Revolutionary Government of Zanzibar

Ministry of Infrastructure and Communications

ZANZIBAR ICT POLICY

May, 2013

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LIST OF ACRONYMS AND ABBREVIATIONS

DHIS	District Health Information System
GIS	Geographic Information System
HMIS	Health Management Information System
ICT	Information and Communication Technology
IFMS	Integrated Financial Management System
MKUZA II	"Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Zanzibar" No. 2 The Zanzibar Strategy Growth and Reduction of Poverty No. II.
MoEVT	Ministry of Education and Vocational Training
MoH	Ministry of Health
MoIC	Ministry of Infrastructure and Communications
NGO	Non-Governmental Organization
OTC	Over Table Counter
TCRA	Tanzania Communication Regulatory Authority
URT	United Republic of Tanzania
ZAC	Zanzibar Aids Commission
ZACP	Zanzibar Aids Control Program
ZBC[1]	Zanzibar Broadcasting Commission
ZBC[2]	Zanzibar Broadcasting Corporation
ZMCP	Zanzibar Malaria Control Program

GLOSSARY

For the purpose of this document the following words meant;

Broadcasting	Broadcasting means an electronic transmission of information in a form of audio, sound or video by using any known approved transmission media, whether guided or unguided, to members of the public or government entities.
Computer	Means any electronic, magnetic, optical or other high-speed data processing device or system which performs logical, arithmetic and memory functions by manipulations of electronic, magnetic or optical impulses, and includes all input, output, processing, storage, software and communication facilities which are connected or related as a system or network. Transmission
Convergence	Means interlinking of computing and other information technologies, media content, and communication networks that has arisen as the result of the evolution and popularization of the Internet as well as the activities, products and services that have emerged in the digital media space.
Cyber Crime	Defined as: "Offences that are committed against individuals or groups of individuals with a criminal motive to intentionally harm the reputation of the victim or cause physical or mental harm to the victim directly or indirectly, using modern telecommunication networks such as Internet (Chat rooms, emails, notice boards and groups) and mobile phones (SMS/MMS)." Such crimes may threaten a nation's security and financial health.
Cyber Security	Defined as the state of being protected against the criminal or unauthorized use of electronic data. OR It refers to preventative methods to protect information from attacks. It requires an understanding of potential information threats, e.g., viruses and other malicious code. Cyber security strategies include identity management, risk management and incident management.
Digital Divide or Digital Gap	A term used to describe the discrepancy between people who have access to and the resources to use new information and communication tools, such as the Internet, and people who do not have the resources and access to the technology. The term also describes the discrepancy between those who have the

	skills, knowledge and abilities to use the technologies and those who do not. The digital divide can exist between those living in rural areas and those living in urban areas, between the educated and uneducated, between economic classes, and on a global scale between more and less industrially developed nations.
E-Commerce	Means the use of electronic networks to exchange business information, services, product and payments.
E-Government	Means electronic government system through which public services are provided electronically by a Ministry or Government Department, Local Authority, or body established by or under any law or controlled or funded by the Government.
E-Learning	Means the use of technology to enable people to learn anytime and anywhere. It can include training, the delivery of just-in-time information and guidance from experts. E-learning is essentially the network-enabled transfer of skills and knowledge.
Fiber optic	Means a technology that uses glass (or plastic) threads (fibers) to transmit data. A fiber optic cable consists of a bundle of glass threads, each of which is capable of transmitting messages modulated onto light waves. OR refers to the medium and the technology associated with the transmission of information as light impulses along a glass or plastic wire or fiber.
Free-to-air	Means television (TV) and radio services broadcast in clear (unencrypted) form, allowing any person with the appropriate receiving equipment to receive the signal and view or listen to the content without requiring a subscription (or other ongoing cost) or one-off fee (e.g. Pay-per-view).
GIS	Means a computer system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.
HMIS	Means a computer system designed to capture, store, manipulate, analyze, manage, and present all types of health related data.
ICT	Means “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, access and manipulate information.” These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony.

ICT facilities	Means ICT equipment and/or ICT services.
ICT Infrastructure	Means an integrated system of facilities used to provide one or more ICT services.
Knowledge Based Economy	Economy in which knowledge is the primary raw material and source of value. It is characterized by:- 1) Convergence and integration of communication and data processing technologies into ICT 2) Pervasive influence of IVT on economic activity such that the most workers are information workers and most products are information products, and 3) Application of ICT networks throughout the economic institutions, organizations, and processes resulting in very high degree flexibility, weakening of regulatory control, and acceleration of globalization.
Knowledge Based Society	It refers to societies that are well-educated, and who therefore rely on the knowledge of their citizens to drive the innovation, entrepreneurship and dynamism of the society's economy.
Internet	means a *network of networks* that consists of millions of private, public, academic, business, and Government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies.
Local Content	Means any type of material, including written text, imagery, video, charts, graphs, lists or other data that has been created locally for a specific local audience.
National portal	Means a single window of access to information and services being provided by the Government entities. The content in this Portal is the result of a collaborative effort of various Government Ministries and Departments, at the Central/District level.
Operator or Service providers	Means a person or organization that operates ICT facilities and/or services of telecommunications, broadcasting, or ICT applications.
Tele-center	Means a service center equipped with ICT equipment and services and made accessible to public with the intention of filling the digital divide especially in rural areas.
Telecommunication	Means any domestic or international transmission of information by wire, radio waves, optical media or other electromagnetic systems, between or among points of user's choosing.
Telemedicine	Means the use of information and communication technologies in order to provide clinical health care at a distance.

