjunction with all government ministries and public sector institutions and the National ICT Agency shall:

- a. Develop the national and institutional E-government strategy
- b. Establish ICT focal points in all government Ministries and other public sector institutions by creating the position of Chief Information Officer at senior management level
- c. Establish through Cabinet Office a high-level coordination mechanism for implementing the e-government strategy through the Chief Information Officer

Objective 2: To create through the National ICT Infrastructure a computer network linking national, provincial and district administration in the central and local government system

Strategies:

The Government through the Ministry responsible for the ICT portfolio in conjunction with all government ministries and public sector institutions and the National ICT Agency shall:

- a. Facilitate the interconnection and computerisation of all government departments and public sector organisations
- b. Develop and implement an integrated Geographic Information System to support development planning and decision-making at national, provincial and district levels

Objective 3: To develop an efficient and cost-effective intra-government communication and information sharing system

Strategies:

The Government through the National ICT Agency and all Ministries and agencies shall:

- a. Install a Government wide PABX in all Ministries and public sector organisations
- b. Install Collaboration and Communication systems such as Email and Internet on every computer on the Government wide computer network
- c. Develop and install a computerised Government wide document management system

Objective: 4: To enhance and expand access to Government Information by the public

Strategies:

The Government through the Ministry responsible for the ICT portfolio in conjunction with all government ministries and public sector institutions and the National ICT Agency shall:

- a. Facilitate the development of service charters for all public sector organisations
- b. Undertake inventories of public domain and other information resources for publication
- c. Publish/disseminate information about government and information compiled by government on websites

Objective 5: To improve and broaden stakeholder participation in civic and Government matters

Strategies:

The Government through the Ministry responsible for the ICT portfolio in conjunction with all government ministries and public sector institutions and the National ICT Agency shall

- a. Establish an effective and reliable two-way communication system between government and stakeholders
- b. Establish through the involvement of private sector and civil society organisations mechanisms for strengthening civic participation in government affairs

Objective 6: To facilitate online transactions by Government and public sector organisations

Strategies:

The Government through the Ministries and agencies responsible for registration of all public records (births, deaths, marriages, etc), and lands portfolios respectively in conjunction with all government ministries and public sector institutions and the National ICT Agency shall:

- a. Install public access centres for online services such as licenses, registrations of births, deaths, marriages, voter registration etc at provincial and district levels
- b. Establish and develop an Integrated Land Information Systems to enhance land ownership, management and transfer at all provincial levels

6.4.5.4 Challenges and Threats

The following are some of the challenges and threats in the implementation of e-government applications:

Poor information flow mechanisms

Lack of efficient communication system within government ministries and between central, provincial and local government and departments is aggravating the already slow and bureaucratic system

Low ICT skills

Very low computer penetration and low levels of ICT literacy among the workforce in the public service and the indifference or apathy towards the role of ICTs in improving government delivery of services is contributing to the slow uptake of E-Government activities.

Poorly managed government services

Services and information management mechanisms such as manual registries are unreliable and inaccurate in some cases thus inhibiting quick and correct decision-making

Low motivation among workforce

There is apparent evidence that workers in the public service are poorly motivated by low salaries and conditions of service thus the contribution to duty is very minimal.

Information gaps for development planning

Lack of centralised but distributed information systems or data warehouses to facilitate national planning and decision-making is creating a big gap in integrated development planning

Digital Divide

In Zambia the majority of citizens and businesses are not able to access government related services because they are not connected to information and communication networks. The lack of connection may be due to geographic isolation of rural and inaccessible areas from networking facilities as well as income disparities (poor cannot afford cost of access to equipment and connection

Lack of an integrated and compatible technology platform

E-government will not happen if support systems are incompatible and are not integrated. Success depends on the extent to which end-to-end processes can be executed and completed electronically.

Concerns about Privacy and Security

Citizens may be hesitant to use e-government channels because of concerns about disclosure of information to third parties. Also the lack of relevant laws to check violation of privacy and intellectual property rights in the information age is contributing to the skepticism among many potential users.

Uncertainty about Legal Status of Electronic Records

Despite an increase in encryption and electronic signatures there are certain challenging issues surrounding the legal status of electronic records. There are inadequate *'electronic laws* on privacy, confidentiality, record keeping, legal contracts and other corporate laws to co-exist with existing legislations. Inconsistency between physical and electronic records is also another challenge likely to manifest in the implementation of E-Government. The possibility of documents being tampered with without proof of offence means subjecting electronic records to the same legal standards for privacy, public access, authenticity, retention and disposition as applicable for paper records is almost impossible in the current state of legal instruments.

Lack of Inter-agency Cooperation and Participation

Resistance to e-government and the extensive integration that this envisions may cause some agencies not to actively participate and coordinate in the deployment of e-government applications due to high overhaul costs for changing to new systems,

training and retraining costs and perception that benefits are not forthcoming in a faster manner.

6.4.6 E- COMMERCE

6.4.6.1 Background:

Electronic Commerce (E-Commerce) is defined as the business activities involving consumers, manufacturers, suppliers, service providers and intermediaries using computer networks such as the Internet. It involves the integration of many elements of technology, infrastructure, business operations and public policy. Currently, the Internet has enhanced the potential for Zambia to participate in the emerging knowledge based global economy.

In order to receive full benefits from e-commerce activities, it is important for Zambia to develop and implement a visionary ICT Policy and strategies, which should involve input from all stakeholder groups.

