

**STEFANO MOSHI MEMORIAL UNIVERSITY COLLEGE
(SMMUCo)
(A Constituent College of Tumaini University Makumira)**



INFORMATION AND COMMUNICATION TECHNOLOGY POLICY

1st Edition

**As Approved by 30th Meeting of the College Governing Board held
on 18th January, 2018**

FOREWORD

The SMMUCo ICT Policy and Guidelines was formulated in 2007 to guide the identification, promotion and appropriate utilization of ICT at SMMUCo by ensuring that ICT applications are integrated into the planning and implementation of University functions. Since then, the SMMUCO ICT Policy and Guidelines has enabled SMMUCO to accomplish several ICT improvements, including infrastructure, systems, content, programmes and human resource development. However, since the formulation of this Policy and Guidelines in 2002, several technological, institutional and structural changes that affect ICT development at SMMUCO have occurred globally, nationally and within the University. Consequently, a number of gaps have been noted in the course of implementing the Policy. In view of this, the SMMUCO ICT Policy and Guidelines (2007) has been revised to fill the identified gaps and capture emerging ICT-related issues that are relevant to the University.

The revised ICT Policy will enable SMMUCO achieve excellence in academic and administrative services through the development and use of ICT applications and services. The Policy is organized into four chapters. Chapter One introduces ICT applications in education, provides an overview of the University, describes the results of an ICT situational analysis and describes the rationale for the policy review. Chapter Two provides the policy justification, vision, mission and policy objectives. Chapter Three gives the focus areas, policy statements and strategies. These fall under ten categories namely ICT infrastructure and services, integrated management information systems, ICT security, content development, skills development, e-learning, e-resources, ICT standards, e-waste management, and sustainability of ICT. The final chapter presents the framework for policy implementation as well as its monitoring and evaluation.

It is worth noting that the formulation of this policy involved a number of stakeholders. We would like to thank all those who contributed to the revision of this Policy. The shared vision, mission and objectives clearly defined in this Policy will be realized only if various actors play their roles effectively.

Prof. Amin E. Kweka
Provost
January, 2018

TABLE OF CONTENTS

FOREWORD.....	<u>i</u>
TABLE OF CONTENTS.....	<u>ii</u>
ABBREVIATIONS.....	<u>v</u>
DEFINITIONS OF KEY TERMS.....	<u>vi</u>
CHAPTER ONE.....	<u>1</u>
BACKGROUND INFORMATION.....	<u>1</u>
1.1 Introduction.....	<u>1</u>
1.2 SMMUCo: Overview.....	<u>2</u>
1.3 ICT Situational Analysis.....	<u>2</u>
1.4 Rationale for ICT Policy Review.....	<u>3</u>
CHAPTER TWO.....	<u>5</u>
POLICY JUSTIFICATION, VISION, MISSION AND OBJECTIVES.....	<u>5</u>
2.1 Justification.....	<u>5</u>
2.2 Policy Vision, Mission and Objectives.....	<u>5</u>
2.2.1 Vision.....	<u>5</u>
2.2.2 Mission.....	<u>5</u>
2.2.3 Objectives.....	<u>5</u>
CHAPTER THREE.....	<u>7</u>
FOCUS AREAS, POLICY STATEMENTS AND STRATEGIES.....	<u>7</u>
3.1 Overview.....	<u>7</u>
3.2 ICT Infrastructure and Services.....	<u>7</u>
3.2.1 Issues.....	<u>7</u>
3.2.2 Policy statements.....	<u>7</u>
3.2.3 Strategies.....	<u>7</u>
3.3 Integrated Management Information Systems.....	<u>8</u>
3.3.1 Issues.....	<u>8</u>
3.3.2 Policy statements.....	<u>8</u>
3.3.3 Strategies.....	<u>8</u>
3.4 ICT Access, Use and Security.....	<u>8</u>
3.4.1 Issues.....	<u>8</u>
3.4.2 Policy statements.....	<u>8</u>
3.4.3 Strategies.....	<u>8</u>
3.5 Content development.....	<u>9</u>
3.5.1 Issues.....	<u>9</u>
3.5.2 Policy statements.....	<u>9</u>
3.5.3 Strategies.....	<u>9</u>
3.6 ICT Skills Development.....	<u>9</u>
3.6.1 Issues.....	<u>9</u>
3.6.2 Policy statements.....	<u>9</u>
3.6.3 Strategies.....	<u>10</u>
3.7 E-learning.....	<u>10</u>
3.7.1 Issues.....	<u>10</u>

