

The United Republic of Tanzania

Ministry of Natural Resources and Tourism

**INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) POLICY**

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Name | Comments | Date |
| 2.0 | Drafting team | The policy have been drafted to comply with the e-Government Act, and guidelines | March, 2020 |
|  |  |  |  |

**April, 2021**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Approval | Name | Job/Title | Signature | Date |
| Approved By |  |  |  |  |

Table of Contents

[LIST OF ACRONOMY iv](#_Toc68020527)

[GLOSSARY vi](#_Toc68020528)

[DEFINITIONS vii](#_Toc68020529)

[FOREWORD viii](#_Toc68020530)

[EXECUTIVE SUMMARY ix](#_Toc68020531)

[CHAPTER ONE: INTRODUCTION 1](#_Toc68020532)

[1.0 Background 1](#_Toc68020533)

[1.1 Rationale 2](#_Toc68020534)

[1.2 Purpose 2](#_Toc68020535)

[1.3 Scope 3](#_Toc68020536)

[1.4 Organization of the Document 3](#_Toc68020537)

[CHAPTER TWO: SITUATIONAL ANALYSIS 4](#_Toc68020538)

[2.0 Introduction 4](#_Toc68020539)

[2.1 ICT Governance and Management 4](#_Toc68020540)

[2.2 ICT Infrastructure 5](#_Toc68020541)

[2.3 ICT System and Application 6](#_Toc68020542)

[2.4 ICT Service Management 7](#_Toc68020543)

[2.5 ICT Security 8](#_Toc68020544)

[CHAPTER THREE: POLICY OBJECTIVES AND POLICY STATEMENTS 9](#_Toc68020545)

[3.0 ICT Governance, Management, and Institutional Framework 9](#_Toc68020546)

[3.1 ICT Governance and Management 9](#_Toc68020547)

[3.1.1 Policy Objective 9](#_Toc68020548)

[3.1.2 Policy Statements 9](#_Toc68020549)

[3.2 ICT Infrastructure 10](#_Toc68020550)

[3.2.1 Policy Objective 10](#_Toc68020551)

[3.2.2 Policy statements 11](#_Toc68020552)

[3.3 Application Software, Systems, and E-Services 11](#_Toc68020553)

[3.3.1 Policy Objective 12](#_Toc68020554)

[3.3.2 Policy Statements 12](#_Toc68020555)

[3.4 ICT project management 13](#_Toc68020556)

[3.4.1 Policy Objective 13](#_Toc68020557)

[3.4.2 Policy Statements 13](#_Toc68020558)

[3.5 ICT Data and Service Management 13](#_Toc68020559)

[3.5.1 Policy Objective 14](#_Toc68020560)

[ICT Data Management 14](#_Toc68020561)

[3.5.2 Policy Statements 14](#_Toc68020562)

[ICT Service Management 14](#_Toc68020563)

[3.5.3 Policy Statements 14](#_Toc68020564)

[3.6 ICT Security 15](#_Toc68020565)

[3.6.1 Policy Objective 15](#_Toc68020566)

[3.6.2 Policy Statements 15](#_Toc68020567)

[CHAPTER FOUR: IMPLEMENTATION, REVIEWS, AND ENFORCEMENT 16](#_Toc68020568)

[4.1 Implementation and Reviews 16](#_Toc68020569)

[4.2 Exceptions 16](#_Toc68020570)

[4.3 Roles and Responsibilities 16](#_Toc68020571)

[4.3.1 The Permanent Secretary 16](#_Toc68020572)

[4.3.2 ICT Steering Committee 17](#_Toc68020573)

[4.3.3 Directors/ Managers/Head of Sections/Units 17](#_Toc68020574)

[4.4 Monitoring and Evaluation 18](#_Toc68020575)

[4.5 Offenses and Penalties 18](#_Toc68020576)

[ICT Policy M&E result framework 19](#_Toc68020577)

**List of Tables**

[**Table 1: M&E result frame work** 21](#_Toc59034498)

# LIST OF ACRONOMY

CD Compact Disk

CN Conservator

DAT Digital Audio Tape

DPSD Director of Conservation and Community Development

DFA Director of Finance and Administration

DMZ Demilitarized Zone

DOP Director of Operations dpi dots per inch

DSL Digital Subscriber Line

e-Ga e-Government Authority

ICT Information and Communications Technologies

IP Internet Protocol

IPSEC IP Security

ISDN Integrated Service Digital Network

ISP Internet Service Provider

LAN Local Area Network

Mb Mega bits

Mbps Megabits per second

NCA Ngorongoro Conservation Area

MNRT Ngorongoro Conservation Area Authority

NT New Technology

PDA Personal Digital Assistant

ppm Paper per minute

PBX Private Branch Exchange

PIN Personal Identification Number.

POE Power over Ethernet

RADIUS Remote Authentication Dial-In User Service.

RFP Request for Proposal

SSL Secure Socket Layer

SSH Secure Shell

SNMP Simple Network Management Protocol

TCP Transport Control Protocol

VoIP Voice over Internet Protocol

VPN Virtual private network

WLAN Wireless local area network

WI-FI Wireless Fidelity

WPA Wi-Fi Protected Access.

# GLOSSARY

**Information and Communication Technologies (ICT)** – Is a generic term used to express the convergence of information technology, broadcasting and communication? One prominent example is the Internet.