Key stakeholders include:

- Consumers
- Public and private businesses
- Internet Service Providers
- Financial Institutions (eg. banks, credit/debit card companies)
- Telecommunications Companies
- Policy makers and Administrators
- Relevant Government sectors

6.4.6.2 Sector Goal:

Create an enabling environment for online commercial transactions, improved productivity and global competitiveness among stakeholders in commerce and trade by electronic means such as Internet

6.4.6.3 Objectives:

Objective 1: To develop a transparent, stable and effective legal and fiscal operating environment that promotes electronic commerce and trade in Zambia

Strategies:

The Government through the Ministries and agencies responsible for ICTs, Commerce and Trade, Supervision of Financial Institutions, Banks, Monetary policy, Legal framework and in conjunction with private sector organisations, chambers of commerce, and other stakeholders shall:

- a. Develop effective laws and regulations that will govern electronic commerce and trade at national, regional and international level
- b. Promote and address the protection of intellectual property rights related to electronic commerce and trade
- c. Develop appropriate institutional and legal mechanisms for implementing security measures of online transactions
- d. Domesticcate, harmonise and enhance E-Commerce laws obtaining at SADC, COMESA and UN levels.

Objective 2: To stimulate the proliferation of private sector led investment and services in the ICT Sector

Strategies:

The Government through the Ministry and agencies responsible for ICTs, Commerce and Trade, Supervision of Financial Institutions, Micro Finance Institutions, Banks, Monetary policy, Legal framework and in conjunction with private sector organisations, chambers of commerce, and other stakeholders shall:

- a. Provide enhanced mechanisms for low cost access to E-Commerce markets and services for Small and Medium Scale Enterprises (SMEs)

Objective 3: To cultivate a culture of electronic commerce in the country, which supports electronic business transactions at national and international levels

Strategies:

The Government shall:

- a. Adopt and implement electronic cash and payment systems as a model user of electronic commerce
- b. Create and promote awareness on the importance and benefits of E-Commerce
- c. Promote E-Commerce by introducing tax incentives for businesses implementing electronic solutions

Objective 4: To lower costs of business operations

Strategies:

The Government in conjunction with the private sector and other stakeholders shall:

- a. Develop appropriate infrastructure to support online transactions
- b. Promote affordable access to equipment, software and services for E-Commerce through reduction of import tariffs and VAT
- c. Encourage competition in the provision of ICT products and services to lower costs

6.4.6.4 Challenges and Threats

Effective implementation of e-commerce policies and ideas necessitates identifying and forecasting potential challenges in the domestic and international environment. These challenges and threats are examined below:

Absence of a high capacity and reliable ICT Infrastructure

Due to high cost of technology, developing countries including Zambia are lagging behind the rest of the world in obtaining access to advanced telecommunications infrastructure at affordable rates to support e-commerce. There are also deficiencies in the available hardware and software products and services.

Inadequate skilled ICT personnel

A workforce skilled in deployment and use of ICTs is crucial to the establishment and maintenance of viable e-commerce applications. However, in Zambia e-commerce is hampered by low rates of computer literacy and Internet-related skills among the developers of e-commerce solutions.

Slow rate of technology adoption

Local companies who want to compete on the international market are disadvantaged by the fact that cutting-edge technology is very expensive and is therefore not quickly adopted in developing countries, Zambia inclusive.

Uncertainty due to novelty of E-Commerce

Zambia faces the challenge of how to anticipate and embrace the changes brought about by the new e-commerce applications. E-commerce redefines rules, recasts careers, and sometimes eliminates entire business procedures. Its effects on business and the economy in general are not yet well understood.

6.4.7 TOURISM, ENVIRONMENT AND NATURAL RESOURCES

6.4.7.1 Background

Tourism constitutes one of the largest and most profitable industries in many developing countries, and Zambia stands to benefit significantly from this sector. By its very nature, it is well suited for the application of information and communication technologies which potentially can enhance the efficiency of service delivery and transactions as well as increasing opportunities to provide access to a wider variety of recreational and leisure experiences. Emerging technologies such as Geographic Information Systems, Global Position System and Remote Sensing are highly suited for assisting in planning and monitoring of environment and natural resources. Therefore, such technologies shall be applied wherever possible in the sector.

Key stakeholders include:

- Consumers, tourists
- Travel agencies, tour companies, etc.
- Craft and souvenir providers and merchants
- Hospitality industry operators such as hotels, restaurants etc.
- Commercial service providers such as insurance, banking, etc.
- Tourism development and promotion organizations
- Operators of entertainment and cultural attractions such as amusement parks and museums
- Transportation industry such as airline and car rental companies

6.4.7.2 Sector Goal:

To effectively market the full potential of Zambian Tourism and promote the conservation of heritage and natural resources

6.4.7.3 Objectives:

Objective 1: Market Zambia as a world class, niche tourist destination to the regional and international market

Strategies:

The Government through the Ministries responsible for ICT, Tourism and Transport infrastructure in conjunction with the private sector shall:

- a. Develop information platforms (portals) for niche tourism products and destinations
- b. Create databases for collection of tourist information to support planning, monitoring & evaluation

Objective 2: To support the conservation of the environment and natural resources

Strategies:

The Government through the Ministries responsible for ICT, Heritage, Environment and Natural Resources and Transport infrastructure in conjunction with the Zambia National Remote Sensing Centre and private sector shall:

- a. Establish the National Spatial Data Infrastructure as mechanism for cross sectoral collaboration for sharing and exchange of natural resources information
- b. Develop institutional mechanisms to establish an Integrated Geographic Information System to support heritage conservation and natural resources management

Objective 3: To improve the quality of tourism and tourist support services offered in the country.

Strategy:

The Government in conjunction with the private sector shall:

- a. Develop a Transport Information System to support travel and tour operators in the tourism industry
- b. Build ICT infrastructure in major tourist centres e.g. National Parks
- c. Create and promote Internet based information portals to support awareness on the various tourist attractions and destinations in the country among the public and tour operators
- d. Promote and integrate ICT skills in the provision of world class training programmes by the hospitality training service providers
- e. Promote and support the development of E-Commerce solutions in the tourism sector

6.4.7.4 Challenges and Threats

Some of the major challenges and threats in the tourism sector are;

Inadequate ICT infrastructure

Inadequate ICT infrastructure presents significant barriers to the deployment and effective application of ICTs in the tourism sector. Adequate access to electrical and telecommunication networks are essential if stakeholders in the sector are to benefit from ICT use.