3.7.2	Policy statements	<u>10</u>
3.7.3	Strategies	<u>10</u>
3.8	Electronic Information Resources	<u>10</u>
3.8.1	Issues	<u>10</u>
3.8.2	Policy statements	<u>10</u>
3.8.3	Strategies	<u>10</u>
3.9	ICT standards	<u>11</u>
3.9.1	Issues	<u>11</u>
3.9.2	Policy statements	<u>11</u>
3.9.3	Strategies	<u>11</u>
3.10	E-waste management	<u>11</u>
3.10.1	Issues	<u>11</u>
3.10.2	Policy statements	<u>11</u>
3.10.3	Strategies	<u>11</u>
3.11	Sustainability of ICTs	<u>12</u>
3.11.1	Issues	<u>12</u>
3.11.2	Policy statements	<u>12</u>
3.11.3	Strategies	<u>12</u>
CHAPTER FOUR		<u>13</u>
IMPLEMENTATION, MONITORING AND EVALUATION.....		<u>13</u>
4.1	Organization and Mandate.....	<u>13</u>
4.2	The Role of the Computer Centre Board	<u>13</u>
4.3	The Role of Other Stakeholders	<u>13</u>
4.4	Monitoring and Evaluation (M&E)	<u>13</u>

ABBREVIATIONS

SARIS	Student Academic Register Information System
ICT	Information and Communication Technology
IP	Internet Protocol
LAN	Local Area Network
M&E	Monitoring and Evaluation
SMMUCO	Stefano Moshi Memorial University College
TCP/IP	Transmission Control Protocol/Internet Protocol
TERNET	Tanzania Education and Research Network

DEFINITIONS OF KEY TERMS

Bandwidth describes the amount of data a network can transmit in a certain period of time, expressed in bits per second.

Cloud computing is a model for enabling access to a shared pool of configurable computing resources such as storage, applications, and services that can be rapidly provisioned and released with minimal management effort or service provider interaction.

E-resources are information resources that users access electronically including, but not limited to electronic journals, electronic books and other Web-based documents.

Free Open Source Software is computer software that anyone is freely licensed to use, copy, study and modify in any way. In addition, the source code is openly shared, which encourages people to voluntarily improve the design of the software.

E-waste describes discarded electrical or electronic devices that have become waste because they cannot be upgraded or repaired for re-use. E-waste includes computers and their accessories, mobile phones, television sets and other electrical equipment.

Information and Communication Technologies (ICT) comprise a diverse set of tools, systems, applications and services used for production, processing, storage, transmission, presentation and retrieval of information by electronic means.

Institutional repository is an online database for collecting, preserving and disseminating the intellectual output of an institution. The database includes materials such as journal articles (particularly preprints), theses and dissertations, research reports, course notes and other academic documents.

Internet is the world-wide collection of private and public router-based networks that are interconnected via gateways and exchange points, which all utilize the TCP/IP protocol.

IP address is a set of protocols developed to allow cooperating computers to share resources across a network.

Local Area Network (LAN) is a computer network that spans a relatively small area such as a single building or group of buildings.

Management Information Systems are information systems that facilitate the management of corporate functions.