**Information Technology (IT)** – Embraces the use of computers, telecommunications and office systems technologies for the collection, processing, storing, packaging and dissemination of information.

**Internet Service Provider (ISP)** – Also known as Internet Access Providers – Is an Organization that provides infrastructure for access to the Internet or for interconnecting other ISPs and content-based or application-based services on the Internet.

**Local Area Network (LAN)** – 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 telephone lines and radio waves.

**Voice over Internet Protocol (VoIP)** – Also known as Voice over Internet, IP Telephony or Internet Telephony – refers to telephone services provided over the Internet as the transmission medium.

**Wide Area Network (WAN) -** 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.

**Private Branch Exchange** – A Private Branch eXchange (PBX) is a telephone exchange that serves a particular business or office, as opposed to one that a common carrier or telephone company operates for many businesses or for the general public. PBXs make connections among the internal telephones of a private organization.

**Frame Relay** - Frame Relay is a high-performance WAN protocol that operates at the physical and data link layers of the OSI reference model

# DEFINITIONS

1. **A Business Record** A business record is any print or electronic document created and maintained in the ordinary course of business.
2. "**Non-leased**" refers to any and all ICT assets that are the sole property of MNRT; that is, equipment that is not rented, leased, or borrowed from a third-party supplier or partner company.
3. "**Disposal**" refers to the reselling, reassignment, recycling, donating, or throwing out of ICT equipment through responsible, ethical, and environmentally sound means.
4. "**Obsolete**" refers to any and all equipment over five years old and/or that which no longer meets requisite functionality.
5. "**Surplus**" refers to hardware that has been replaced by upgraded equipment or is superfluous to existing requirements.
6. "**Beyond reasonable repair**" refers to any and all equipment whose condition requires fixing or refurbishing that is likely cost equal to or more than total replacement.
7. "**ICT Unit**" refers to Section/Division/Department responsible in managing ICT within MNRT. .
8. "**Prince 2**" refers to a project management methodology encompasses the high level management, control and organization of a project, but not lower level activities

# FOREWORD

The Information and Communication Technology (ICT) development and its wide utilization across the world have made ICT to be used as strategic tool to achieve social-economic development goals. The increasing use of ICT has further been empowered by the growth of a global network of computer networks commonly known as the Internet. The Internet has impacted how business is conducted, facilitates learning and knowledge sharing, generated global information flows, empowered citizens and communities in ways that have redefined governance, and has created significant wealth and economic growth, resulting in a global information society. By recognizing the impact of ICT in achieving ministerial objectives, the Ministry of Natural Resources and Tourism (MNRT) has deployed several ICT systems for effective and efficient service delivery. These systems are accessed internally and to the public for some of them. The ICT has been transforming Ministry's business processes to achieve operational excellence, develop new products and services, improve decision-making, and achieve competitive advantages, including development, promotion, and efficient utilization of tourism, natural and cultural resources through collaborative initiatives.

To this end, ICT policy guidance is crucial for the Ministry to plan appropriately, manage, and utilize ICT resources. It's now high time for the Ministry to develop an ICT policy to guide proper investment, utilization, and operations of ICT processes. This policy is developed in consideration of technological advancement and changes that have taken place since 2011 and whose implications are reflected in the Ministry strategic plan. The policy will promote and emphasize ICT as a central enabler to achieve Ministry's sustainable development and services improvement objectives.

This policy is aligned to the National ICT Policy 2016, the Ministry's various policies, strategic plan 2020/2021 – 2025/2026, the e-Government Act 2019, the e-Government Regulations, 2019, and other relevant Government guidelines and circulars that aim at creating and promoting a good environment to enhance service delivery. Therefore, it is with great honor and pleasure that I call upon all our stakeholders to embrace and make use of this policy for improved performance, increased productivity, and efficient service delivery.

Dr. Damas Ndumbaro

**MINISTER**

**MINISTRY OF NATURAL RESOURCES AND TOURISM**

# EXECUTIVE SUMMARY

Information and Communication Technology is an important instrument that supports the delivery of quality service and timelines decisions. ICT assists the Ministry in implementing its business process to achieve its strategic objective.

This ICT policy has been developed in order to safeguard ICT resources and provide for adequate management of ICT resources within the Ministry. Before developing this policy, the situation analysis was done to identify the Ministry's achievement and challenges on utilization of ICT. This policy provides a blueprint of the Ministry's commitment to adherence to national and international guidelines for proper and secure ICT resources utilization within the Ministry and in collaboration with other government agencies and other stakeholders.

Moreover, the policy has indicated each key player's responsibility within the Ministry that draws our commitment to implement this policy for the benefit of all of us. We welcome any ideas for revision or improvement in the future.

This policy is divided into four chapters: Chapter one is the general introduction of this policy. Chapter two provides the situation analysis that defines the current conditions in ICT governance & Management, Human resources, infrastructure, application systems, and ICT security. In chapter three, general ICT policies are presented where policies on ICT governance and management, infrastructure, application software, e-services, and ICT security.

This policy provides the roadmap for effective planning and use of ICT resource utilization. I urge all relevant stakeholders to comply with this policy to enable the Ministry to provide e-services that add value to our customers and the Ministry in general. This policy requires all stakeholders, including Government institutions, to embrace the benefits ICT solutions and services offer to strengthen ICT human skills, leadership, and innovation.