Inadequate Information about tourism products and services

Information on untapped tourist resources, potentially sources of wealth generation, is often inadequate in Zambia. International, as well as national visitors often lack information on tourism destinations, services, and facilities.

Human Resources

Significant levels of ICT competence at strategic, technical, and operational levels are required if know-how and training is to support the tourism industry in Zambia.

6.4.8 YOUTH AND GENDER

6.4.8.1 Background

There is little doubt that ICTs will impact every aspect of our lives, now and in the future. The successful penetration of ICTs with existing social and economic structures depends on people. The readiness or willingness of people to change and adapt to the new technologies will determine the rate and the nature of the transformation in our lives due to ICTs. To date, the focus on the impact of ICTs has been in the areas such as business, education, and health.

The people are Zambia's most valuable resource for development. They are both the agent and beneficiary of development and therefore, should be the centre of policy formulation and programming. The youth constitute about sixty (60) percent of the population, therefore, they are the link between today and tomorrow. While women constitute about fifty-one (51) percent of the population, the need for addressing gender issues through the use of ICT has not been explored sufficiently despite the positive role it can play in areas such as programmes to address the issues of child labour through the use of ICTs.

With the afore-going, it is important that the ICT Policy should be people centred, youth friendly and gender re-distributive; promoting fair access to and ownership of ICT ventures.

Key Stakeholders include:

- Pupils/Students
- Education Institutions
- Parents
- NGOs and Civil Society (youth and women based)
- Employers
- Law enforcement agencies
- Recreational Centres
- Sports Academies
- Reformatory Centres
- Media Institutions

6.4.8.2 Sector Goal:

Increase participation and empowerment opportunities for youth and women in national development through ICTs

6.4.8.3 Objectives:

Objective 1: To promote ICT as an alternative career for youth and women in the formal educational system and beyond

Strategies:

The Government through the Ministries responsible for Youth and Gender portfolios, in conjunction with traditional leadership and civil society shall:

- a. Facilitate the setting up of special programs of training and qualification of youths and women in ICTs

- b. Develop and promote ICT awareness programmes among youths and women

Objective 2: To empower and encourage creativity and innovation among youth and women

Strategies:

The Government through the Ministries responsible for Youth and Gender portfolios, in conjunction with traditional leadership and civil society shall:

- a. Promote the use of ICTs as tools to reduce and eliminate the inequalities between sexes
- b. Encourage the participation and integration of women and youths in the organs and processes of national policy formulation, planning and decision-making
- c. Promote youths and women as ICT entrepreneurs through incubator projects among others.
- d. Promote affordable access to ICTs by youths and women
- e. Promote moral use of ICTs such as the Internet among youths

Objective 3: To provide a forum for collaboration and exchange of ideas on matters affecting youths and women

Strategies:

The Government through the Ministries responsible for Youth and Gender portfolios, in conjunction with traditional leadership and civil society shall:

- a. Facilitate and encourage the development of electronic networks and websites for associations and organisations engaged in the advancement of youth and women.
- b. Promote and use ICTs in addressing social issues such as health among youth and women
- c. Promote electronic regular consultative processes and exchange of information among youth and women

6.4.8.4 Challenges and Threats

Lack of ICT facilities in the Recreational centres

Availability of limited or non-existence of community recreational centres with ICT facilities in the country is reducing the opportunities for youths and women to gain access to ICTs, thereby widening the digital divide

Low interest of women in ICTs

Low interest in science and technology courses among girls and women at basic education level is likely to slow the uptake of ICT by girls and women.

6.4.9 HUMAN RESOURCES DEVELOPMENT

6.4.9.1 Background:

Human and intellectual capital is the most important resource in the quest for sustainable social and economic development of the country. ICTs are now a focal point for national development in many countries. Therefore, there is need to have highly qualified and skilled manpower in the ICT sector to take full advantage of opportunities presented by the new global information-based economy.

The major challenge is on creating training opportunities and also promoting a national environment that is conducive to job creation and job enrichment in the ICT sector.

Key stakeholders include:

- Employees
- Employers and entrepreneurs
- Chamber of Commerce (and other employer associations)
- Training providers
- Educational institutions
- Human Resource and Management consultants
- Policy planners
- Employee Unions
- Social security and employment insurance providers
- Career development professionals

6.4.9.2 Sector Goal:

Develop world class and globally competitive human resource in ICTs

6.4.9.3 Objectives:

Objective 1: To increase the ICT skills base among the human resource available in the country

Strategies:

The Government through the Ministries responsible for Education and Science & Technology portfolio in conjunction with TEVETA, Curriculum Development Centre, Manpower Development Division at Cabinet Office and other education/training providers shall:

- a. Develop and implement the ICT Human Resources Development Plan for Zambia
- b. Develop and ensure the integration of ICT curricula in all educational levels in the public sector
- c. Define minimum ICT skills requirements for government and public sector management levels
- d. Develop incentives to private sector organisations to invest in ICT education and training programmes
- e. Introduce vocational short-term programmes in institutions of higher learning
- f. Promote ICT training by means of distance education

Objective 2: To promote the development and creation of ICT business incubators and Science Parks

Strategies

The Government through the Ministries responsible for the Science and Technology and Commerce & Trade portfolios in conjunction with the Zambia Export Processing Zones Authority, Zambia Investment Centre, Export Board of Zambia, NISIR and the National Technology Business Council shall:

- a. Identify and facilitate the creation of Centres of Excellence for the training of ICT professionals as well as in the application of ICT's
- b. Identify and promote the development of ICT Incubator projects and science parks in the country
- c. Promote the development of internationally competitive ICT products (hardware/software) and services for local and export markets
- d. Ensure Government creates the ICT Development Credit Facility to provide seed funding for Zambian entrepreneurs
- e. Ensure Government gives preference to local ICT products and services in the procurement process.

