UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND VOCATIONAL TRAINING (MoEVT)

**INFORMATION & COMMUNICATION TECHNOLOGY (ICT)
POLICY FOR BASIC EDUCATION**
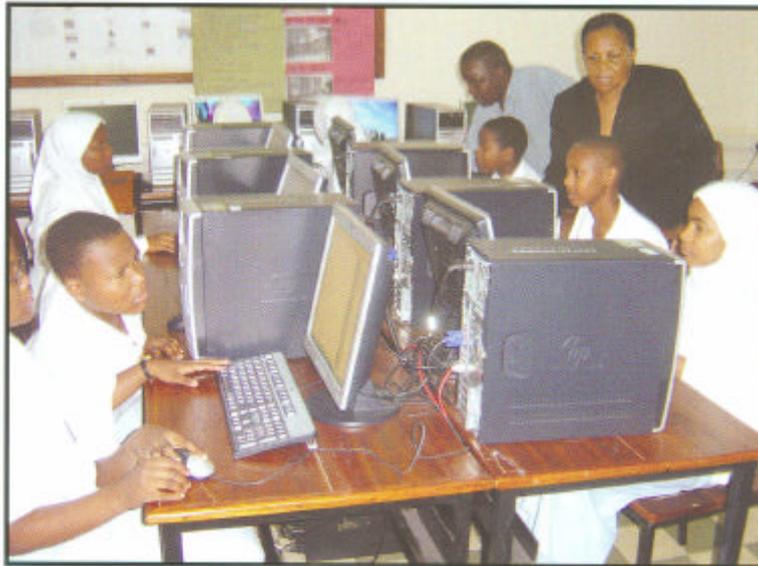
ICT for Improved Education

http://www.moe.go.tz
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Foreword

Tanzania cannot afford to overlook the importance of information and communication technology (ICT) for improved access, equity, quality and relevance of education. In our inter-connected world, knowledge and information are becoming corner stones for the development of a society, as is the ability to communicate. It is our duty to prepare our children so that they can benefit from and contribute to our country's development in the information age. We must therefore take advantage of the full range of ICTs, from radio and mobile telephony to computers and the Internet, to build the foundation for a well educated and learning knowledge society.

The Ministry of Education and Vocational Training has developed this policy to guide the integration of ICT in Basic Education. The policy covers Pre-primary, Primary, Secondary and Teacher Education, as well as non-formal and adult education. It is guided by the overall objectives of education policies, and relevant national development policies, including the Tanzania National ICT Policy of 2003. Since ICT is a cross-cutting tool, this Policy is also linked to ICT activities in other areas and sectors, especially Vocational Training, Higher Education, and Regional Administration and Local Government.

The benefits of ICT can only be reaped through the commitment and collaboration of all stakeholders. This is why we have consulted a wide range of stakeholders in the development of this Policy, from the Public and Private Sectors, Civil Society and Academia. We appreciate the valuable inputs of all sectors, and the importance they have attributed to this Policy.

We hope that this Policy provides a comprehensive framework for future partnerships to harness the power of ICT for the realization of Tanzania's educational objectives.

Hon. Mrs. Margaret Simwanza Sitta (MP)
Minister for Education and Vocational Training

Dar es Salaam, July, 2007

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Acronyms

ADEM	:	Agency for Development of Educational Management
CBO	:	Community Based Organization
COSTECH	:	Tanzania Commission for Science and Technology
DEO	:	District Education Officer
DIT	:	Dar es Salaam Institute of Technology
EFA	:	Education for All
EMIS	:	Education Management Information System
ESDP	:	Education Sector Development Programme
ETP	:	Education and Training Policy
FOSS	:	Free and Open Source Software
IAE	:	Institute of Adult Education
ICDL	:	International Computer Driving Licence
ICS	:	Information and Computer Studies
ICT	:	Information and Communication Technology
ICT4E	:	Information and Communication Technology for Education
ICT4RD	:	Information and Communication Technology for Rural Development
IICD	:	International Institute for Communication and Development
IT	:	Information Technology
LAN	:	Local Area Network
MDGs	:	Millennium Development Goals
M&E	:	Monitoring and Evaluation
MHEST	:	Ministry of Higher Education, Science and Technology
MIS	:	Management Information System
MoEVT	:	Ministry of Education and Vocational Training
NECTA	:	National Examinations Council of Tanzania
NER	:	Net Enrolment Ratio
NGO	:	Non-Governmental Organization
NSGRP	:	National Strategy for Growth and Reduction of Poverty
OUT	:	Open University of Tanzania
PEDP	:	Primary Education Development Plan
PO-PSM	:	President's Office-Public Service Management
RAO	:	Regional Academic Officer
REO	:	Regional Education Officer
SEDP	:	Secondary Education Development Plan
Sida	:	Swedish International Development Cooperation Agency
SLO	:	Statistical and Logistics Officer
TANESCO	:	Tanzania National Electricity Supply Company
TCLSS	:	Tanzania Computer Literacy for Secondary Schools
TCRA	:	Tanzania Communications Regulatory Authority
TEA	:	Tanzania Education Authority
TEHAMA	:	Teknolojia ya Habari na Mawasiliano
TERnet	:	Tanzania Education and Research Network Project
TGDLC	:	Tanzania Global Development Learning Centre
TIE	:	Tanzania Institute of Education
TLSB	:	Tanzania Library Services Board
UDSM	:	University of Dar es Salaam
VETA	:	Vocational Education and Training Authority
VSAT	:	Very Small Aperture Terminal
VSO	:	Volunteer Services Overseas
WSIS	:	World Summit on the Information Society

MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
ICT POLICY FOR BASIC EDUCATION

1.0 Introduction

As recognized in Tanzania's National ICT Policy of 2003, information and communication technology (ICT) offers new opportunities to enhance education and to improve the quality of delivery of education in all areas. The Ministry of Education and Vocational Training (MoEVT)[1] believes that the use of ICT in teaching and learning as well as administration and management represents a powerful tool with which to achieve educational and national development objectives. The Ministry has therefore formulated this policy to guide the integration of ICT in basic education.

1.1 Education Objectives

This policy is directed at the achievement of the objectives of Tanzania's education policies and education development programmes. As stated in the education policy of 1995, the overall aims of education in Tanzania are, among other things:

> "*to promote the acquisition and appropriate use of literary, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding for the development and improvement of man and society.*"[2]

In 2001, the education sector development programme (ESDP) was launched, to realize the objectives of education policies by addressing critical issues, including ICT. The main objectives of this programme include: to decentralize management of educational institutions; to improve the quality of education, both formal and non-formal; to promote access and equity to basic education; and to promote science and technology. Special mention is made of the need to improve and expand girls' education, to ensure access to education by special social and cultural groups, to give appropriate education to children with disabilities, and to provide education facilities to disadvantaged areas.[3]

1.2 Background

In light of the many challenges Tanzania has to overcome in order to provide quality education for all, ICT should be given high priority. Unless action is taken soon, the country will fall further behind in the global information society, be unable to participate in the knowledge economy effectively, and its people will lack the skills they need for life in the digital age.

The Ministry is thus promoting the introduction and integration of ICT in the education sector. ICT will play an important part in improving the lives of people in Tanzania and in creating job opportunities. There are many initiatives throughout the country benefiting

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[1] The Ministry responsible for basic education, currently known as the Ministry of Education and Vocational Training, is henceforth referred to as MoEVT or the Ministry.
[2] *Education and Training Policy*, 1995, page 1.
[3] *The Education Sector Development Programme*, 2001, page 5-6.

from ICT. The major goal is to build a highly skilled and educated workforce with aptitude and skills in the application of ICT in every day life. For this reason there is need to provide schools, colleges and other educational institutions with the know-how and resources that will include them in the knowledge society.

The integration of ICT in education will empower learners, teachers, educators, managers and leaders to use ICT judiciously and effectively for expanding learning opportunities and ensuring educational quality and relevance. No doubt, with the many changes that are occurring, including globalization and the advent of knowledge societies, education systems need to ensure that all learners have the key competencies required for forming peaceful and prosperous societies. The use of ICT in education is the bedrock of a knowledge society and will enable the country to contribute both to achieving Education for All (EFA) goals and reducing the digital divide.

1.3 What is ICT?

The term Information and Communication Technology (ICT) refers to forms of technology that are used for communication and to transmit, store, create, share or exchange information. This broad definition of ICT includes technologies such as: radio, television, video, telephone (both fixed line and mobile), computer and network hardware and software; as well as the equipment and services associated with these technologies, such as electronic mail, text messaging and radio broadcasts.

1.3 Scope of Policy

This policy covers basic education, which includes pre-primary, primary, secondary and teacher education, as well as non-formal and adult education. The Ministry responsible for basic education is currently known as the Ministry of Education and Vocational Training (MoEVT). The MoEVT includes a number of semi-autonomous agencies: Agency for Development of Educational Management (ADEM), Institute of Adult Education (IAE), National Examinations Council of Tanzania (NECTA), Tanzania Institute of Education (TIE), Tanzania Library Services Board (TLSB), and Vocational Education and Training Authority (VETA).