Dr. Allan H Kijazi

**Permanent secretary**

**MINISTRY OF NATURAL RESOURCES AND TOURISM**

# CHAPTER ONE: INTRODUCTION

## Background

Ministry of Natural Resources and Tourism (MNRT) was established through Government Notice No. 144 of 22nd April 2016 and its amendment of 7th October 2017. Through this notice, MNRT was mandated to manage natural and cultural resources and develop the tourism industry sustainably. This is achieved by developing forestry, beekeeping, wildlife, antiquities, and tourism policies. In executing its mandate, the Ministry is managing natural and cultural resources in a land covering about 32.5 percent of the country. This involves 22 national parks, Ngorongoro Conservation Area Authority (NCAA), 22 game reserves, 28 game-controlled areas, 38 Wildlife Conservation Areas, and three (3) Ramsar sites. Other areas include; 465 forest reserves, 19 nature forest reserves, 23 plantations, 133 cultural heritage sites, and seven (7) museums. MNRT has been using Information and Communications Technology (ICT) as a critical enabler of efficient and effective service delivery and performance in managing its daily operations.

In today's era, ICT continues to bridge the gap and open up opportunities of providing services with value to customers. The ICT has become an essential tool in facilitating business operation effectively and transparently. Most Government and private institutions worldwide have adopted ICT in their business strategies, aiming to transform the organizations through e-services.

The Government of Tanzania developed and circulated the key guideline documents to assist its Government institutions in adopting and aligning their ICT strategies and systems with the National ICT Policy of 2016 and the E-Government Act of 2019. These guidelines promote and emphasize ICT as a critical enabler to achieve institutional objectives through sustainable development and service improvement. To ensure the better realization of ICT benefits, MNRT developed the first ICT Policy in 2011. This policy enabled ICT applications to be integrated into the planning and implementation of the Ministry's functions. Since then, this ICT policy has helped the Ministry to accomplish several ICT initiatives. However, since the formulation of this policy in 2011, several technological, institutional, and structural changes that affected ICT development at the Ministry have occurred globally and nationally.

Consequently, several gaps have been noted in the course of implementing this policy. Thus, the 2011 ICT policy has to be reviewed to enable the Ministry to address these changes, ensure proper adoption of the National ICT Policy (2016), the E-Government Act (2019) and the Ministry strategic plan (2021/22 – 2025/26).

## Rationale

It has been a while since the current Ministry's ICT policy developed in 2011. However, with several advancements and development in technology, social, economic, and cultural aspects, the Ministry needs to review, develop, and operationalize a new comprehensive ICT Policies to govern ICT adoption and its utilization within the sector. The new MNRT ICT policy aims to provide instructions and guidelines in developing, implementing, and managing ICT initiatives and operations based on acceptable practices aligned to the National ICT Policy (2016) and the E-Government Act 2019. Through these frameworks, the Government directs each public institution to develop her specific ICT policy that ensures effective contribution towards achieving national development goals.

Through this ICT policy, the Ministry will properly plan and execute its ICT initiatives and protect the ICT resources from internal or external threats. Moreover, this policy focuses on safeguarding customers' and stakeholders' privacy and confidentiality.

## Purpose

This document provides the highest-level ICT commitments and directives for the Ministry. The main purpose of this document is to ensure that investment, operations, and maintenance of MNRT ICT systems and services are well directed. The specific objectives of this policy are;

1. To ensure ICT governance is incorporated and becomes an integral part of MNRT governance.
2. To ensure that ICT investments and services align with Ministry’s business requirements, political objectives, and existing institution guidelines, standards, and best practices.
3. To ensure that all the institution information resources and services are well secured using appropriate controls.
4. To ensure that Ministry’s staff use ICT facilities and services provided by the Ministry appropriately and responsibly.

## Scope

This policy applies to all Ministry's staff, stakeholders, all ICT equipment, infrastructure, and systems in the Ministry. It focuses on the guiding principles of the e-Government Act of 2019, regulations, and ICT standards by covering all Ministry business processes.

## Organization of the Document

This policy is divided into five chapters: The introduction of this policy is presented in chapter one. Chapter two discusses the situation analysis, which defines the current situation in ICT governance & management, infrastructure, application systems, and ICT security: the ICT policies and policy statements in chapter three. Policies and policy statements on ICT governance and management, infrastructure, application software, e-services, and ICT security are elaborated. The last chapter, four, presents the implementation, review, and enforcement of this policy.

# CHAPTER TWO: SITUATIONAL ANALYSIS

## Introduction

In collaboration with stakeholders, top management, and staff, the Ministry of Natural Resources and Tourism (MNRT) has made remarkable initiatives in deploying ICT infrastructure, application systems, and e-services. To a large extent, the available ICT systems have improved service delivery and decision-making in terms of timeliness, quality, and customer satisfaction. Information system at the Ministry level requires proper integration of processes and information flows within all core departments, supporting departments and institutions. It also requires adequate integration of processes and information flow between external users such as tour operators, suppliers, vendors, government agencies, and other service providers.

There has to be close coordination of all ICT initiatives within the Ministry to facilitate full integration of processes and information flows between internal and external users. This chapter provides the Ministry's current ICT landscape in four categories: ICT governance and management, ICT infrastructure, ICT systems and application, ICT services management, and ICT security.