Objective 3: To increase the number of ICT professionals in the country

Strategies:

The Government through the Ministries responsible for ICT, Education, Science and Technology in conjunction with the National ICT Agency and the private sector shall:

- a. Promote the importance of ICTs among the youths as an alternative career path
- b. Promote the development of basic science and technology courses in schools
- c. Develop and promote special programmes for girls and women to take up ICT as a career
- d. Promote Zambia as a preferred ICT outsourcing destination in the SADC and COMESA regions
- e. Develop and promote ICT training programmes in communities in conjunction with local authorities
- f. Promote the *training of trainers* of ICT programmes at various levels
- g. Develop and promote programmes for re-skilling of existing workforce in industry and government

6.4.9.4 Challenges and Threats

The major challenges and threats in securing a sound human resource base in the country are:

Weak ICT literacy base

This is a major obstacle in Zambia, as most ICT skills require individuals to be trained in basic education before they can grasp the fundamentals of the technology

High cost of technology training

ICT training programmes e.g. certification programmes are costly and unaffordable by many Zambians. This makes ICT training inaccessible to most individuals and companies, thus resulting in uneven distribution of employment opportunities

“Brain Drain”

There is a constant loss of skilled personnel from Zambia to other countries in search of better job opportunities. This, coupled with the high turnover within local ICT sector, makes employers skeptical about investing in employee training

Existing high unemployment rates

This situation may result in trained workers being unable to find employment. On one hand, it may lead to migration of skilled workers; or on the other hand, it may discourage others from investing their time and money in obtaining ICT training.

Inadequate ICT offerings in education system

Not many institutions are offering ICT based courses in the education system thus choice is limited and intake numbers are on the low side.

Absence of visionary planning and policy implementation

Generally, there is lack of management skills for policy formulation and strategy implementation necessary for efficient promotion and development of human resources both in the public and private sectors.

6.4.10 ICT SERVICES

6.4.10.1 Background:

Information services such as newspapers, libraries, TV and radio content are critical to the development of an information society that Zambia has committed to attain by 2020. This realisation is only possible if affordable and sustainable ICT's services are made available on demand – availability when and where the service is required. This approach requires use of Multi-channel ICT services such as radios, TV, newspapers, phones etc to reach the intended target groups.

Key stakeholders include:

- Telecommunications Network Operators
- Data Network Providers
- Internet Service Providers
- Local Content Providers
- Newsprint providers
- Broadcasters

6.4.10.2 Sector Goal:

Ensure timely provision of appropriate, affordable, cost-effective and equitable access to Multi-channel ICT services across the country

6.4.10.3 Objectives:

Objective 1: To deploy telecommunication services across the country

Strategies:

The Government through the Ministry responsible for the ICT portfolio in conjunction with the National ICT Agency, the Regulator and telecommunications service providers and operators shall:

- a. Facilitate the planning, designing and development of a scalable and high quality digital fixed and mobile communications services, internet and data services in all districts by the year 2008
- b. Promote the proliferation and growth of SMEs in the provision of value-added ICT services in all districts
- c. Facilitate the reduction in cost of access to industrial and consumer electronic goods required to transform Zambia into an Information Society by instituting measures such as fiscal and incentive based initiatives

Objective 2: To deploy quality multi-channel (phones, radio, TV, newsprint and value-added services) ICT services in the country

Strategies:

The Government through the Ministry responsible for the ICT and Media portfolios in conjunction with the national broadcaster and other agencies shall:

- a. Facilitate the planning, designing and development of a scalable and high quality digital radio and TV signal transmission network in all districts by the year 2010
- b. In conjunction with private sector and traditional leadership, promote and support the establishment of community radio stations in all districts
- c. Support the Decentralisation Policy by establishing Multi-Channel Information Centres in conjunction with the respective local authorities in each district
- d. Install internet and email services in palaces of paramount chiefs and traditional rulers who are members of the House of Chiefs
- e. Support the effective participation of Zambians in the provision of ICT services by establishing an ICT Development Credit Facility to promote and jump start the emergence and growth of entrepreneurs in the sector

Objective 3: To create easily accessible, affordable and innovative ICT public access points through postal and library services offered across the country

Strategies:

The Government through the Ministries responsible for ICT and Education in conjunction with the Zambia Postal Services Corporation, Zambia Library Service and the Regulator shall:

- a. Enhance the products and services offered in the current postal centres in each district to include operation as Public Access Points for Internet and other ICT services through private sector participation
- b. Enhance the products and services offered in the current public library centres to include operation as Public Access Points for Internet and other ICT services through private sector participation
- c. Use the Post Offices and public libraries as primary points for interaction in E-Government and E-Commerce applications across the country
- d. Promote the expansion of the “enhanced” postal network to offer ICT services through “Community ICT Centres” in rural centres
- e. Promote the expansion of the “enhanced” library network to offer ICT services through “Community ICT Centres” in rural centres

Objective 4: To promote the expansion and growth of Internet Services in Zambia

Strategies:

The Government through the Ministries responsible for ICT portfolio in conjunction with the Regulator and Internet Service Providers shall:

- a. Facilitate the formalisation of the existing Internet Exchange Point arrangement in Zambia to be operated in the interim by the public PSTN operator on such terms and conditions agreed upon by all licensed Internet Service Providers in the country
- b. Ensure that Internet access and other value added services are available in all districts by the year 2006 at local call cost regardless of the connection network and Internet Service Provider used by the consumer where applicable