CHAPTER ONE

BACKGROUND INFORMATION

1.1 Introduction

Information and Communication Technologies (ICT) comprise a diverse set of tools, systems, applications and services used for production, processing, storage, transmission, presentation and retrieval of information by electronic means. ICT encompass a wide range of rapidly-evolving and increasingly-converging technologies including hardware, software, networks and associated applications. The capacity of ICT is growing exponentially, whereby computers and other devices become increasingly powerful; transmission capacity increases; and software applications make it easier to create multimedia resources.

ICT has increasingly become an integral part of today's educational system throughout the world. This is mainly because information and communication are at the very heart of any educational system. ICT has the potential to support many educational functions, such as teaching and learning, research and scholarship and management and administration. These technologies enhance the sharing of information; increase collaboration among students, academicians and administrators; enhance provision of distance education; and have resulted in new forms of pedagogy. In higher education, ICT has been broken into 4 broad categories: 1) subjects (e.g. computer studies); 2) tools to support other subjects (e.g. computer-based learning); 3) educational management tools (e.g. student information systems); and 4) platforms for information sharing. Hence, the transformation of higher education must be coupled with the effective application of ICT in teaching, learning, research, outreach and administration. In order to respond to these demands, higher education institutions need to realign their practices to information age standards by adopting ICT as important tools for enhancing efficiency and effectiveness.

The pedagogical and economical forces that drive universities to mainstream ICT in their functions include greater access to current information; interactive teaching and learning environment; synchronous learning; lessening of high workloads; and increased student to teacher ratio. In addition, ICT provides pedagogical improvement through the use of presentation programs and tools such as computer simulation software. ICT can also improve cost-effectiveness through its ability to reach distant students and in greater numbers. Generally, ICT provide an array of powerful tools that can transform isolated, teacher-centred and text-bound classrooms into rich, student-focused and interactive environments. In addition, the current workplace environment requires graduates to be ICT literate regardless of their fields of study. As universities develop and expand the use of ICTs in their activities, they are strengthening their capacity to enhance the quality of education and respond to new development challenges.

In order to remain competitive in the increasingly globalized world, universities require stability in their ICT environments. The ideal ICT requirements of a modern university include efficient and sustainable network infrastructure; sufficient computing facilities and related accessories; reliable bandwidth; network centers with uninterruptible power supplies, backup-facilities and physical protection; and data recovery centres. It is also necessary to computerize core university functions by establishing integrated information systems for teaching and learning; library services; human resources; records management and financial

and procurement services. With the increasing demand to employ ICT in all aspects of university activities, it is important to equip staff and students with the right skills, which enhance their ability to manage and utilize these tools. In addition, with the increase of e - waste generation there is need for frameworks to mitigate the consequent threat to the environment.

1.2 Stefano Moshi Memorial University Collge:

Overview

Stefano Moshi Memorial University Collge a Constituent College of Tumaini University, SMMUCo began in 2007. It inherited the buildings of Masoka Management Training Institute. The Institute was established by the Northern Diocese, ELCT, in 1991, to train personnel for the Church and the Nation, and taught programmes leading to Certificates, Diplomas and Advanced Diplomas. The graduates of Masoka Institute are today scattered in all corners of the nation serving in different capacities. A few others have found opportunities for employment outside the country. SMMUCo consists of three campuses- Masoka, Mwika and Moshi town. Masoka serves as the administrative headquarters of the University College. Until 2009-2010 students admitted to the College were taught at Masoka campus. At the beginning of the academic year 2009-2010 a new campus was opened at Mwika Bible College, forty kilometres from Moshi town, for the Faculties of Education and Theology; two months later the third campus for the Faculties of Business and Management Studies and Science and Technology was opened, and housed in the renovated Breweries Limited Buildings in JJ Karanga Industrial Area, Moshi Municipality. In the first academic year of its inaugural, 2007-2008, SMMUCo began with 326 registered students. Among them were ninety seven first year degree students in Accountancy; the rest were registered in programmes leading to diplomas and certificates of Tumaini University. In the following academic year, 2008-2009, the student population grew to 550. The College had developed new degree programmes in addition to Bachelor of Accountancy which included Bachelor of Business Administration with Education, Bachelor of Science in Information Technology, Bachelor of Science in Hospitality and Tourism Management, Bachelor of Arts in Public Administration and Management and Bachelor of Education. The total number of students taking degrees and non degree courses in the academic year 2009-2010 grew to 843, and to 1399 and 1515 in the academic years 2010-2011 and 2011-2012 respectively. In this academic year the College expects to enroll a total of 1287 new students which together with 1121 continuing students, is expected to bring the total to 2408. In the year 2013 -2014 the total number of registered students rose to 2540.