## ICT Governance and Management

The decision to introduce ICT units in the ministries organization structures was made in 2006 by the Chief Secretary. The ICT Unit was established by the MNRT organization structure approved by the president on 13th January 2009. Furthermore, the ICT Unit has been made mandatory by the e-Government Act, 2019, through Section 21, which requires public institutions to establish ICT units to provide governance and management of ICT functionalities. Currently, The Ministry has 7 ICT staff who undertakes ICT governance and management roles within the Ministry. The unit is lead by the Head of the ICT Unit and offers technical support to 653 employees on the use, maintenance, and repair of the ICT system, hardware, and software. The unit ensures that ICT services are properly planned, developed, managed, and monitored according to the Ministry's management's direction and aligned to its business objectives and processes.

Currently, the ICT governance in the Ministry is performed by the Management Team and ICT Steering Committee. The ICT steering committee ensures that stakeholder ICT needs, and priorities, are evaluated and incorporated into Ministry's ICT strategies and action plans. The committee also monitors and assesses the ICT unit's performance and compliance against agreed plans and objectives.

The head of the ICT unit reports directly to the Permanent Secretary, an accounting officer, as stipulated in section 21 of the e-Government Act No 10 of 2019. Despite the successes achieved in ICT governance and management, there are still challenges that need to be addressed.

**Challenges**

1. Ad-hoc and silos implementation of ICT initiatives and projects within the sectors
2. Inadequate number of ICT staff and skills to support business operations
3. Inadequate funding to support ICT Initiatives
4. The slow pace in the adoption of rapidly changing technology
5. Inadequate awareness of ICT matters and issues among some top managers and decision-makers.
6. Lack of awareness on e-Government Act of 2019, regulations of 2020, ICT Standards and guidelines among MNRT employees and stakeholders.

## ICT Infrastructure

ICT infrastructure is the core of ICT services. It includes network equipment, servers, computers, storage, switches, associated software, and other supporting infrastructure such as electricity. Together this equipment makes it possible to run and operate e-services. Successful ICT initiatives require reliable, efficient, and effective ICT Infrastructure.

There has been significant investment and development of ICT infrastructure in the Ministry focusing on connectivity, computing, and power. These investments include Wide Area Network (WAN), Local Area Network (LAN), servers, storage, and power systems. Through WAN, the Ministry has managed to connect its headquarter offices (Mtumba, Swaga Swaga, and UDOM) that are located in different places within Dodoma city. A secured VPN (Layer 2 tunneling protocol) enhances the offices' connectivity through the Internet Service Provider (ISP). The WAN, which uses both wired (Fiber Optic Cable), Unshielded Twisted Pair (UTP), and wireless technologies (Microwave Broadband), provides the capacity of 15Mbps on the data (Internet) and 11Mbps on the secured VPN tunnel. The Ministry’s headquarters is also connected to the NCAA Building in Arusha, which hosts primary servers, and National Datacentre (NIDC), which hosts backup servers through VPN at 20Mbps and 10Mbps, respectively.

The Dodoma sites are connected to the national grid, backed up by the uninterrupted power supply (UPS) that lasts for three hours after the power outage. The Arusha and NDC sites are connected to the national grid and backed up by UPS and a standby generator. All officers are equipped with either a desktop or a laptop computer or both and have access to the Internet through both cable and wireless access points provided by LAN.

**Challenges**

1. Inadequate coverage of network infrastructure.
2. Lack of backup Internet connectivity.
3. Unreliable power supply to some remote offices.
4. The high cost of bandwidth for Internet and VPN services
5. Lack of backup link between primary and secondary sites.
6. Inadequate connectivity between the Ministry headquarters, zonal offices, and training institutions.
7. Inadequate maintenance of the ICT infrastructure
8. Rapid technological changes, leading to difficulties in keeping the pace
9. Unsatisfactory and poor support from service providers

## ICT System and Application

Application software is computer software designed to perform business tasks, including the provision of e-services. Application software, both off-the-shelf and tailor-made, are the most important part of ICT systems in an organization. It is through application software business activities, and data are processed. Organization information is created, manipulated, and shared by means of application software. The value of ICT investment can only be derived from the use of appropriate application software.

MNRT has not been left behind in leveraging ICT to enhance the business process. Apart from basic application software such as word processors, spreadsheets, and other utility software installed in every computer, MNRT has a number of business application software used to perform business Activities.

The MNRT Portal is a web-based application for permit and license issuance. It is used by Ministry and its institutions to process permits and licenses as well as revenue collection. It is also used to provide various reports and statistics for informed decision-making. This integrated system brings all the ministry services and its institutions in one window (one-stop center), and to a large extent has improved service delivery to the Ministry and its institutions. Other business application software includes ASERT – Accommodation Services in Tanzania, which offer self-assessment, grading, and rating service to any country's accommodation facilities.

AserT - Accommodation Services in Tanzania is a web based application which offer self-assessment, grading, and rating service to any country's accommodation facilities. The system also facilitate identification of accommodation facilities, reduces time and cost for conducting grading of accommocation facility into start rating and finally identifies and recognize the EAC hotel certified assessor

WaJiBiKa – Is an information system developed by the ministry which facilitate provision of travel permit to MNRT staff who are traveling through the country. The system also enable employee to requrst safari imprest and retirement of safari imprest, permit to use government vehicle and assst driver to request vehicle fuel.