6.4.10.4 Challenges and Threats

Effective implementation of the strategies above requires identifying and anticipating the potential challenges, at both domestic and international levels, that affect the effective deployment and use of ICT infrastructure. Some of the challenges are;

Participation of private sector in value-added services

The level of private sector participation in the provision of value-added ICT services is crucial in the proliferation of services in various parts of the country

Incentives for private sector investment

One of the major concerns of the private sector is access to investment funds. Therefore, any form of incentives meant to support investment by the private sector is highly encouraged

Targeted operationalisation of the Universal Service Fund

The Universal Service Fund operated by the Regulator can go a long way in providing ICT services in various parts of the country. However, targeting the impact of the utilisation of the funds is very important especially in underserved and remote areas

Public-Private Partnerships

Proliferation of ICT services in underserved and remote areas will only be realised if Government commits itself to participating with the private sector by providing “subsidy” in the initial investment to reduce the risk for private sector

Supporting Infrastructure

Deployment of affordable and sustainable ICT products and services is dependent on the availability of “enabler facilities” such as roads, electricity and other social amenities critical to sustaining livelihoods

CHAPTER 7: MEASURES

7.1 Background:

The social and economic challenges facing Zambia and the opportunities that ICTs offer pose complex policy choices for the government. The Government has to address the implementation of ICTs amid strong competition for limited financial resources from other sectors of the economy. In addition, consideration has to be given to other cross cutting areas such as governance, gender and human resource development and appropriate legislation, security, privacy and protection of intellectual property rights.

The successful implementation of the ICT Policy objectives depends on an integrated and wholesome approach underpinned by developing strategic synergies and partnerships between the public and private sector as well as the civil society. This implies clear definition of the roles, responsibilities and functions of all the stakeholders. Developing this mutual understanding requires a deliberate and open process of broad-based consultations among all major stakeholders.

Neither government nor industry can by itself create the necessary conditions for success in ICTs. Therefore, it is fundamental for government to create the right policy conditions that allow Information and Communication Technologies to flourish. Yet it is equally important for the private sector to take a leading role in investment and lend its own expertise to the planning and implementation process. The national ICT leadership should reflect responsibilities across public, private, and civil society.

7.2 The Role of Government

Government is the largest buyer of ICT goods and services in the country, and is a critical provider of services to its citizens. The Government is also the single largest collector, user and disseminator of information in the country. Hence, the government can and does play an important and catalytic role in moving Zambia into the information society by integrating ICTs in the delivery of services to the citizens.

The single most important role for government is to provide vision and leadership in the area of ICTs. The government can set a positive national tone and sense of urgency in a way no other stakeholder will. The government is duty-bound to provide an enabling political, institutional and legal environment to guide the participation of other stakeholders. Therefore, the political leadership in the country takes centre stage in the elaboration of a coherent national strategy for Information and Communication Technology as a matter of real priority. The Government shall ensure the formulation of short, medium and long-term implementation plans of this policy in tandem with the National Development Plans and other strategic frameworks.

Secondly, Government will actively promote local participation of Zambian citizens through deliberate empowerment strategies including leveraging its procurement operations.

In summary, the Government's role in ICT Policy implementation will also include the following responsibilities;

- a. Developing the required technical capacity for ICT Policy development and implementation in all Ministries and public sector organisations
- b. Establishing a Department of ICTs in the Ministry responsible for the ICT portfolio
- c. Providing visionary and catalysing leadership in the implementation of the ICT Policy at all levels.
- d. Developing broad ICT skills and knowledge base in the public sector
- e. Devising a political, institutional, economic and legal framework that promotes competition at all levels in the ICT sector
- f. Developing change and project management skills with a view to integrating ICTs in the public sector as part of Public Sector Reform Programme
- g. Providing the necessary technical and financial resources in achieving the objectives of the policy
- h. Mobilising regional and international development organisations to support the implementation of the policy
- i. Ensuring continuous monitoring and evaluation of the ICT Policy interventions and outcomes.
- j. Take the leading role in mobilising resources and encouraging smart partnership between public and private sector operators.

7.3 The Role of Parliament

The liberalisation of the telecommunications, postal and broadcasting sectors worldwide have opened new requirements for transparent and effective legal and regulatory environments. Therefore, the role of Parliament in the effective implementation of the ICT Policy shall include among others;

- a. Amendment of existing legislations to support the establishment of a converged Regulator as well as to enhance the legal environment to ensure smooth operations of the Regulator
- b. Creation of legislation to support the establishment of the National ICT Agency
- c. Facilitate the allocation and approval of financial resources for the implementation of the ICT Policy in the public sector
- d. Monitor the effective utilisation of resources allocated to public sector institutions in the implementation of the ICT Policy
- e. Ensuring that good governance principles are applied and adhered to in the implementation of the ICT Policy by public sector institutions

7.4 The Role of the Private Sector

The importance of entrepreneurship and partnerships between government and the private sector in the development of ICTs cannot be over-emphasised. However, given the nascent nature of the ICT industry in Zambia, government is committed to providing a conducive environment for the growth of a locally based and globally competitive ICT sector.

On the other hand, despite its size, the private sector plays a catalytic role in the formulation and implementation of the ICT policy. Thus, the private sector is encouraged to:

- a. Support and participate in innovative and productive ways of establishing a competitive local ICT sector so as to guarantee Zambia's competitiveness in the global market.
- b. Take advantage of business opportunities resulting from the implementation of the information society initiatives such as NEPAD and AISI
- c. Provide incentives for ICT skills re-training of their workforce
- d. Participate in the provision of cost-effective technical education and internationally recognised certification programmes in ICT.
- e. Articulate the large and growing opportunity cost of under investment in basic National ICT Infrastructure.
- f. Develop local capability for manufacture of ICT products and creating innovative services for local and export markets.
- g. Invest in ICT projects for rural and underserved urban areas as well as traditionally disadvantaged areas
- h. Participate in policy formulation and implementation process on an ongoing basis.