	OR The use of medical information exchanged from one site to another via electronic communications for the health and education of the patient or healthcare provider and for the purpose of improving patient care. - Telemedicine includes consultative, diagnostic, and treatment services from the remote site. - It helps eliminate distance barriers and can improve access to medical services that would often not be consistently available in distant rural communities. - It is also used to save lives in critical care and emergency situations.
Website	Means a connected group of web pages on the World Wide Web regarded as a single entity usually maintained by one person or organization and devoted to a single topic or several closely related topics.
Wide Area Network	Abbreviated as WAN is a communications network that uses such devices as telephone lines, satellite dishes, or radio waves to span a larger geographic area than can be covered by a LAN.

FOREWORD

Information has become the most valuable instrument for the development in the Information Age. The key is to use it in such a way as to leapfrog stages of development in order to rapidly attain a thriving economy and a society where each individual can achieve her or his full potential. In our quest to achieve prosperity, we should not lose sight of the opportunities offered by the technologies driving the Information Revolution to preserve our culture, expand our horizons and develop a more participatory democracy.

The constant evolution of technology brings about major paradigm shifts in human society. For example, our ability to develop technologies to harness food and energy from plants and animals and later from non-living sources such as coal, water, solar and wind led to the agricultural and industrial revolutions. Recent advancements in communications, computing and information technologies have brought about today's Information Revolution.

The ever-increasing capacity of Information and Communication Technologies (ICT) is further empowered by the rapid growth of a global computer networks such as Internet. These advancements have transformed the way in which business is conducted, revolutionized learning and knowledge sharing, generated global information flows and empowered citizens and communities in new ways that have redefined governance. As in times past, this new paradigm requires that we learn new skills, employ new technologies and use different resources. Most importantly, we must learn to use technology to do things differently.

Countries that have harnessed the potential of Information and Communications Technology (ICT) have attained significant social and economic development; and they are rapidly transforming into information and knowledge based economies. The development of the ICT sector is vital to succeed in producing more value with information-based decision-making processes, developing an inclusive information society and sustaining economic activities and growth towards making the country more prosperous.

The Revolutionary Government of Zanzibar recognizes the pivotal role of ICT sector towards the sustainable socio-economic development; equally important is that ICT enabled development in Zanzibar should be policy led, ensuring a better synergy

between the public and private sectors and alignment with national goals. This is the first time that a comprehensive ICT Policy has been elaborated to realize the vision of making Zanzibar knowledge-based society. This Policy document brings together the economic, social and political dimensions of our initiatives in the area of Information and Communication Technologies.

The implementation of this Policy will be an immense challenge for Zanzibar with its limited financial resources and low levels of ICT penetration and literacy. Political leadership and a shared vision will be critical to its success. I am confident that we will succeed in this grand undertaking to transform our nation into a knowledge-based society and call upon all stakeholders to actively participate.

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Hon. Rashid Seif Suleiman

Minister for Infrastructure and Communications

1.0. INTRODUCTION

1.1. Background

Information and Communication Technology (ICT) advances since the beginning of 20th century, and gains the momentum which continues up to the moment. The ICT capacity has been raising and at lowering cost as predicted by the Moore's Law[1], making the technology to swim in the public knowledge pond.

ICT advancement led to the convergence of broadcasting, telecommunications, computing and data. It has impacted the way business is conducted, facilitated learning and knowledge sharing, generated global information flows, empowered citizens and communities in ways that have redefined governance, and have created significant wealth and economic growth resulting in a global information society.

It has been established that information is a key factor for any development process. In light of the catalytic role that information plays in national development, the Government intends to set up a policy framework that ensures optimum utilization of this resource towards socio-economic development. For the Government to implement the long term national development programs like the Vision 2020, MKUZA II, and others, timely and relevant information must be available at all levels of implementation.

The Zanzibar Vision 2020 envisage on the following areas; enhance social and macro-economic management, promote diversification and transformation of the economy to competitive one, promote sustainable tourism, fishing and industrial sector, strengthen trade sector, promote human resources development, encourage information and information technology, encourage environmental protection and the promotion of good governance, capacity building and peace and stability. It is also noteworthy that Vision 2020 explicitly includes ICT by noting the promotion of telecommunication and encouraging information and information technology.

Moreover, MKUZA II acknowledges the importance of integrating ICT especially in the aspect of information dissemination to stakeholders informing the status of the implementation; and particularly in the implementation schedules presented in clusters'

[1] Moore's law states that: "the number of transistors (hence the processing power) that can be squeezed onto a silicon chip of a given size will double every 18 months and at a reducing cost".

section; two core cluster strategies focused exclusively to ICT development and application.

The Revolutionary Government of Zanzibar has recognized the fundamental importance of ICT for stimulation of national development, in particular, modernization and globalization of the economy, and creating the conditions for the fullest participation by all sections of the population. Zanzibar achieved notable progress in deploying ICT; the private sector has actively contributed to these achievements by investing inter-alia support facilities, training centers and sales outlets. These efforts have enabled Government departments, institutions of learning, Non-Governmental Organizations (NGOs), as well as other entrepreneurs; to acquire ICT solutions that address their individual problems. The overall status of ICT in the country is briefly captured in the subsequent section of this document.