The biometric Application system for human resource management, Human Capital Information Management System, E-Office, MUSE, Government Mailing System, and GePG are crosscutting systems used by the Government at all levels.

Other business application software includes ASERT – Accommodation Services in Tanzania, which offer self-assessment, grading, and rating service to any country's accommodation facilities. The biometric Application system for human resource management, Human Capital Information Management System, E-Office, MUSE, Government Mailing System, and GePG are crosscutting systems used by the Government at all levels.

Lack of enterprise architecture within the tourism and conservation sector has led to non-consistent investment, duplications, and software applications that do not reflect its needs.

**Challenges:**

1. Business applications' complexity makes it hard to develop and adequately capture users' requirements, functional requirements, and business processes.
2. Increased demands of the automation of business processes which is not proportional to the available resources
3. Frequent changes in business requirements and environments such as changing of legislation and regulations that demand changes in application software
4. Unharmonized and undocumented business processes
5. Rapid change of software technologies.
6. Inadequate resources and skills to develop, manage and maintain applications software sustainably
7. Lack of dedicated help desk system and team to support applications software users
8. Strict and cumbersome procedures in acquiring and managing application software set out by e-Government Act, regulations, and guidelines.
9. Lack of enterprise architecture.

## ICT Service Management

ICT Service management deals with processes that ensure services available such as business analysis, service catalog, services design, service level agreements, availability management, capacity performance, service continuity, service desk, security and incident management, etc.

The Ministry has continued to improve its ICT services management to ensure that both internal and external users are satisfied. Standard operating procedures and controls for each ICT service have been developed, enforced, and are being monitored. Further, the Ministry has reviewed and signed service level agreements with its vendors and suppliers.

**Challenges;**

1. Unavailability of systems tools to measure service performances
2. Inadequate staff and skills to manage ICT services
3. Intermittent services breakdown, which results in service unavailability
4. Delay in response from services provider in case of incidence
5. Lack of Business Continuity Plan – (BCP)

## ICT Security

ICT Security covers all the processes by which computer-based equipment, information, and services are protected from unintended or unauthorized access, change, or destruction. It is concerned with safeguarding ICT infrastructure, platforms, application systems, data, and people from incidents and malicious attacks.

Several strategies have been implemented to ensure ICT security within the Ministry. The Ministry has implemented a logical security mechanism using a firewall, user authentication through passwords, SSL certificates, antivirus software, and licensed software.

**Challenges;**

1. Inadequate of security awareness among staff
2. Inadequate risk management plan
3. Inadequate of ICT Security skills
4. Inadequate security monitoring system
5. Low priority in security measures
6. Inadequate funds

# CHAPTER THREE: POLICY OBJECTIVES AND POLICY STATEMENTS

# ICT Governance, Management, and Institutional Framework

## ICT Governance and Management

ICT governance is concerned with leadership, planning, strategy, control, measure, and direction of ICT Resources to better support the institution's objectives. On the other hand, the ICT management functions translate the strategic direction into actions that will eventually help the organisation achieve its strategic goals. ICT governance and management is an essential aspect of organization governance for the successful implementation of ICT Services.

## Policy Objective

To strengthen MNRT's ICT governance and management based on acceptable standards and practices; by establishing a framework for ICT investment decisions, accountability, monitoring, and evaluation; and ensuring there are formal ICT governance processes that are consistent across the institution.

## Policy Statements

1. There shall be an established ICT Steering Committee to guide the investment, implementation, and evaluation of ICT initiatives.
2. The Ministry shall establish an ICT Management Unit to provide ICT management services, including overseeing ICT initiatives in the Ministry.
3. The Ministry shall ensure that the ICT Management Unit shall be headed by the Head of ICT (HICT), with an appropriate academic and professional qualification and ICT experience. The HICT shall reports direct to the Permanent Secretary (PS).
4. The Ministry shall ensure that ICT staff with appropriate qualifications and skills are recruited to fill all established ICT positions in the ICT unit at all levels.
5. The Ministry shall ensure that ICT users (internal and external) are aware of these ICT policies, guidelines and they understand and accept their responsibilities in using ICT systems.
6. The Ministry shall ensure that e-Government initiatives are managed in compliance with the acts, guidelines, and standards issued by relevant authorities such as e-Government Authority.
7. The Ministry shall, on an annual basis, conduct self-assessment on the implementation of e-Government initiatives and submit a copy of the report to the e-Government Authority
8. The Ministry shall ensure that necessary controls are in place so that all ICT procurements are done in line with the Public Procurement Act's requirements (PPA).
9. User Departments shall establish and submit, in writing, all ICT-related requirements, whether ad-hoc or planned, to HICT, who will process and submit them to the procurement unit.
10. The ICT unit shall ensure that all ICT procurements requirements comply with standards and guidelines set out by the Government.
11. No department or unit shall procure any ICT system, service, equipment, consumable or accessory without the ICT unit's recommendation.
12. The Ministry shall ensure that all ICT and e-Government projects are managed following the Government's project management procedures, guidelines, and standards.
13. The Ministry shall ensure that all ICT systems and equipment such as desktop computers, laptops, servers, printers, and networking equipment are acquired from authorized suppliers and have relevant licenses and supports.
14. The Ministry shall introduce a license management system to make sure that all licenses are properly managed.
15. The ICT steering committee shall monitor ICT projects undertaken and provide regular progress reports to the management team.
16. The Ministry shall develop guidelines for the acquisition and disposal of ICT assets across the organization.