7.5 The Role of Higher Education and Research Institutions

Institutions of higher education and research in developed countries play a leading role in the development of science and technology. They do the fundamental and applied research, and their results are then applied by industry to provide scientific and technological solutions that contribute to social and economic development for the welfare of citizens.

It is in this vein that the Zambian tertiary education and research institutions must play the major role in seeking and implementing methodologies and solutions which will allow the expansion of the use of ICTs for production processes, the provision of services, the improvement of teaching and learning as well as research in order to improve living conditions in the country.

Therefore, scientific and research institutions are encouraged to undertake the following initiatives in close collaboration with Government, private sector, civil society and other partners;

- a. To expand and consolidate the use of ICTs in research and development
- b. To mainstream and emphasise the teaching of ICT in curricula.
- c. To use ICTs to extend scientific and research facilities and increase access to higher education
- d. To assume leadership in testing new technologies, and to recommend to the Government, the private sector and society in general the appropriate actions to be taken;
- e. To apply the technologies for the benefit of the people through the implementation of projects;
- f. To create a Centre of Excellence with specialised and multi-disciplinary research teams on ICTs
- g. To produce advanced solutions appropriate to the challenges of national development

- h. To systematically publish and disseminate the results of research and experimentation, both by traditional means and by means of the new ICTs, especially on the Internet

7.6 The Role of Civil Society

Government recognises the important role that civil society (represented by mass organisations, non-governmental and professional organisations, unions, community-based organisations, etc.) play in the social and economic development of the country. Civil society is a fundamental element in the preservation of human rights and in the development and consolidation of democracy.

The challenges that face civil society in this area are related to:

- Low literacy levels especially in the rural areas and the underserved poor urban communities
- Inadequate telecommunications, electricity and road network infrastructure
- Weak institutional coordination mechanisms amongst the different stakeholders.

Therefore, civil society is encouraged to undertake the following initiatives in coordination with Government, private sector and other partners:

- a. To exploit the potential of ICTs in the dissemination of information and knowledge;
- b. To use ICTs as a vehicle for the transmission and dissemination of information in development programmes; and
- c. To incorporate an ICT component in community development programmes, and in programmes of cooperation with international organisations
- d. Create institutional mechanisms (NGOs, CBOs etc) to spearhead ICT awareness and implementation of community projects

7.7 The Role of Co-operating Partners

Access to information and knowledge resources through ICTs is now widely recognised as a vital input in accelerating social and economic development, especially for developing countries like Zambia. Today, the concept of ICTs and development is a priority agenda item in the work programmes of many international organisations and development agencies.

Zambia will seek to actively participate in various fora to exchange lessons and experiences as well as learn from and contribute to international best practices.

Therefore, the Government is encouraging cooperating partners involved in sustainable development programmes in Zambia to undertake the following initiatives:

- a. To mobilise technical and financial resources to support in the implementation of the ICT Policy.
- b. To integrate ICTs in their development cooperation support programmes in Zambia

- c. To mobilise the support of other partners in the fundamental areas of education, infrastructure and universal access, health, governance, scientific research, commerce, etc to participate in implementing the ICT Policy.
- d. To facilitate the setting up of links and relationships between national academic and research institutions and similar institutions abroad
- e. To support the participation of Zambia in international fora concerned with the use of ICTs for development
- f. To promote and encourage investment in ICT through Foreign Direct Investment

7.8 Other Issues

7.8.1 Emergency Response

Government recognizes the importance of public safety in times of man made or natural disasters. Therefore, the role of ICTs in mitigating disasters will be enhanced by ensuring disaster preparedness and quick response at all times.

In this context, the Regulator shall:

1. Ensure that regulatory barriers and other restrictions on the provision of ICT resources that are required for disaster mitigation and relief operations are minimised or removed.
2. Be mandated in disaster situations to promote the adoption of measures that would ensure safety and security of life through uninterrupted ICT services.
3. Ensure that the operators and service providers shall participate in the establishment of a national disaster and emergency communications system that will support the work of national disaster management organisations.
4. Facilitate the planning and implementation of the emergency communication system, in coordination with both public fixed and public mobile operators, as well as operators of print and electronic media, and national emergency and security agencies.

7.8.2 Regional and International cooperation

The rapid changes and growth in the ICT sector worldwide have led to increasing interest being attached to international and regional relations. Government, through the Ministry responsible for the ICT sector and the Regulator in conjunction with the Ministry responsible for Foreign Affairs shall:

1. Fully participate in international and regional fora in matters related to ICTs with a view to promoting international and regional cooperation in various fields
2. Ensure that all stakeholders including civil society and private sector are timely and adequately consulted as appropriate when participating in such fora.

7.8.2 Multilateral trade

Government is fully committed to promoting global trade in services particularly telecommunications services in line with its obligations towards the World Trade Organisation (WTO). Therefore, Government shall:

1. Pursue the liberalisation of the ICT sector to strengthen the potential of local entrepreneurs, operators and service providers to favourably compete on local and export markets through products and services
2. Facilitate foreign investors to participate to the greatest extent possible in the development of the ICT sector.
3. Participate in the trade process of multilateral fora that are leading efforts to reform, for example the World Trade Organisation's Group on Basic Telecommunications (GBT) in order to further attract international expertise and resources.

CHAPTER 8: IMPLEMENTATION FRAMEWORK

This section outlines the institutional arrangements; the legal/regulatory framework to facilitate the successful implementation of the ICT Policy as well as outline resource mobilisation activities required and finally indicates the mechanism for monitoring and evaluation of performance of the implementation process.