Although this policy is limited to basic education, the Ministry recognizes that it is linked to related activities in vocational training, higher education, regional administration and local government, as well as ICT activities in other areas and sectors.

1.4 Expected Outcomes

The strategic integration of ICT is expected to improve access and equity to, and quality and relevance of basic education. ICT will be used to increase the number and quality of teachers, through improved pre-service and in-service training and better provision of teaching and learning materials. The use of ICT is also expected to enhance the acquisition and use of knowledge and skills for all learners, including those with special needs. ICT use will improve the efficiency and effectiveness of the management and administration of education, at all levels. This policy is also expected to broaden the basis of education financing, while optimizing the use of education resources, through partnerships and stakeholder participation.

1.5 Prioritization and Sustainability of Implementation

In light of the scarcity of resources for education, and the complexity of ICT implementation, this policy will be implemented in phases, so as to optimize the impact of ICT through strategic and synergistic interventions. Teachers' education will be given first priority (pre-service and in-service training). The next priority is secondary education, to be implemented in phases, followed by primary education. At the same time, ICT will be implemented in adult education and vocational training, as well as libraries. Concomitantly with the phased roll-out in education, ICT will be gradually integrated in administration and management. Throughout the implementation process, pilot projects will be developed to explore suitable venues for ICT integration, while ongoing efforts will be closely monitored and evaluated.

The Ministry is cognizant of the risk of ICT widening existing gaps between educational institutions, within and between urban and rural areas. At the same time, the Ministry recognizes the potential benefits of ICT, especially for under-resourced educational institutions, and for teachers and learners with special needs. During implementation, efforts will therefore be made to use ICT to address and reduce existing discrepancies, while striving to achieve all educational objectives in an equitable manner.

Given the very real constraints of lack of physical infrastructure and electrification, low levels of skills and experience, and lack of localized content, all implementation plans will seek to identify innovative, alternative approaches. Smart and sustainable solutions will be sought to deal with challenges such as rural electrification, last-mile access, software licensing and applications, and content development and delivery. An effort will be made to identify technical solutions that optimize the use and expansion of existing facilities, while building local skills and content, to ensure the sustainability of ICT in terms of financial as well as human resources.

2.0. ICT Philosophy for Basic Education – Vision and Mission

VISION
A well educated and learning knowledge society

MISSION
Integrate ICT to enhance access, equity, quality and relevance of basic education, while stimulating and improving teaching and life long learning.

The MoEVT recognizes that:
- Accessibility to and utilization of knowledge is fundamental to the development of the country's citizens;
- In light of the growing impact of advanced ICT on the economy of the country, students should be provided with access to ICT-based tools so as to make a valid contribution to society;
- ICT must be exploited to allow students greater control over their learning and thus develop skills at their own level and speed;
- The integration of ICT in the education system will eventually boost the economic engine of the country by preparing its citizens for the knowledge based economy;

- The potential of all individuals (including the mentally and physically challenged) can be enhanced by the use of multimedia packages and other electronic learning tools;
- The implementation and sustenance of ICT in the education system will be via a partnership approach involving the community, private and public organizations, and funding agencies;
- The utilization of ICT management tools within educational institutions could enhance the effectiveness and efficiency of the education sector; and
- The active participation of teachers and learners in the development of their own teaching and learning materials using ICT will have positive impact on the teaching-learning process.

3.0. Objectives and Challenges of ICT Policy for Basic Education

3.1. Objectives of ICT Policy for Basic Education

The objectives of this policy are to:
- Integrate the use of ICT to achieve educational policy objectives;
- Promote the harmonization of activities, approaches and standards in the educational uses of ICT;
- Ensure that there exists equitable access to ICT resources by students, teachers and administrators in all regions and types of educational institutions and offices;
- Ensure the proper management and maintenance of ICT resources and tools;
- Ensure the organized provision of ICT training to students, teachers and educational administrators;
- Facilitate the implementation of communication and information systems for the effective management of the Education Sector;
- Facilitate the use of ICT as a tool for assessment and evaluation of education, as well as administration and management;
- Encourage partnerships between the various stakeholders in the Education Sector;
- Facilitate the use of ICT resources in schools and colleges by the neighbouring community;
- Facilitate the development and use of ICT as a pedagogical tool for teaching and learning, and for the professional development of teachers, administrators and managers; and
- Promote development of local content for basic education and other stakeholders