1.3 ICT Situational Analysis

The SMMUCO ICT Policy and Guidelines (2007) has enabled the University to accomplish several ICT developments that support academic and administrative functions. These developments include establishment and maintenance of the University's Local Area Network (LAN); establishment of computer laboratories; design and maintenance of the University Website; increasing bandwidth from 128kpbs in 1996 to 40 Mbps in 2014; partial computerization of library services, student records, and financial services; teaching of ICT courses; establishment of ICT-related certificate, diploma and degree programmes;

Establishment of the Department of Informatics, Computing & Technology as well as development and maintenance of software (e.g. Student Academic Register Information System (SARIS) and E-learning System). The Policy has also enabled the University to recruit, retain and develop ICT personnel and integrate ICT-related courses into all degree programmes. Most importantly, the SMMUCO Corporate Strategic Plan (2011 - 2020) recognizes the importance of ICTs in supporting university activities and dedicates 10% of SMMUCO internally-generated funds to improving ICTs.

Other ICT-related strengths at SMMUCO include the existence of the University Computer Centre; developed standalone systems in various units; growing ICT literacy, expertise and awareness in the University; and increased demand for ICT services across the University. There are also opportunities, such as the upcoming implementation of a nation-wide fiber optic cable network; proliferation of new technologies that can lower ICT costs; increased availability of open source applications; and the availability of a national ICT policy that promotes and guides ICT development in the country.

Notwithstanding these strengths and opportunities, SMMUCO also faces several ICT-related challenges and problems. These include inefficient local area network; aging ICT facilities; inadequate computer laboratories; insufficient computers; lack of integrated information systems; slow Internet connectivity; insufficient office and laboratory space for ICT activities; unreliable power supply; inadequate ICT personnel; lack of high capacity servers; inadequate ICT security systems; inadequate local content on the Web; financial constraints; and low usage of electronic information resources by stakeholders. Other challenges include high costs of bandwidth; increasingly-sophisticated ICT-related security risks, threats and attacks; and the rapidity of technological developments. In addition, electronic waste (e - waste) is currently the fastest growing waste stream, and it contains toxic components such as lead, mercury and cadmium. Improper disposal of electronic waste pollutes the environment with hazardous toxins, thereby causing widespread health risks and environmental degradation.

1.4 Rationale for ICT Policy Review

The SMMUCO ICT Policy and Guidelines was formulated in 2007 with the aim of guiding the identification, promotion and appropriate utilization of ICT at SMMUCO. The Policy aimed at ensuring that ICT applications are integrated into planning and implementation of the University mission to improve the quality of activities. However, since the formulation of the SMMUCO ICT Policy and Guidelines in 2007, several technological, institutional and structural changes have occurred globally, nationally and within the University that have influence on ICT development at SMMUCO. Globally, there have been phenomenal

ICT developments in terms of availability, emergence and obsolescence of technologies. There are also technological convergences that increasingly blur distinctions between different types of ICT. At the national level, there are key policies guiding ICT developments, including the National ICT Policy (2003) and the National Information and Broadcasting Policy (2003). There are also sectoral policies, such as the ICT Policy for Basic Education (2007), and ICT-related legal provisions and regulations that are reviewed periodically. The Tanzania Education Network (TERNET) was created to provide an electronic network that connects all Higher Education Institutions (HEIs), research facilities and teacher colleges in the country.