8.1 Institutional Framework

In the ICT sector, MCT oversees the operations of the following corporate bodies on behalf of the Government:

- Communications Authority
- Zambia Telecommunication Company
- Zambia Postal Services Company

The Ministry of Communications and Transport (MCT) is responsible for overall policy formulation and monitoring of the performance of the telecommunications industry. However, this policy recognises the new role of the Ministry of Communications and Transport as the overall portfolio for policy formulation in the country. On the other hand, the National ICT Agency shall be responsible for coordination of ICT programmes and projects with the support of sector ministries, private sector and civil society as well as other implementing agencies.

The ICT sector is a convergence zone of telecommunication technologies, computing, broadcasting with a wide range of applications that are cross-cutting in various sectors such as health, education, commerce, public administration, environment, etc.

In addition, there are other civil society and private sector organisations working on different aspects of the ICT sector. However, due to lack of an integrated policy framework there has been fragmented approach with costly duplication of efforts in the implementation process. To address the problems highlighted above, and to ensure the successful implementation of the policy framework, the following three institutional components are required:

- Coordination of programmes and work plan implementation
- Resource Mobilisation
- Monitoring and Evaluation

8.1.1 Sector Restructuring

In building the ICT sector along with the repositioning of the role of the Ministry responsible for ICTs and the Regulator, it is necessary to re-design the operating environment to ensure that ICT infrastructure and services are actually delivered to users at affordable prices and can be sustained. This will amongst other things require the following:

- i. The formulation of fair and consistent guidelines by the *Regulator* in respect of investment and entry conditions specific to the ICT sector and make them known to the general public. In particular, in telecommunications, broadcasting, postal and other services, the formulation of clear operating policies/guidelines shall include among others:
 1. Licensing conditions and mechanisms
 2. Definition of Universal Service Areas and Targets
 3. Definition of competitive and exclusive services to be offered by the operators/service providers
 4. Duties and Responsibilities (Obligations) of licensed operators
 5. National ICT and/or Operator Infrastructure sharing
 6. Price regulation/tariffs
 7. Interconnection and Access agreements between and among operators
 8. Frequency spectrum management
 9. Numbering plan
 10. Domain name management and registration
 11. Standards compliance and enforcement
 12. Consumer protection affairs
 13. Consumer/Operator complaints handling and mediation procedures
 14. Empowerment mechanisms for participation of Zambians in the licensed ICT ventures
 15. Penalties pertaining to regulated services
- ii. The provision of affordable, accessible and improved services by removing exclusivity on segments of the ICT sector not yet open to competition within the shortest possible time frame not exceeding two (2) years.
- iii. Creating a level playing field that encourages competitiveness, interoperability and adoption of new technologies that can accelerate development in the sector
- iv. Setting clear and enforceable Universal Service policies and Obligations of operators and service providers

8.1.2 Coordination of Programmes

For the successful implementation of the ICT Policy, the Government shall:

- a) Establish an independent and autonomous converged ICT Regulator with clear specification of responsibilities and powers. However, the establishment of such a body shall take into account the relevance and functions of existing regulators (where applicable) in sectors including telecommunications, broadcasting and postal services.
- b) Establish the National ICT Agency operating under the Office of the President, representing various stakeholders to coordinate the implementation of ICT activities in the country. The Agency will be mandated through relevant legislation to:

- i. Advise government on National ICT requirements and policy matters
- ii. Ensure the achievement of the country's ICT vision in coordination with other stakeholders
- iii. Foster and coordinate accelerated development of ICTs in Zambia at national level and in the decentralised local government system
- iv. Assist national, provincial and district administrative and planning institutions to develop/deploy ICT programmes
- v. Promote the development and expansion of the ICT industry in Zambia in conjunction with relevant bodies such as the Zambia Investment Centre
- vi. Facilitate universal access to ICTs by developing expansion programmes/targets for operators/implementers in conjunction with the Regulator
- vii. Promote and coordinate broad based ICT human resource development in the country
- viii. Promote ICT products/ services and awareness at all levels through expos etc
- ix. Develop and maintain a national inventory of public sector ICT programs and projects
- x. Ensure that Government and other public sector institutions integrate ICTs in their business and development programmes
- xi. Conduct countrywide regular ICT surveys to monitor and evaluate performance in the sector

In the interim period, before the legislation establishing the National ICT Agency is enacted, the Committee of Ministers on ICT will undertake adhoc measures to ensure co-ordination of the initiation of the functions of the National ICT Agency so as:

- To build a sense of urgency in the implementation of the ICT policy
- To build broad based awareness and commitment towards the implementation of the ICT Policy

Board of Directors

There shall be a Board of Directors established to supervise and oversee the work of the National ICT Agency. The Chairman of the Board shall be appointed by the President of the Republic of Zambia on the recommendation from the Minister responsible for the ICT portfolio. The Board of Directors shall consist of eminent persons in society drawn from private, public sector, academia and civil society.

Committee of Ministers on ICTs

A Committee of Ministers shall advise the Board of Directors on sectoral policy matters affecting the ICT sector; the Republican President shall chair the Committee of Ministers. The Committee of Ministers shall comprise Ministers responsible for the following portfolios drawn mainly from the priority sectors identified earlier:

1. Agriculture
2. Communications
3. Commerce and Industry
4. Defence and Security
5. Education
6. Energy

7. Finance and National Planning
8. Health
9. Information and Broadcasting
10. Science and Technology
11. Tourism, Environment and Natural Resources
12. Youth, Sport and Child Development

8.2 Legal and Regulatory Framework

8.2.1 Legal Framework

In accordance with the foregoing proposed institutional framework, Government shall review the existing or enact new legislation relating to ICTs to integrate the principles and strategies of this policy in order to develop an ICT friendly environment supporting both Local and Foreign Direct Investment. Special emphasis shall be placed on effective discharge and enforcement of the regulatory functions.