## ICT Infrastructure

ICT infrastructure is the backbone and foundation of ICT services. IT supports business operations by enabling information exchange and providing secure access to different applications. This consists of all hardware devices such as network devices, servers, workstations, laptops, storage, backup, operating facilities, and a supporting platform like operating systems and databases.

## Policy Objective

To ensure that the MNRT's ICT infrastructure developments and operations are optimized to deliver higher-level service quality and support relevant business operations based on ICT planning and management best practices.

## Policy statements

1. The Ministry shall develop and regularly update ICT infrastructure architecture in line with current and future requirements to guide ICT infrastructure investment.
2. The Ministry shall ensure that the Ministerial ICT architecture is submitted and approved by the e-Government Authority before the implementation.
3. The Ministry shall ensure that an adequate budget is allocated to support ICT infrastructure development, maintenance, and management.
4. The Ministry shall ensure the availability of data and internet last-mile connectivity to all zone offices and training institutions.
5. The Ministry shall develop guidelines and frameworks for Public-Private Partnership (PPP) and joint ICT infrastructure development with other approved service providers.
6. The Ministry shall ensure that priority is given to utilize available Government shared ICT infrastructure and facilities whenever possible.
7. The Ministry shall ensure that all Government ICT resources are used only for the Government's purpose and benefits.
8. The Ministry through the ICT Unit shall maintain a register of all ICT resources owned or leased by the Ministry.
9. The Ministry shall ensure appropriate ICT infrastructure to facilitate secure business data exchange, processing, storage, backup, access controls, and disaster recovery.
10. The Ministry shall ensure that all ICT infrastructure components are maintained at a reasonable operational and secure level, within allocated budgets.
11. The Ministry shall maintain a list of standard software, including the operating systems (OS) used in the Ministry servers and devices.

## Application Software, Systems, and E-Services

Business applications and systems are software designed to support business functions and enterprise business processes. Applications software are critical enablers for new public management (NPM), which advocates for improved service delivery, organizational efficiency, and effectiveness. Example e-services are delivered through one or more application software and offer several advantages over traditional counter services, including access convenience, broadening market reach, transparency, reducing transaction costs, and increasing customer satisfaction.

## Policy Objective

To modernize MNRT business operations by developing and implementing appropriate applications software and e-services that will lead to reasonable improvements in the Ministry's efficiency and effectiveness.

## Policy Statements

1. The Ministry shall develop and regularly update the enterprise application architecture (EA) in line with current and future requirements to guide software application development.
2. The Ministry shall ensure that the Ministerial enterprise architecture (EA) is submitted and approved by ICT steering committee and the e-Government Authority before implementation.
3. The Ministry shall ensure the available Government-wide centralized systems, are used as directed.
4. The Ministry shall ensure that all business processes that facilitate government revenue generation are automated and integrated with approved electronic Government payment systems.
5. The Ministry shall ensure that it reduces or eliminates paper documents and forms by digitizing all work processes and promoting electronic data and information sharing with its stakeholders.
6. The Ministry shall ensure the adoption of appropriate software application interoperability standards and guidelines across all levels of its operations to encourage and enable sharing of information seamlessly.
7. The Ministry shall ensure that all application software and systems used by the Ministry are audited for compliance to applicable standards, security and fit for purpose at least once a year.
8. The Ministry shall ensure adequate staff available to support applications systems operations management and undertake regular maintenance of the system when required.
9. The Ministry shall ensure that all applications software in the Ministry are appropriately licensed and have adequate support to ensure their availability and sustainability.
10. The Ministry shall ensure that all applications software in the Ministry has well-documented user and technical manuals.
11. The Ministry shall ensure that all eligible staff are trained and are competent to use the available application software.

## ICT project management

Proper ICT project management is crucial for the successful implementation of ICT initiatives. In a large organization like MNRT, running ICT projects is an ongoing process. Therefore, MNRT has to adopt and apply the best project management practices to ensure the successful implementation of ICT projects. The good practices to be implemented in the Ministry’s should ensure that ICT projects are well planned, executed, and monitored as per the below policy statements

## Policy Objective

To ensure successful implementation of ICT projects within the Ministry and obtain value for money.

## Policy Statements

1. The Ministry will adopt PMI project management standards and framework for every ICT project and initiative.
2. All ICT projects with a value exceeding 50,000,000 (fifty million) Tanzanian shillings shall be registered to eGA for review and guidance, using Form no. 006
3. The Ministry shall ensure that all ICT projects implemented by the Ministry have complete detailed project documents according to PMI standards.
4. The Ministry shall ensure that all software projects follow a software development circle approach.
5. The Ministry shall ensure that business process re-engineering is performed before implementing any application software to ensure that systems are citizen-centric, uses appropriate service delivery channels and languages, considers people with disabilities, and promotes integration and interoperability.
6. The Ministry shall ensure that all ICT projects are audited and inspected by relevant authorities before the commission.