The lack of an overall policy and poor harmonization of ICT initiatives in Zanzibar, have led to random adoption of different ICT systems and standards, unnecessary duplication of effort and waste of scarce resources.

In this context, the Government has initiated the process of developing a comprehensive Zanzibar ICT Policy. The Policy will guide ICT development, accessibility and its utilization on a national scale to meet the challenges of the information age and lay the foundation for the development of national ICT Strategic Plan. It is essential that a high level priority and commitment is given by the Government and Private Sector of Zanzibar to fast-track implementation of this ICT Policy so that its objectives are achieved.

1.2. Situation Analysis

Zanzibar has made remarkable initiatives in deploying ICT. Government plays a model role to embark ICT in her daily business processes with the intention of improving service delivery and efficiency; making the Government more result oriented and citizen centered.

Various ICT footprints witnessed from central Government to some public and private institutions. The introduction of the fiber optic backbone intends to improve performance within the Government towards e-government; and also with private sectors into global information sharing. Moreover, changing of broadcasting sector from

analog to digital technology is among the actions taken by the Government to improve access to information.

Situation analysis focusing on individual issues is briefly captured in the subsequent section. The priority areas were selected based on the experience collected from other countries' ICT policy and the model proposed by the "ICT Policy Formulation and e-Strategy Development – A Comprehensive Guidebook" guidelines prepared by UNDP.

1.2.1. Government

The Revolutionary Government of Zanzibar made several initiatives in development of ICT to improve service delivery to the public. In such endeavor, the Government through respective ministries established unit/department to foresee ICT development within the pertinent ministry. The Ministry related to finance matters adopted the Integrated Financial Management System (IFMS) for effective financial administration of the public finance. Moreover, Government through Parastatal institutions adopted relevant information systems to support their business processes; these includes drivers' license registration, motor vehicle registration, national identification registration, electoral registration and processing, billing systems, social security administration to mention a few.

Furthermore, the Government enacted the Public Service Act that established a dedicated department, e-Government Department, responsible to oversee ICT deployment and usage within the public services. Above all; the Government established a dedicated Department of Communications under the Ministry of Infrastructure and Communications which among other things is responsible to monitoring of Government-owned optic fiber and related infrastructures.

However, most of the public organizations have no specific unit dealing with ICT issues. Poor ICT infrastructure within the Government institutions and low level of ICT literacy among the employees are the factors leading to perform duties in manual manner. Generally, there is no common framework within the Government that defines ICT Governance, common standards and procedures.

1.2.2. ICT in Education

The Revolutionary Government of Zanzibar through the Ministry of Education and Vocational Training prepared Education Policy in 2006 with a mission to provide equitable access for all to quality education and promote long life learning. The Education policy recognizes the pivotal role of ICT in the provision of quality education to Zanzibar community.

Currently, there is significant use of ICT in teaching and learning in tertiary education institutions and some of the private-owned training institutions. Moreover the Ministry through its e-learning division is responsible to prepare local e-learning visual and audio contents. Nonetheless, with liberalization of economy, the national policy encourages and promotes private institutions to offer education to the public; some educational institutions provide access to international training programs under affiliation arrangements.

However, there is inadequate use of ICT in teaching and learning at all level of education and mostly in primary and secondary levels resulting from insufficient availability of ICT resources, shortage of e-learning materials, awareness (teachers and students), poor conditions or access of supporting infrastructure.

1.2.3. ICT in Health

The Government through the Ministry of Health (MoH) undertakes initiatives in providing public education on issues related to health matters under the implementation of public health education program; through such efforts the public awareness on healthy matters have been progressively improving and so as the access demand to health service. Moreover, MoH deployed District Health Information System (DHIS) to improve capturing and maintenance of medical and associated health cases records from primary health care unit.

In addition to implementation of DHIS at HMIS unit, there are other ICT initiatives through critical disease control program such as ZAC, ZACP, ZMCP etc. but eventually the information are sent to HMIS for integration.

However, the rising demand of access to health services could not be served with the existing health provision setup; and in rural areas accessibility of other specialized service is still difficulty. Moreover, there is neither database system to maintain general

patients' information that covers wide spectrum of personal medical records, nor electronic system for central medical management.

1.2.4. ICT Usage in Community

The penetration of mobile phone has been improving extensively, the usage starts with conventional communication, internet communication to financial transactions. A few numbers of users in Zanzibar access the Internet through existing internet café. All the same, data[2] have shown that out of 690 Zanzibar households only 9 own computers and only few of them have internet access in their home; coupling to that data shows that extensive users of ICT are youths and children. However the costs of access to these services are still high and they are not available in all parts of Zanzibar at the same quality leading to un-affordability and inaccessibility of ICT services among community groups. Moreover there is uncontrolled access to ICT exposing children and youths to inappropriate usage.

Community has access to various contents in all forms i.e. textually, imagery and sound and through different communication channels such as websites, medias, films, books, live concerts etc.; however most of these are not locally developed and so they neither meet local needs nor do they portray local culture, taboos and values.

1.2.5. ICT Industry

ICT Industry, in the information age, contributes significantly to the overall GDP of the country and plays a catalytic role to the growth and modernization of other sectors. ICT Industry is responsible for building and maintaining ICT systems and infrastructure, and providing efficient and affordable ICT services in the country. Currently, private institutions play a significant role in providing access to ICT products and services to Zanzibar businesses, organizations and individuals. ICT products range from mobile phones, computers and their accessories; and services include internet and data access network subscriptions, installation, configuration and maintenance of the ICT products.