Among the laws that will require comprehensive reviewing and/or amendment are:

- i. Telecommunications Act of 1994
- ii. Radio Communications Act of 1994
- iii. Investment Act
- iv. Independent Broadcasting Authority Act of 2002
- v. Postal Services Act of 1994
- vi. Competition and Fair Trading Act

8.2.2 Regulatory Framework

Consumer Protection

(a) Quality of service

The Regulator has the primary responsibility to determine the minimum performance levels by setting quality of service standards for a range of products and services offered on the market. This ensures that customers will enjoy competitively priced services without compromising on quality. Therefore, the Regulator shall:

1. Ensure that the operators and service providers are obliged to furnish periodic reports of their service quality to the regulator
2. Conduct surveys to monitor customer satisfaction and to get feed back from customers on how improvement could be made
3. Follow up matters with the operators and service providers to correct the areas of weakness, and upgrade the average set standards maintained by the Regulator to ensure a gradually higher level of service quality to the customers, failure to which the regulator shall exercise powers to impose sanctions for violation of compliance by operators and service providers including monetary penalties
4. Ensure that operators and service providers enter into service level agreements with their customers to implement a new innovative way to provide service guarantees and quality of service.

(b) Resolution of disputes

In order to ensure smooth operation in the ICT sector:

1. The Regulator is mandated to investigate consumers' complaints against service providers/operators for violation of terms of service, disputed bills, and such other matters related to services provided
2. The Regulator shall establish formal complaint review procedures including public hearings, and shall require all licensed operators and service providers to establish their own procedures to respond to consumer complaints
3. The Government through the Minister responsible for the ICT Portfolio shall establish an Independent ICT Tribunal to hear ONLY appeal cases arising from decisions made by the Board of Regulators in relation to dissatisfied consumers or service providers/operators

(C) Regulation, charges & tariffs

Under a fully competitive environment, market forces are more effective than regulation in providing consumers with a wide choice of services at reasonable prices. Hence, Government recognises the vital role of protecting consumers by promoting the competitiveness of business in Zambia. Therefore, the Regulator shall put market mechanisms to ensure competition in the ICT sector at all times.

(d) Universal service Obligation (USO) and Universal Service Fund (USF)

Government strongly believes that universal access to ICT services is an essential tool in combating poverty through social inclusion of all citizens in developmental matters. The Universal Service Obligation (USO) is the obligation placed on operators and service providers to ensure that standard voice/fax services, payphones, radio and TV, postal services, Internet services, text message services, E-mail, and prescribed value-added services are available to the whole population in Zambia at affordable and reasonable cost. The Regulator shall be responsible for prescribing and developing specific indicators of ICT access that reasonably meet Zambia's social, industrial and commercial aspirations. The appropriate targets will be identified by the regulator in conjunction with the National ICT Agency to ensure that universal service/access is attained within a reasonable time frame.

The resources for meeting the USO shall be raised through a Universal Service Fund (USF), which will be a percentage of revenue earned by all operators under various licences. All operators and service providers in addition to the license fees payable will pay such annual contributions to the USF.

The USF will be established and administered by the Regulator. All licensed operators and service providers, who will be reimbursed from the USF if applicable under the particular license shall undertake the implementation of the USO. Other service-based carriers will also be encouraged to participate in USO provision subject to technical feasibility and will also benefit from reimbursement from the USF where applicable.

In the implementation of USF, the Regulator shall establish a committee which will represent operators and service providers, civil society, private sector, consumer associations and Government to advise on the most efficient and effective utilisation and operation of the USF. This committee shall also be responsible for exploring the possibility of utilising these funds for other ICT based public service projects in fields such as education, health and social welfare.

(e) Consumer safeguard and information

Consumers are faced with many new ICT products and services with a wide variety of packages and prices. In such a situation, there is need for information to make decisions so that they can have access to new growing variety of services at reduced prices, and obtain better quality services. Therefore, the Regulator shall place the consumer at the centre of the regulatory process in all matters relating to the ICT sector by:

1. Ensuring adequate information flow to the consumers by way of publications and press releases in national papers, radio and TV, and Internet among other means
2. Undertaking public education and awareness programmes targeted at all stakeholders
3. Publicising the performance of the ICT sector and project the outlook and growth of the sector in the short, medium and long term

8.3 Resource Mobilisation

To ensure effective coordination of the development of the ICT sector as well as effective resource utilisation, the Government shall:

- a) Facilitate the mobilisation of internal and external financial and other resources for the realisation of the ICT Vision
- b) Establish a National ICT Development Fund, through which all resources for ICT development from Government, cooperating partners, civil society or the private sector, shall be channelled
- c) The National ICT Agency shall be responsible for the collection, disbursement, management and accounting of the National ICT development fund.
- d) Ensure that all public-sector funding to the ICT sector will be channelled through the National ICT Development Fund
- e) Provide seed funding to the National ICT Agency of not less than one percent (1%) of the Gross Domestic Product on a yearly basis
- f) Introduce an ICT levy in order to jumpstart the funding for the ICT Policy implementation

8.4 Monitoring and Evaluation

To underpin the effective and co-ordinated implementation of the ICT Policy, there is need for a strong monitoring and evaluation mechanism by implementing agencies under the overall coordination of the National ICT Agency, which should provide the following:

1. Focus on delivering defined objectives with measurable benefits within specified time scales.
2. Strong leadership, continuity, clear accountability and improved project management in all implementing sector ministries/agencies
3. A shared awareness of the extra effort that is required from both the public and private sectors in order to successfully implement the ICT Policy.
4. To measure the leveraging effect of ICT in achieving national development objectives, clear and simple benchmarks shall be established within a monitoring and evaluation framework.