## ICT Data and Service Management

Data is the heart of any organization. Every service provided by the Ministry either generates or consumes data or consumes and generates new data. Therefore data must be adequately preserved. MNRT shall have the duty to establish and comply with electronic data management mechanisms and standards to ensure availability, accessibility, integrity, and data confidentiality. On the other hand, ICT service management includes all processes aimed to maximize business value from the use of information technology.

## Policy Objective

To improve data and ICT service management to ensure their confidentiality, availability, and integrity and maximize value from ICT investment.

## ICT Data Management

## Policy Statements

1. The Ministry shall ensure compliance with electronic records management practices as per existing acts1, regulations, and guidelines to ensure data confidentiality, availability, and integrity.
2. The Ministry shall adhere to the guidelines and standards that specify the manner and format in which electronic transactions shall be authenticated and made.
3. The Ministry shall develop procedures and guidelines for effective and efficient data storage, archiving, and retention to meet business objectives.
4. The Ministry shall ensure it complies with electronic data capturing, processing, and sharing technical standards and guidelines issued by the e-Government Authority.

## ICT Service Management

## Policy Statements

* 1. The Ministry shall define, develop and maintain a catalog of all ICT services offered by the Ministry to internal and external users.
  2. Ministry shall establish and operate an ICT service desk, where all requests and issues from end-users will be recorded, resolved, and escalated if need be.
  3. The Ministry shall ensure that Service Level Agreements (SLA) are established for each ICT service offered by internal and external service providers.
  4. The Ministry shall conduct service quality audits and produce relevant reports to establish improvements required to enhance ICT services' performance and quality from time to time.
  5. The Ministry shall ensure proper processes and procedures for managing vendors are in place.
  6. The Ministry shall ensure that it builds good relationships with the business and third-party providers to ensure that ICT services will continue to meet evolving institutions' business needs.
  7. The Ministry shall institute an effective change management system and procedures to govern all Ministry ICT services changes.
  8. The Ministry shall ensure that robust business continuity and service recovery plans are in place, regularly reviewed and tested to ascertain their effectiveness.
  9. The Ministry shall institute an effective configuration management system and procedures to govern all ICT asset configurations.
  10. The Ministry shall establish a capacity and performance management plan to monitor ICT resource usage and ensure ICT services availability and sustainability.

## ICT Security

ICT Security covers all the processes by which computer-based equipment, information, and services are protected from unintended or unauthorized access, change, or destruction throughout an organization.

## Policy Objective

To ensure the security of the Ministry’s information systems.

## Policy Statements

1. The Ministry shall develop and implement an ICT security policy and strategy that provides directives for managing ICT security in the Ministry.
2. The Ministry shall regularly review the ICT security policy and strategy to make sure it is up-to-date.
3. The Ministry shall set aside an adequate fund to implement ICT security policy and strategy.

# CHAPTER FOUR: IMPLEMENTATION, REVIEWS, AND ENFORCEMENT

## Implementation and Reviews

This document shall come into operation once tabled and agreed in a management meeting, approved on its first page, and shall be considered mandatory for all Ministry’sbusiness operations.

* + 1. The policies described herein provide top-level issues for a common understanding of adoption and usage at the institution based on e-Government standards and guidelines, and where necessary detailed procedures could be developed.
    2. The Ministrymanagement will use this policy to ensure that it operates within a well-geared ICT ecosystem.
    3. All employees and other authorized users of the Ministry’s ICT services shall comply with this policy's requirements.
    4. The head responsible for ICT shall enforce compliance with this policy.
    5. The Ministry staff found to have violated this policy may be subject to withdrawal and suspension of systems and network privileges or disciplinary action according to rules defined by Ministry administrative regulations.
    6. This document shall be reviewed within three years or whenever the Ministry's business environmentchanges to affect the current policy.

## Exceptions

* + 1. In case of any exceptions to this policy, it shall be thoroughly documented and followed through a proper authorization channel using the same authority that approved this document.

## Roles and Responsibilities

### The Permanent Secretary

* + 1. Review and approve general ICT policy, and provide strategic directives on utilisation of ICT to enhance productivity by ensuring effective and efficient systems ;
    2. Appoint an ICT steering committee (or equivalent) and determine its terms of reference; and
    3. Ensure implementation of the ICT Policy.

### ICT Steering Committee

* + - 1. Shall propose the Ministry's ICT policy for the consideration and approval;
      2. Shall coordinate the establishment and continues review of the Ministry's ICT policy, ICT strategy, and enterprise architecture;
      3. Shall ensure that the ICT strategy is aligned with Ministry's corporate plan;
      4. Shall advice the Ministry managementin making considered decisions about the focus of ICT resources;
      5. Shall review all ICT services and applications, including the Ministry's website and infrastructure with the view to advice the Ministry on required improvements; and
      6. Shall ensure that risks associated with ICT are managed appropriately.

### Directors/ Managers/Head of Sections/Units

* + - 1. Shall ensure that all users under their supervision are aware and comply with this policy;
      2. Shall provide adequate and appropriate protection of ICT assets and resources under their control;
      3. Shall ensure availability, integrity, and confidentiality of information produced by systems under their areas of functional responsibilities and thereby ensure continuity of operations; and
      4. Shall review and approve procedures, standards, policies, and guidelines developed from this policy to maintain business continuity and security of Ministry's ICT resources.
      5. Shall be the custodian of "Data and Information" for their respective Departments/sections/Units.