However, there are no local manufacturers of ICT products; all local dealers or agents import these products. There are no standards guiding the imports of both hardware and software; coupling to that there is no e-waste management framework under practice. Local software development is on the lower side and focusing to particular customers. Most of the software used by both public and private sectors are imported.

[2] Audience Survey Report - 2008

In general, Zanzibar has a small emerging skilled capacity to support the ICT industry in terms of developing, selling or supporting hardware and software.

1.2.6. Human Resources Development

The Revolutionary Government of Zanzibar through the implementation of Public Services reform program, enacted Public Services Act No. 2 of 2011, established and implemented new scheme of services for public servants; and also established a dedicated body to oversee public recruitment. Moreover, existing universities and colleges provides various training programs in telecommunication and computing studies with level ranging from certificates to Bachelor's degree. On the same note, the Ministry of Education prepared curricula that integrate ICT for mandatory education.

However ICT literacy is not forming part of the qualification criteria in almost all of the non-ICT professional or non-professional cadres. Moreover, there are no documented plans or strategies for developing ICT literacy skills of the existing manpower in both public and private sectors. As for the ICT professional cadres; there is no dedicated scheme of services; however, if so decided to establish one, there is a great potential of inheriting common features of not considering professional certification as part of the qualification entries as in other cadres.

In general, there is a shortage of well-qualified professionals of ICT in Zanzibar; however there are recognized Zanzibaris ICT experts working in different organizations scattered around the world. Though, existing ICT professionals are underutilized in comparison with their potentials. There are also no well-established ICT professional profiles, and lack of a standardized process of evaluation for certification of different courses offered by various training centers.

1.2.7. ICT Infrastructure

In Zanzibar, there is tremendous growth in ICT infrastructure. The Revolutionary Government of Zanzibar deployed fiber optic cable across both islands of Unguja and Pemba; and the capacious microwave link connecting the islands. There are two fiber optic terminals connecting Zanzibar and Tanzania Mainland forming a ring that provides resilience to deployed network. Furthermore; telecommunication companies launched 3Gnetwork providing fast access of ICT services such as internet, to Zanzibar community.

Following Liberalization of broadcasting sector in Zanzibar and enactment of the Zanzibar Broadcasting Commission Act No. 7 of 1997, broadcasting operators spread over a vast area nationally and even regionally while others cover a local geographical area. Zanzibar Broadcasting Corporation (ZBC) remains the main Public broadcaster providing terrestrial television and radio services in Zanzibar. There are two privately owned television companies operating in Zanzibar using cable, one is in Unguja town area and the other in Chake Chake Pemba. Also, there is one Digital Terrestrial Television company offering services in Unguja area.

However, the existing ICT infrastructure development is characterized by unreliable networks, limited coverage in some areas, proprietary (incompatibility of some ICT components across different service providers), and use of obsolete technologies. Moreover, unreliable power supply compromises the affordability and accessibility of quality ICT services.

1.2.8. Legal and Regulatory Framework

The legal framework of Zanzibar recognizes the importance of ICT and introduce some provisions in several acts of the state, this mainly deals with the responsible handling and dissemination of information in all applicable media and forms including those maintained by ICT; the coverage targets public servants and some covers overall public, these includes:-

- **Zanzibar Penal Act No. 6 of 2004; Part XXXIII**: outlines penalties on computer related offences and provide definitions for words related to Document, computers, data, and interception.
- **Zanzibar Criminal Procedures Act No.7 of 2004:** outlines procedures for related computer crimes; searching and seizures. **Section 135(1)** provides for the **procedures** of searching and seizure of the computer data. Also **section 136(1)**provides that if any kind of assistance needed as to searching the person who is the possessor or controller of the computer data storage media or computer system, may provide assistance by obtaining a copy of computer data, using equipment to make copies and obtain an intelligible output from computer system in a plain text format that can be read by a person
- **The Employment Act No.11 of 2005, Sec. 20:** establishes confidentiality to information by the employee in discharge of his/her duties.

- **Public Service Acts, No. 2 of 2011 Part IX &X, Sec. 95, 96 & 97:** outline issues about Records and Information Management and Public Service Management Information Systems.
- **Prevention of Terrorism Act (URT) of 2002, Sec.4 (3) (g):** specifically talks on terrorism act by conducting disruption (interference) in computer system, communication infrastructure and banking services.
- **Copy Right Act, No. 14 of 2003, Sec. 3:** mentions computer program as one among the works to be protected under copyright.
- **The Registration of News Agents, Newspapers and Books (Amendments) Act No.8 of 1997**; **Sec. 35:** talks about offences related with unlawful publication. **PART VIII Sec. 53 up to 62** talks about defamation and its punishment.

However, the existing laws do not cater for the whole spectrum of ICT application in business, innovation and other socio-economic aspects. Also there are no comprehensive and relevant acts which recognize legal acceptance of e-information.

Moreover, Tanzania Communication Regulatory Authority (TCRA) is the regulator responsible for communication and broadcasting in Tanzania. On the other hand broadcasting sector in Zanzibar is regulated by the Zanzibar Broadcasting Commission (ZBC); leaving the communication sector in Zanzibar to be regulated by TCRA.

2.0. POLICY OVERVIEW

2.1. Policy Objectives

The general objective of this policy is to provide a reference framework for the harmonious and sustainable development of the ICT sector in Zanzibar and constituting the main base for legislation, development plans and action in the future.