At SMMUCO, the University Charter (2007) and the SMMUCO Corporate Strategic Plan (2011 – 2020) are among the new frameworks that have influence on ICT developments. Increased University population in terms of staff and students as well as establishment of new programmes (particularly ICT-related programmes) also causes demand for higher quality and more diverse ICT services. The revised Policy will guide the development and appropriate utilization of ICT at SMMUCO. This Policy will also enable SMMUCO to harness the potential of ICT to provide high standard services to students, staff and the wider community.

CHAPTER TWO

POLICY JUSTIFICATION, VISION, MISSION AND OBJECTIVES

2.1 Justification

This Policy is expected to improve the quality of teaching, learning, research and outreach at the University using modern approaches enabled by ICT. From pedagogic and other perspectives, ICT will enhance staff-students, staff-staff and students-students interactions; reduce staff workloads; prepare SMMUCO graduates for knowledge-based work environments; enhance access to electronic information resources and library services; and increase the visibility of the University's research output, among many other benefits. The Policy is also intended to increase efficiency and effectiveness of the University's administrative functions. This Policy aligns with the Corporate Strategic Plan (2011 - 2020), which advocates for the use of ICT to increase efficiency, cost effectiveness and competitiveness. The Corporate Strategic Plan targets to have in place an effective and efficient ICT system for enhancing training, research, outreach, consultancy and management functions. This Policy is also consistent with various policy frameworks in Tanzania that call for integration of ICT in education systems.

Achieving SMMUCO's vision and mission, which embody the objectives of this Policy, depends on the presence of several critical success factors at the national and institutional levels. The critical success factors at the national level include the availability of favourable ICT policy and regulatory frameworks, particularly those for the education sector. The University is required to closely align its ICT practices to national ICT policies and regulatory environment in order to take advantage of them. At the institutional level, critical success factors include stakeholders' commitment to ICT developments, particularly willingness of the top management; adequate funding of ICT; efficient procurement process; and the willingness and capacity of staff to create ICT-responsive curricula.

2.2 Policy Vision, Mission and Objectives

2.2.1 Vision

The Vision of SMMUCo is "serving God and people by promoting educational and professional excellence for the total quality development of man." It emanates from its Christian foundation, services and values and focuses on fulfilling God's purpose of sharing all God given grace and wisdom with all so that God's people may live wisely in this world. SMMUCo shall be a centre of excellence for learning and the acquisition of knowledge and skills by its students and staff, conducting research and consultancy for the good of society.

2.2.2 Mission

SMMUCo is defined by the resolutions establishing Tumaini University Makumira. It is dedicated to serving people effectively and efficiently in providing and promoting high quality education, learning and research through scientific enquiry to all students without prejudice to religion, gender and race.

It is committed to empowering individual students, to continue learning and serving the Nation and international communities.

2.2.3 Objectives

The general objective is to provide quality education through training in short and long courses and tailor made programmes, certificate, diplomas, degree programmes and sustainable research and consultancy activities

Specific objectives of SMMUCo include

- The provision of courses leading to degrees, diplomas, certificates and other awards of the Tumaini University Makumira.
- The production of College graduates who are sensitive and responsive to community needs and who are able to plan, organize, co-ordinate and evaluate programmes aimed at meeting those needs.
 - The acceleration of the pace of human resources development in social, economic, academic and research fields.
 - The development of resources from which spiritual breezes will spring and spread out far and wide for the renewal of the Church and Society as a whole, as a realization of hopes and expectations of ELCT-Northern Diocese and the Church in general.

CHAPTER THREE

FOCUS AREAS, POLICY STATEMENTS AND STRATEGIES

3.1 Overview

This chapter presents the focus areas, policy statements and strategies necessary for effective implementation of policy objectives.