3.2. Challenges of ICT Policy for Basic Education

Some of the challenges foreseen in this policy are:
- Insufficient prioritization of ICT in the implementation of educational and development policies;
- Inadequate experience in sharing, collaboration and partnership in ICT implementation;
- Inadequate infrastructure, including critical supporting infrastructure such as electricity and telecommunications, especially in rural and remote areas;

- ✍ Insufficient numbers of qualified technical personnel to manage and maintain ICT resources;
- ✍ Inadequate training and capacity development resulting in underutilization of ICT facilities;
- ✍ Widespread view of ICT as a status symbol rather than as a crosscutting tool;
- ✍ Lack of awareness of the multifaceted uses of a wide range of ICTs, including emerging and converging technologies;
- ✍ Poor awareness of the environmental impact resulting from the use and disposal of ICT resources and equipment;
- ✍ Hierarchical and territorial organizational structures and cultures, and resistance to change;
- ✍ Insufficient financial resources to ensure the equitable and sustainable integration of ICT in education at all levels; and
- ✍ Lack of awareness among decision makers, development partners and private sector investors on the importance of ICT for education as well as local and national development.

4.0 Situational Analysis of ICT in Basic Education

Detailed statistics on ICT in basic education have not yet been collected, but such data will be gathered as part of the implementation of this policy. A cursory review of the ICT status of basic education indicates that there are some significant developments taking place. Nonetheless, a shared framework is required to build synergies and optimize results. Meanwhile, a concerted effort is required to address existing gaps and ensure a positive impact of ICT integration in basic education.

4.1 General Status of ICT in Basic Education

The primary net enrolment ratio (NER) for 2006 was 96.1% with a school population of 7,063,362. For secondary level, the NER is only 13.1 %. The total number of primary schools in the country is 14,700, the great majority of which (14,440) are government schools. The number of primary school teachers is 151,882, out of which 148,607 are employed by the Government. In 2007, the number of secondary schools increased to 3,360 (from 2,289 in 2006), of which 91 are government schools, 2,604 community schools and 665 non-government schools. The number of government-employed secondary school teachers has risen from 15,911 in 2006 to 21,667 in 2007. There are 52 teacher training colleges in the country, of which 32 are government colleges. The language of instruction in primary education is Kiswahili, and English in secondary education.

In general, very few schools have computers or Internet access, and most schools also lack electricity. Most schools have radio, but very few have TV. The MoEVT is implementing radio programmes for primary and secondary education, broadcasted through Radio Tanzania in Kiswahili. Star TV broadcasts programmes on various subjects for secondary education, in English. The distribution of telecommunication landlines is limited, especially in rural areas where more than 80% of the population lives. There is rapid increase in the use of mobile phones throughout Tanzania, and most of the country has network coverage.

The Ministry Headquarters has a staff of approximately 450 people. All offices have at least one computer, a printer, and Internet access. In many offices the computer is shared by 2-3 people. Most staff members have undergone some ICT training. In the absence of technical support staff, technical maintenance is carried out by a small number of technically skilled staff members. The Ministry has a Web site, www.moe.go.tz, which is maintained by EMIS staff. The ICT status of zonal, regional and district offices is described in section 4.5 below.

4.2 ICT Development in Teacher Education

To harmonize ICT activities, the MoEVT has launched a nationwide project for teachers' colleges (see below). This project represents the first step in ICT integration in teacher education.

Project "ICT Implementation in Teachers' Colleges" (http://www.teachers.or.tz)
In August 2005, the Government of the United Republic of Tanzania in collaboration with the Swedish Government through the Swedish International Development Cooperation Agency (Sida) initiated a project for introducing ICT in all government teachers' colleges. The project's main goal is to improve the quality of pre-service and in-service teacher education by using ICT. It is expected that principals, tutors and students will be trained in ICT to be able to use ICT as a tool for teaching and learning as well as for management and administration. The benefits of preparing ICT literate teachers will spill over to schools when implementing initiatives like e-school or e-learning. The ICT project is implemented by a team of five members under the Department of Teacher Education in MoEVT. In colleges, principals and tutors work together with volunteers from Volunteer Services Overseas (VSO) and United States Peace Corps to carry out ICT activities.