* + 1. **Head of ICT Unit**

Subject to general oversight of Permanent Secretary and advice of the ICT steering committee, the head responsible for ICT shall oversee the overall implementation of this policy; and in particular, he/she shall;

* + - 1. Coordinate the review and amendment of this policy, as and when required to accommodate new technologies or services, applications, procedures, and perceived dangers;
      2. Plan and develop ICT Strategy and the Ministry's Enterprise Architecture and ensure its implementation.
      3. Monitor adherence to the ICT Policy and the presence of potential threats and risks by ensuring periodic ICT security reviews are conducted
      4. Keep abreast of ICT developments in respect of ICT industry in general and Ministry's systems in particular.
      5. Initiate and recommend proposals to change, modify or improve this policy; and recommend procedures, standards, and policies for effective implementation of this policy in line with e-Government standards and guidelines.
      6. Be the custodian of all Ministry's ICT resources, including those centrally stored in the server room/data center.
    1. **Head of Internal Audit Unit**
       1. Shall audit the ICT function of the Ministryand ensure compliance with the policy.
    2. **Users of ICT Systems**
       1. Shall be responsible for safeguarding ICT assets of the Ministry in their custody.
       2. Shall comply with this policy.

## Monitoring and Evaluation

ICT Steering Committee shall meet at least quarterly to monitor and evaluate ICT initiatives' achievements against the Ministry'sICT Policy, strategic plan, and enterprise architecture.

## Offenses and Penalties

This ICT policy was developed aligned to the e-Government Act No 10 of 2019, which is to be followed by all public institutions, the Ministry being among them. On section 58 (1) (2), the Act provides penalties to ANY person who contravenes or fails to comply with the policy.

# ICT Policy M&E result framework

**ICT POLICY M&E FRAMEWORK**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Na | **Area of Intervention** | **Current Situation** | **Expected Result** | **Means of verification** |
| 1z | ICT Governance and Management | ICT steer committee available but not active | ICT steering committee to be active | * Number of meetings conducted * Number of resolutions made |
| Inadequate number of ICT staff and skills.  Available: 6  Required: 11 | * Adequate number of ICT staff available * Professional training and capacity building to ICT staff conducted | * Number of staff additional in place * Number of training and capacity building sessions conducted |
| Lack of awareness on e-Government Act of 2019, regulations of 2020 ICT standards and guidelines among staff and other ICT related issues | Staff awareness increased | * Number of awareness training conducted * Number of staff attended awareness training |
| Lack of guidelines for acquisition and disposal of ICT assets | Guidelines for acquisition and disposal of ICT assets in place | * Availability and enforcement of guideline |
|  |  | Inadequate source of funds to support ICT initiatives | Additional source of funds identified | * Number of sources of fund supporting ICT initiatives * Amount of funds allocated for ICT budgets |
|  |  | Lack of adequate license management system | License management system established | * Availability of license management system |
| 2 | ICT Infrastructure | Lack of ICT infrastructure architecture | Approved ICT infrastructure architecture in place | * Approved ICT infrastructure architecture |
| Unavailability of backup link between primary and secondary sites and internet connectivity | * Backup link between primary and secondary sites installed * Backup internet link installed | * Availability of backup link between primary and secondary sites. * Availability of backup internet link |
|  |  | Inadequate connectivity to zonal and training institute | Zonal and training institutions connected to Ministry’s HQ | * Connectivity to zonal and training institutions. |
| 3 | Application Software, Systems, and E-Services | Lack enterprise application architecture | Approved enterprise application architecture in place | Approved enterprise application architecture in place |
| Unharmonized and undocumented business processes | business process harmonization and documented | A list of harmonized business process |
| Lack of software application interoperability standards | Interoperability standards and guidelines established | List of interoperability standards and guidelines established adopted |
| Inadequate automation of administrative and management business processes | All administrative and management business processes automated | Number of business processes automated |
| 4 | ICT project management | Inadequate ICT project management framework. | PMI project management frameworks adopted | List of PMI projects frameworks adopted |
| 5 | Data Management | Lack of data management guidelines | Data management guidelines prepared | Electronic data management implemented |
| Inadequate electronic data management systems | Adequate electronic data systems in place | Number of electronic data systems in place |
| 6 | ICT Security | Inadequate of security awareness among staff | Security awareness programs conducted | * Number of security awareness programs conducted * Number of staff attended security programs |
| Lack of security policy | Security policy developed and operationalize | Developed Security policy |
| Lack of ICT security officer | ICT security officer in place | Number of security officer in place |
|  |  | Inadequate ICT risk management plan | ICT risk management plan developed and implemented | * Number of ICT risks identified * Number of ICT risks mitigated * Implemented business continuity plan |
|  | ICT Service Management | Lack of ICT Services catalog | Service catalog in place | Number of service in service catalog |
|  | Ineffective ICT service desk | ICT service desk improved | * Number of services offered by ICT service desk * Number of staff in ICT service desk |
|  | Ineffective service level agreement (SLA) | Improved Service level agreement (SLA) | Number of signed service level agreement |
|  |  | Ineffective change management and procedures | Change management procedure developed and Implemented | Established change management procedures |
|  |  | Inefficient configuration management | Configuration management system in place | Configuration management system in place |
|  |  | Unavailability of capacity and performance management tools | Monitoring and performance management tools implemented | Available monitoring and performance management tool |