3.2 ICT Infrastructure and Services

3.2.1 Issues

- i. Limited and unreliable ICT network infrastructure
- ii. Insufficient computers and related accessories
- iii. Aging ICT facilities
- iv. Slow Internet connectivity
- v. Inadequate ICT personnel
- vi. Unreliable power supply
- vii. Limited funding of ICT matters

3.2.2 Policy statements

SMMUCO shall endeavor to:

- i. Develop and maintain efficient and effective LAN to meet increasing Internet requirements
- ii. Acquire and maintain sufficient computers to meet the needs of the increasing staff and student population
- iii. Provide an efficient and effective intercom telecommunication system within the University
- iv. Regularly update ICT hardware and software to keep up with the changing technology environment
- v. Improve and manage Internet services to meet ever-increasing requirements
- vi. Build and maintain institutional capacity for managing ICTs effectively
- vii. Ensure availability of power backup and stabilizer mechanisms to increase the availability Internet services and protect ICT equipment
- viii. Maintain a broadcast facility to support the University mission

3.2.3 Strategies

- i. Expand and improve LAN to reach all University locations
- ii. Provide regular maintenance to ICT facilities and network infrastructure
- iii. Acquire sufficient computers for staff and students
- iv. Maintain and improve the available broadcast facility
- v. Prepare and broadcast programmes to promote teaching, research and extension
- vi. Increase Internet bandwidth from time to time to meet ever-growing demand
- vii. Develop and implement bandwidth management strategies
- viii. Maintain the telephone system
- ix. Recruit, develop and retain highly-quality ICT personnel
- x. Acquire and install high-capacity renewable power backups, voltage stabilizers and smoke detectors

3.3 Integrated Management Information Systems

3.3.1 Issues

- i. Availability and Reliability of standalone, partially computerized information systems
- ii. Inefficiency and ineffective information flow
- iii. Inconsistency of students and staff information across the University
- iv. Duplication of data caused by multiple data entry points
- v. Low adoption of ICT in academic and administrative functions

3.3.2 Policy statements

SMMUCO shall endeavor to:

- i. Develop and maintain integrated management information systems to support all academic and administrative functions
- ii. Increase the use of ICT in the implementation of University functions
- iii. Ensure interoperability of information systems across the University

3.3.3 Strategies

- i. Acquire, install and maintain integrated management information systems for all academic and administrative services
- ii. Train staff and students to use information systems relevant to their activities
- iii. Promote the use of ICT for academic and administrative functions
- iv. Acquire, develop and implement information systems that are capable of communicating and exchanging data.

3.4 ICT Access, Use and Security

3.4.1 Issues

- i. Unsecure ICT systems and institutional data
- ii. Lack of reliable data backup and recovery mechanisms
- iii. Inadequate ICT security procedures
- iv. Inadequate ICT disaster recovery plans and mechanisms
- v. Inadequate terms and conditions for using University ICT facilities

3.4.2 Policy statements

SMMUCo shall endeavor to:

- i. Protect ICT systems and institutional data
- ii. Establish data backup and recovery mechanisms
- iii. Develop proper ICT security procedures and disaster recovery plans
- iv. Ensure that ICT facilities and services are used by authorized individuals depending on their work and study requirements
- v. Ensure that ICT facilities and services are used to carry out legitimate activities

3.4.3 Strategies

- i. Establish access levels, rights and privileges for different categories of ICT users
- ii. Acquire and install protective software for detecting and defending ICT equipment, systems and content against malicious software
- iii. Develop and implement appropriate backup and recovery mechanisms for institutional data

- iv. Develop and implement ICT security procedures
- v. Develop and implement ICT disaster recovery plans and mechanisms
- vi. Locate all ICT equipment in physically secure areas
- vii. Define terms and conditions of using University ICT facilities and services for different categories of users