The specific objectives of the Zanzibar ICT Policy are:

- To transform Zanzibar into information based society where everyone has equitable and affordable access to ICT.
- To ensure that ICT is part of national education programs.
- To have a trusted and secure information infrastructure and a culture of cyber security at all levels of society.
- To improve efficiency and transparency of civil service.
- To have an enabling legal and institutional environment that ensures the growth and development of the ICT sector.
- Use ICT to create an enabling and conducive environment for the promotion of investment, provision of health services and the development of a vibrant and sustainable economy.

2.2. Vision

"Zanzibar to become global competitive information based society."

2.3. Mission

"To realize information based society by effective integration of quality ICT throughout all sectors of the economy."

3.0. POLICY

3.1. Government

3.1.1. Objective

3.1.1.1. To improve services delivery and information accessibility to the public in an efficient and cost-effective manner.

3.1.1.2. To enable public services to contribute meaningfully in achieving poverty reduction targets.

3.1.1.3. To improve and broaden public participation in civic and Government affairs; and encourage information sharing, transparency and accountability in all Government processes.

3.1.2. Issues

3.1.2.1. Lack of common ICT Governance framework adopted among government institutions.

3.1.2.2. Low level of ICT literacy among civil servants.

3.1.2.3. Poor ICT infrastructure in most of the government institutions.

3.1.2.4. Lack of common standards and procedures to guide ICT adoption within the Government.

3.1.2.5. Lack of holistic approach in adoption of ICT system within the government institutions.

3.1.2.6. Inadequate accessibility to public information and services.

3.1.3. Policy Statements

Government shall adopt usage of ICT to improve quality, accessibility, affordability and provision of services to the public.

3.1.4. Strategies

3.1.4.1. Establish common ICT Governance framework that considers international best practices to ensure high-level ICT leadership at the national level.

3.1.4.2. Provide relevant training to all Government employees on the use of respective ICTs in discharging of their duties.

3.1.4.3. Extend access to ICT networks at all levels of the administration.

3.1.4.4. Provide ICT equipment to Government institutions.

3.1.4.5. Set up common standards and procedures to guide ICT adoption within the

Government.

3.1.4.6. Integrate ICT plans for individual Government institutions to ensure high degree of integration, optimum use of resources and provide for central management.

3.1.4.7. Identify the information needs of the public and implement electronic initiatives to deliver them in user-friendly formats.

3.1.4.8. Establish national data center and develop online Government services for the collection and dissemination of Government data.

3.1.4.9. Establish Top Level Domain in order to enable the successful introduction of Government initiatives of e-Government, e-Services and e-Commerce.

3.1.4.10. Encourage Internet access within the Government.

3.1.4.11. Define authority levels and ensure secured access to Government information systems and services.

3.1.4.12. Establish national portal that will act as a single point to online access of other government's institutions websites.

3.1.4.13. Initiate a move toward securing country dialing code in order to capture potential revenue from telecommunication industry.

3.2. ICT in Education

3.2.1. Objective

3.2.1.1. Enabling people to make use of the huge potential of ICT for teaching, learning and self-empowerment.

3.2.1.2. Broaden access to education and training opportunities.

3.2.1.3. Having curricula which require usage of ICT in teaching and learning process.

3.2.2. Issues

3.2.2.1. Use of outdated pedagogical methods.

3.2.2.2. Low computer-to-student ratio and most of them are not connected to global ICT networks.

3.2.2.3. Limited access to education and training opportunities.

3.2.2.4. Lack of sharing framework for teaching and learning resources.

3.2.2.5. Most of educational resources are not in electronic form.

3.2.2.6. Lack of Central e-learning information resources.

3.2.3. Policy Statements

Government shall formulate and implement programs of deployment, utilization and exploitation of ICTs within the academic, continuing and vocational education system.

3.2.4. Strategies

3.2.4.1. Provide sufficient materials and literacy to support the teaching and learning process, both for teachers and students.

3.2.4.2. Provide reliable and affordable access to ICT resources for all schools, universities and research institutions.

3.2.4.3. Establish e-learning and virtual centers in higher education and professional training institutions.

3.2.4.4. Improve and maintain ICT infrastructure to enable e-learning and promote distance learning.

3.2.4.5. Establish educational sharing framework to harmonize initiatives, approaches and standards in the educational uses of ICT.

3.2.4.6. Facilitate educational exchange between local and international educational institutions for promotion of ICT usage in teaching and learning.

3.2.4.7. Develop local e-learning resources to address the educational needs of primary, secondary and tertiary institutions.

3.2.4.8. Encourage the use of ICT in all research and development institutions, libraries, archives, museums, and community centers.

3.2.4.9. Establish central e-learning information resources.

3.2.4.10. Facilitate Public - Private Partnerships to mobilize resources in order to support e-learning initiatives.

3.3. ICT in Health

3.3.1. Objectives

3.3.1.1. To provide an equitable access to health services, and strengthening of health institutions in order to ensure efficient and cost-effective service delivery.

3.3.1.2. To provide an efficient and cost effective means for capturing and distributing health and disease-prevention information to the public.

3.3.2. Issues

3.3.2.1. Increasing demand of access to specialized health services among the public.

3.3.2.2. Poor accessibility of quality health services especially in rural areas.

3.3.2.3. Inefficient way for capturing, dissemination and maintenance of health related information that will promote healthy life style.

3.3.2.4. Lack of specialization in healthy informatics.

3.3.2.5. Lack of central information repository for medical and personal health records.

3.3.3. Policy Statements

Government shall optimize utilization of ICT in health sector to improve planning, management, accessibility and affordability of health care services to the public.

3.3.4. Strategies

3.3.4.1. Facilitate local access of international health services through the usage of ICT.

3.3.4.2. Establish telemedicine center to enable accessibility of quality health services in all areas of the country and especially in rural areas.

3.3.4.3. Introduce courses in health informatics within ICT curriculum in tertiary education.

3.3.4.4. Provide ICT equipment and extend access to ICT networks at costs-effective manner to all health care centers.

3.3.4.5. Deploy HMIS in all health care centers to improve management and administration of health services.

3.3.4.6. Create an electronic information system for health practitioners that are accessible throughout the country.

3.3.4.7. Use ICT to educate public on the nature of both non-communicable and communicable diseases, with the best method of preventing them.

3.3.4.8. Establish and maintain electronic system for medical management to modernize administration of Central Medical Store.

3.4. ICT usage in Community

3.4.1. Objectives

3.4.1.1. Empower community with access to quality and secured ICT services at affordable costs considering gender and other social groups.

3.4.2. Issues

3.4.2.1. High cost of ICT equipment and services.
3.4.2.2. Shortage of relevant local content.
3.4.2.3. Cultural abuse through misuse of ICT.
3.4.2.4. Inadequate use of information to support socio-economic activities.
3.4.2.5. Lack of ICT awareness and education among the majorities.
3.4.2.6. High digital gap between social groups.

3.4.3. Policy Statements

3.4.3.1. The Government will ensure that ICT facilities are affordable and accessible by the entire community and also preserve culture in all levels of ICT usage.
3.4.3.2. Government will provide ICT access to urban and rural communities to improve quality of life.

3.4.4. Strategies

3.4.4.1. Incorporate tax incentives to ICT products and services.
3.4.4.2. Establish ICT public access points (telecenters) in places such as schools, libraries, local government offices and others.
3.4.4.3. Ensure availability of free-to-air public service TV and radio channels to all parts of the country.
3.4.4.4. Endorse competition in the ICT sector so as to increase customer choice, quality and affordability of services.
3.4.4.5. Engage indigenous in the development of local contents.
3.4.4.6. Establish community centers to provide platform for local theatre performances as well as video, films and other audio-visual shows.
3.4.4.7. Establish and enforce rules and regulations to control use of ICT.
3.4.4.8. Conduct awareness program among all stakeholders and the general public about the role of ICT in socio-economic activities.
3.4.4.9. Establish specialized telecenters to provide equitable access to ICT services to marginalized groups.
3.4.4.10. Support existing community media and provide incentives for the establishment of new ones.

3.5. ICT Industry

3.5.1. Objectives

3.5.1.1. To modernize trade through effective utilization of ICT as a tool in business conducts.

3.5.1.2. To facilitate the growth of ICT entrepreneurs in order to broaden access to local ICT products and services.

3.5.1.3. To make Zanzibar a competitive developer of ICT products and services in the region.

3.5.2. Issues

3.5.2.1. Lack of competition and diversity of products/services in businesses providing ICT solutions to the public.

3.5.2.2. Low technical capacity and low consumer's awareness on the importance of 'after-sales' routine maintenance of ICT services and equipment.

3.5.2.3. Lack of innovation and incubation centers to promote local ICT entrepreneurship.

3.5.2.4. Lack of local production, development, assembly, and customization of ICT products and services.

3.5.2.5. Low level ICT utilization in the business conducts resulting from inadequate awareness of the ICT potential.

3.5.2.6. High cost of deploying ICT into business.

3.5.2.7. Low interventions in ICT research and development.

3.5.2.8. Lack of adoption to common ICT technical and quality standards.

3.5.2.9. Reckless disposal of e-waste which is prone to environmental and health risk to the population.

3.5.3. Policy Statements

Government shall encourage local development of ICT products and services to steer the nation into an information society and hence ensure a sustainable economic and industrial development base.

3.5.4. Strategies

3.5.4.1. Develop appropriate regulations to ensure fair and equitable competition amongst service providers to improve quality and promote growth of new services and applications.

3.5.4.2. Encourage public private partnerships in the development and provision of ICT services.

3.5.4.3. Provide incentives for local innovations in software, hardware and ICT systems development.

3.5.4.4. Establish ICT incubation centers to promote a culture of innovation, entrepreneurship and technological sophistication.

3.5.4.5. Create conducive environment enabling ICT resources sharing to reduce deployment cost of ICT into business.

3.5.4.6. Increase awareness among the public and private sector of the opportunities offered by different ICT services and products.

3.5.4.7. Use ICT to modernize business; especially tourism, agriculture, fisheries, manufacturing, offshore financial services industries; and to support small and medium enterprises.

3.5.4.8. Encourage research and development in ICT Industry.

3.5.4.9. Promote participation of local ICT organizations in international ICT forums order to gain international recognition.

3.5.4.10. Encourage deployment and usage of ICT hardware and software to support cost savings and increased productivity in service delivery, purchasing and communication.

3.5.4.11. Set applicable technical and quality standards in compliance with global best practices for ICT products and services in consultation with suppliers/providers and consumers.

3.5.4.12. Establish and enforce e-waste management framework.

3.5.4.13. Ensure that applicants of licenses for setting up ICT facilities must demonstrate their readiness to minimize the environmental effects and protect population from harmful emissions.