3.5 Content development

3.5.1 Issues

- i. Inadequate quality and out of date content on the University website
- ii. Many units in the University have incomplete or missing webpages on the University website
- iii. Lack of skills among stakeholders for uploading content on the web
- iv. Most locally generated content is not widely accessible
- v. Laxity in providing relevant web content by some stakeholders

3.5.2 Policy statements

SMMUCo shall endeavor to:

- i. Maintain a comprehensive University website that has webpages for all units
- ii. Ensure that the content of the University websites is relevant, accurate, consistent and up-to-date
- iii. Equip stakeholders with relevant skills for uploading content on the website
- iv. Develop and maintain institutional repositories for locally generated content
- v. Ensure continuous uploading of locally generated content into institutional repositories
- vi. Empower units to regularly upload relevant content to the website

3.5.3 Strategies

- i. Each unit in the University shall develop and maintain a comprehensive webpage
- ii. Train designated staff from various units across the University on website design and content management
- iii. Promote online publication of academic works by the University community
- iv. Develop and maintain institutional repositories
- v. Deploy and maintain a robust content management system

3.6 ICT Skills Development

3.6.1 Issues

- i. Most staff and students have low ICT skills

3.6.2 Policy statements

SMMUCO shall endeavor to:

- i. Equip staff and students with appropriate ICT skills

3.6.3 Strategies

- i. Train all students in relevant computer application courses during their studies
- ii. Train all staff from regularly in order to equip them with up-to-date ICT skills

3.7 E-learning

3.7.1 Issues

- i.* Low usage of ICT to enhance teaching and learning
- ii.* Lack of e-learning system in the University
- iii.* Lack of quality and up to date content for e-learning

3.7.2 Policy statements

SMMUCO shall endeavor to:

- i.* Integrate ICT in teaching and learning activities
- ii.* Promote the use of e-teaching and e-learning

3.7.3 Strategies

- i.* Establish e-learning system in order to enhance teaching and learning
- ii.* Establish and maintain relevant infrastructure (e.g. Video Conferencing Facilities) to enhance teaching and learning
- iii.* Equip lecture halls and laboratories with up-to-date e-learning facilities
- iv.* Promote the use of e-learning and other ICT tools and services in teaching and learning activities

3.8 Electronic Information Resources

3.8.1 Issues

- i.* Low usage of electronic information resources
- ii.* High costs of subscription to online scholarly databases

3.8.2 Policy statements

SMMUCO shall endeavor to:

- i.* Promote utilization of e-resources to support academic purposes
- ii.* Integrate information literacy into the University curricula in order to enhance utilization of e-resources
- iii.* Mobilize and allocate financial resources for subscribing to online databases
- iv.* Address contextual and technical issues related to low utilization of e-resources

3.8.3 Strategies

- i.* Raise awareness about e-resources among various categories of users
- ii.* Equip staff and students with information literacy skills
- iii.* Increase allocation of financial resources for subscription of online resources
- iv.* Encourage the utilization of open access e-resources

3.9 ICT standards

3.9.1 Issues

- i.* Unguided procurement and installation of ICT equipment and software in the University
- ii.* Use of ICT specifications as informal or “de facto standards”
- iii.* Lack of awareness on appropriate ICT standards among stakeholders

3.9.2 Policy statements

SMMUCO shall endeavor to:

- i. Develop guidelines on ICT standards in the University
- ii. Promote acquisition of hardware and software that comply with institutional, national or international standards
- iii.
- iv. Ensure that the use of the University ICT is consistent with the principles and values that govern the use of other University facilities and services
- v.
- vi. Promote compliance to institutional, national or international standards on ICT

3.9.3 Strategies

- i. Develop and implement guidelines on ICT standards
- ii. Raise awareness on ICT standards

3.10 E-waste management

3.10.1 Issues

- i. Lack of safe e-waste disposal procedures
- ii. Lack of public awareness on the need for proper e-waste treatment
- iii. Absence of infrastructure for appropriate e-waste management