3.6. Human Resources Development

3.6.1. Objectives

3.6.1.1. To have sustainable Human Resource development program focusing on short, medium and long term ICT needs.

3.6.1.2. To increase ICT literacy in all sectors; and to build and retain ICT human resources capacity.

3.6.1.3. To have better working environment that supports usage of ICT.

3.6.2. Issues

3.6.2.1. Inadequate number of qualified ICT professionals.

3.6.2.2. Low ICT literacy among many people.

3.6.2.3. Ineffective mechanism to attract and retain ICT personnel.

3.6.2.4. Lack of automated test centers.

3.6.2.5. Inability to cope with frequent ICT technological advancement.

3.6.3. Policy Statements

The Government shall facilitate and accelerate the implementation of human resources development program in ICT to provide necessary skills for the key sectors of the society and economy.

3.6.4. Strategies

3.6.4.1. Support the development of qualified personnel in ICT in a sustainable manner to meet labor market needs.

3.6.4.2. Introduce ICT competitions and coordinate national ICT exhibitions for young scientists.

3.6.4.3. Increase opportunities for continuing trainings in the area of ICTs and ensure that the materials delivered are relevant with international acceptable standards.

3.6.4.4. Encourage and support local training institutions to offer both academic and professional ICT related courses and adhere to internationally acceptable standards.

3.6.4.5. Harmonize ICT curricula for respective levels at both national and international scales.

3.6.4.6. Put in place motivation mechanisms and create conducive working environments to attract and retain skilled ICT professionals in the national economy.

3.6.4.7. Establish ICT incubation and innovation centers.

3.6.4.8. Facilitate short term trainings to ICT personnel in order to cope with rapid ICT technological advancement.

3.6.4.9. Recognize technical professionals in the ICT sector.

3.6.4.10. Encourage public and private sector apprenticeship programs, internships, co-opts, and work-study programs.

3.7. ICT Infrastructure

3.7.1. Objectives

3.7.1.1. Having ICT infrastructure that is universally accessible, affordable, sustainable, secured and convergent to enhance service delivery to the public.

3.7.1.2. Improve and maintain the country's position regionally in deployment of ICT infrastructure.

3.7.2. Issues

3.7.2.1. Unreliable power supply leading to unsustainable ICT access.

3.7.2.2. Unreliable networks and lack of countrywide coverage of ICT Infrastructure.

3.7.2.3. Lack of ICT infrastructure sharing framework.

3.7.2.4. Inability to cope with rapid technological advancements.

3.7.2.5. Inadequate collaboration among stakeholders in ICT infrastructure development.

3.7.2.6. Lack of ICT infrastructure that support implementation of public access to national integrated Geographic Information System (GIS).

3.7.3. Policy Statements

Government shall ensure sustainable development of ICT infrastructure which is reliable, modern, secured, global-accessible and convergent; and involve all stakeholders.

3.7.4. Strategies

3.7.4.1. Ensure reliable and affordable power supply at all times to allow any time

access of services hosted by the deployed infrastructure.

3.7.4.2. Deploy countrywide ICT infrastructure which is reliable, efficient, affordable, and adaptive to the needs of the country.

3.7.4.3. Deploy backup mechanism to ensure full time accessibility of ICT infrastructure.

3.7.4.4. Ensure deployment of ICT infrastructure necessary to allow e-commerce and secure transactions to take place.

3.7.4.5. Establish sharing framework to encourage sharing and co-locating of ICT infrastructure and facilities.

3.7.4.6. Conduct research and development about new emerging ICT infrastructure technologies.

3.7.4.7. Undertake continued upgrades and investments on new ICT infrastructure technologies.

3.7.4.8. Encourage the private sector to continue their role as an integral part of the development of ICT infrastructure through creation of favorable investment environment.

3.7.4.9. Ensure integrated approach to the development and deployment of ICTs by involving stakeholders from other supporting infrastructure such as road and electricity network.

3.7.4.10. Deploy ICT infrastructure that supports implementation and utilization of national integrated GIS enabling public access to services such as electronic navigation, urban and rural planning, environmental conservation, early warning system etc.

3.8. Legal and Regulatory Framework

3.8.1. Objectives

3.8.1.1. Having a transparent regulatory environment that provides for open processes, access to information, addresses ethical aspects of the digital culture and offers incentives for investment and innovation in the ICT sector.

3.8.2. Issues

3.8.2.1. Lack of Legal framework to provide enabling environment for development and provision of e-services.

3.8.2.2. Increase of cyber-crime around the world.

3.8.2.3. Limited number of legal professional practitioners dealing with ICT matters.

3.8.2.4. Inefficient way of information management and sharing between judicial peers and obsolete manual mechanism in the judicial proceedings.

3.8.3. Policy Statements

The Government shall establish appropriate legal framework to deal with the challenges of electronic communications and transactions to provide the public in general, and commerce in particular, with well framed regulations in everyday electronic transactions.

3.8.4. Strategies

3.8.4.1. Establish legal framework that addresses issues catering for computer and computer related crime, consumer protection, child's protection, data protection, privacy protection, intellectual property rights, dispute resolution and security from the organizational to an individual level.

3.8.4.2. Review the existing legislations, taking consideration of international best practices, to foster a clear and supportive legal framework that promotes and supports the long term development of the ICT sector.

3.8.4.3. Provide training for the existing legal practitioners on ICT regulatory issues, including law enforcement agencies.

3.8.4.4. Promote and support the development of qualified legal ICT professionals in a sustainable manner to meet national and regional needs.

3.8.4.5. Encourage local training institutions to provide courses related to ICT legal matters.

3.8.4.6. Set up an arbitration mechanism for resolving conflicts between operators and regulators.

3.8.4.7. Establish and operationalize e-justice to enhance judicial systems and cater for efficient and effective cases management and others day to day activities.

4.0. IMPLEMENTATION AND MONITORING FRAMEWORK

4.1. Policy Implementation

The Ministry responsible for communication ("The Ministry") is the owner of this Policy. However, due to multi facet nature of ICT, the Ministry shall strengthen the institutional capacity of the Department of Communication. The contribution of Non-Governmental Organizations (NGOs) and Public Private Partnerships (PPPs) in the implementation of this Policy is also recognized. Furthermore; on long term basis, the Government shall create an institution mandated to coordinate ICT as recommended in MKUZA II.

4.2. Role of Stakeholders

It is recognized that different stakeholders are to be involved in the implementation of this Policy. Based on their missions they are expected to make contributions that will lead in a fresh momentum for the development of the country in ICT. The following will play important roles in the development of the ICT sector:

i. Government
ii. Department/Institution
iii. Civil society
iv. Development partners
v. Investors and Operators
vi. Consumers/users.
vii. Training institutions
viii. Media

4.2.1. Role of Government

In order to ensure the public services are executed smoothly and completed within the agreed timeframe, Government is expected to carry out the following activities among others:

i. Establish legislative and regulatory framework to enable smooth execution of ICT Policy;
ii. Undertake fiscal measures to enable public procurement of ICT equipment and service at affordable prices;
iii. Allocate adequate funds necessary to implement the policies.

iv. Monitor the implementation of ICT Policy through regular review of progress reports.
v. Provide appropriate incentives and support for ICT investors by putting in place necessary infrastructure.

4.2.2. Role of the Department/Institution

i. Regulate the ICT sector in the public interest. Protect the interests of all ICT users and consumers as well as the general public at large.
ii. The regulator will have to make sure that ICT provider and consumers obey with existing laws. Manage common national ICT resources effectively.
iii. The regulator needs to make sure that, where possible and necessary, the ISPs have to meet their responsibilities and provide services at the set standards.
iv. To make sure that there is adequate information available to consumers on ICT issue and ensure that disruption of consumers is minimized, the regulator shall develop a communication strategy to manage various issues that arise from the technology.

4.2.3. Role of Civil Society

Civil society can considerably raise the impact of Government initiatives on the population, since they work closely with communities and socioeconomic groups. Consequently, they could serve as an interface between donors, Government and citizens in sensitizing the community in the role of ICT for development.

The role of the Civil Society will be to inform the policy making process by making relevant contributions in regard to ICT development and applications.

4.2.4. Role of Development Partners

Development partners will play a complementary role towards realization of development of the goals and objectives of this Policy. Within the ICT policy framework, the Government will foster linkages with various development partners to provide financial, material, technical assistance as well as build capacity for sustainability.

4.2.5. Role of Investors and Operators

Investors, operators and service providers play an important role in the sector, and will be required to:

i. Invest heavily in infrastructure in an effort to distribute their service in both urban and rural area; and employ technical and non-technical staff to take care of their facilities in the field.
ii. Recognize the key role in developing consumer awareness of the benefits of the technology, the service providers will be undertaking or coordinating extensive public relations and marketing campaigns to encourage the consumers to use the service in an effective manner.
iii. Develop a sector with efficiency, credibility, commercial integrity and good corporate governance.
iv. Provide quality and sustainable service with pluralism of choice to consumers.
v. Keep abreast with and participate in ICT forum both regionally and internationally.

4.2.6. Role of the Consumers/Users

Consumers and users will be expected to:

i. Optimize usage of ICT in day to day activities but in a responsible and economic-effective manner.
ii. Be aware of the rights, responsibilities and privileges in relation to the usage of ICT.
iii. Involve and support protection of the national ICT common resources.
iv. Abide with the environmental conservation measures in relation to e-waste disposal.

4.2.7. Role of Training Institutions

In order to ensure sustainable development and effective application of ICT; training institutions shall be charged with:-

i. Integration of ICT content as part of the curriculums for all levels.
ii. Adoption of relevant ICT infrastructure to support e-learning.
iii. Conducting research and innovation on ICT.
iv. Introduction of virtual learning facilities.
v. Coordination of local and international ICT conferences.

4.2.8. Role of Media

Introducing changes and make them effective require well prepared awareness program to target community; and this is when Media comes into useful play and the following are expected out of them:-

i. Prepare and air ICT related awareness programs
ii. Publish periodic magazines with issues related to ICT development, effective use and associated risks both at national, regional and global scope.
iii. Working close with local ICT experts to translate awareness programs from other part of the word that are yet relevant to our environment.
iv. Promote live programs in relation to ICT issues and promote question and answer questions.

4.3. Monitoring Framework

The Government, through the Ministry responsible for communication shall define a comprehensive mechanism to monitor ICT development and measure their impacts in socio-economic development.

The fact that ICT is one of the most dynamic sectors, necessary mechanisms will have to be put in place by the Ministry to ensure that this Policy is reviewed from time to time in consultation with all stakeholders.