3.10.2 Policy statements

SMMUCO shall endeavor to:

- i. Establish clear guidelines on e-waste management
- ii. Raise stakeholders' awareness on the sustainable management of e-waste
- iii. Dispose e-waste in a manner that is sustainable and safe for the environment

3.10.3 Strategies

- i. Formulate and implement guidelines for management of e-waste
- ii. Plan and implement e - waste awareness activities
- iii. Provide space, equipment and other support systems for management of e - waste
- iv. Ensure the use of sound technologies to minimize e-waste generation

3.11 Sustainability of ICTs

3.11.1 Issues

- i. High costs of hardware, software and bandwidth
- ii. Rapid obsolescence of hardware, software and services
- iii. Rapid emergence of new hardware, software and other ICT applications
- iv. High rate of ICT personnel turnover
- v. Inadequate financial resources for ICT development

3.11.2 Policy statements

SMMUCO shall endeavor to:

- i. Develop and institutionalize relevant strategies for funding ICT development
- ii. Adopt and institutionalize cost-effective strategies for acquiring and managing ICTs
- iii. Acquire and maintain ICT hardware and software to catch up with the dynamic ICT environment

- iv. Ensure recruitment, development and retention of adequate ICT personnel

3.11.3 Strategies

- i. Mobilize and allocate adequate financial resources for ICT development
- ii. Adopt and use the Free and Open Source Software
- iii. Employ consortia and cloud computing approaches for acquisition of ICT services
- iv. Recruit, develop and retain adequate ICT personnel

CHAPTER FOUR

IMPLEMENTATION, MONITORING AND EVALUATION

4.1 Organization and Mandate

The implementation of the SMMUCO ICT Policy shall be institutionalized within the organizational structure of the University. The SMMUCO Computer Centre shall lead the coordination and implementation of the Policy. The Computer Centre was established in 2007 as the University arm responsible for teaching, research and consultancy in computer applications for agriculture, veterinary medicine, forestry and allied sciences. A policy implementation plan that identifies activities to be performed, required resources, time frame and the responsible stakeholders shall be developed. Therefore, the Computer Centre shall translate the Policy into implementable programmes and play a leading role in their implementation. The Computer Centre shall also advise and assist all units and stakeholders across the University on issues related to ICT. The Director of Computer Centre shall report to the Computer Centre Board on all Policy matters, and the Board shall report the same to the University Senate for approval, and where necessary, for onward transmission to the University Council.

4.2 The Role of the Computer Centre Board

The Computer Centre Board shall have the following mandate:

- i. Overseeing the implementation of the policy
- ii. Approving the policy implementation plan
- iii. Reporting the implementation of the Policy to the University Senate
- iv. Advising on changes needed for the ICT Policy

4.3 The Role of Other Stakeholders

The success of the SMMUCO ICT Policy depends on cooperation from every member of the University community. Therefore, stakeholders shall be responsible for integrating ICTs into their activities. Each unit across the University shall be responsible for uploading their own content into the website. A change management approach shall be employed to ensure thoughtful planning and implementation of ICT issues is performed with the involvement of stakeholders affected by ICT changes. Stakeholders shall be consulted regularly to support and facilitate the effective implementation of the policy.

4.4 Monitoring and Evaluation (M&E)

Implementation of the SMMUCO ICT Policy depends upon effective Monitoring and Evaluation (M&E) mechanisms to assess the implementation of strategies and achievement of policy goals and objectives. The Computer Centre Board shall work with other stakeholders in monitoring and evaluating policy activities. Relevant indicators shall be developed and be made available to enable stakeholders at all levels monitor and assess ICT development activities on a regular basis.

4.5 Review and revision of the SMMUCO ICT Policy

An evaluation of the outcomes of this policy will provide information on the extent to which the policy is being implemented and the progress being made in achieving Policy objectives. An overall policy review will be undertaken after every five years or earlier, as need arises.