Project activities and outputs:
- ? Hardware and software procurement and installation is almost completed. All 32 teachers' colleges are equipped with a total of 1,250 networked thin client computers in laboratories, using open source software. An estimate of 1:10 computer user ratio will be attained for ICT application. Personal computers using Microsoft have been placed in seven zonal college laboratories for Cisco courses;
- ? All 32 colleges have internet connectivity through VSAT;
- ? Training of 80 tutor technician including 16 trainers is in progress following Cisco IT essentials course, to enable one staff in every college to offer computer installation, maintenance and repair services;
- ? All 900 tutors and students will be trained in ICT and computer basic skills leading to the International Computer Driving License (ICDL) standard. Currently 33 tutors have passed the ICDL Examination and six zonal colleges are in the process of being registered as ICDL training and test centers;
- ? Tutors with ICDL will engage in application programmes so that they are able to use ICT as a teaching and learning tool;
- ? Training will be conducted for principals, management and administrative staff in the Department of Teacher Education for application of ICT in planning, maintenance of ICT resources and management information systems (e.g. EMIS); and

? The Tanzania Institute of Education (TIE) is in the process of finalizing a curriculum for ICT in Teacher Education that will be implemented in teachers' colleges.

4.3 ICT Development in Secondary Education

An eSchool Forum was formed in 2005 to design a programme supporting the introduction and use of ICT in secondary education. The Forum is comprised of key stakeholders as well as representatives from the MoEVT, with the Tanzania Education Authority (TEA) serving as the secretariat. Nine task forces have been formed, focusing on key areas for ICT in secondary education.

The eSchool Forum has submitted a programme proposal to the MoEVT, *ICT for Secondary Education in Tanzania: The eSchool Programme*. The programme proposal suggests a phased approach for ICT in secondary education, starting with 400 schools in phase 1 (within 2 years), a large scale roll out covering 2,000 schools in phase 2 (within 5 years), and nationwide coverage by 2015. The proposal covers a wide range of activities that need to be undertaken within the programme, including ICT infrastructure, technical resources, student management at school levels (integrated EMIS), content, e-learning, sensitization, human resources, and programme coordination and funding.

The eSchool Programme proposal is currently under review by the MoEVT, and will be revisited upon finalization of this policy.

4.4 ICT Development in Primary Education

The Ministry has established a curriculum for ICT in primary and pre-primary education, Teknolojia ya Habari na Mawasiliano (TEHAMA). At the moment, this subject is only taught in a few schools located at district headquarters, which have ICT facilities. Very few primary schools have computers or Internet access. Almost all schools have radios, but only a few have TV, and these are restricted to areas that have electricity.

4.5 Education Management Information System (EMIS)

The Ministry of Education and Vocational Training is implementing the use of ICT in developing capacities by using an institutional service unit known as Education Management Information System (EMIS) to produce and manage educational data and information. The main and desired function of EMIS is to collect, process, utilize and disseminate education data as well as related information to educational stakeholders on a timely basis.

The Ministry effort is to encourage the use of ICT, whereby some initiatives have taken place. At the headquarters, networking installation has been completed. All regional and district offices have been provided with computers and printers. Computer training for 21 Regional Education Officers (REOs), 21 Regional Academic Officers (RAOs), 121 District Education Officers (DEOs) and 121 Statistical and Logistics Officers (SLOs) has been done, and efforts are underway to ensure that the newly recruited staff in districts are trained as well. All zonal and district inspectorate offices have been provided with computers and printers. Training has been conducted for some of the offices at each level.

4.6 ICT Development at Agency for Development of Educational Management (ADEM)

The mission of ADEM is to promote qualitative and quantitative improvement of the Education system through training, research and consultancy in educational management and administration. ADEM has developed online-training programs for its courses which will be inaugurated in July 2007 (see www.adem.ac.tz). The courses are developed for training of education cadres in the regions, to minimize the cost of training as well as to increase the number of enrollment in these courses. The agency is also developing training programmes using video, which will also help disabled learners.

4.7 ICT Development at Institute of Adult Education (IAE)

The Institute of Adult Education (IAE) is a public academic institution, responsible for adult education programmes. Currently, the IAE is offering open and distance learning through printed materials. IAE is in the process of promoting the introduction and integration of ICT and e-learning in its regional centres across the country, to enable prospective learners who did not have the opportunity to acquire formal education get new and modern skills that will enable them improve their way of living.

4.8 ICT Development at National Examinations Council of Tanzania (NECTA)

NECTA has been processing examinations using various systems, starting with Wang Vs 65 mini computers from 1998 to 2000, followed by a partial migration to COBOL Open System based on client-server model using client-server based systems (i.e. servers and personal computers), to support rapid changes of candidatures in primary school, secondary school and professional examinations. The council has adopted the use of interactive web-portals for distribution of examinations results, application forms, and other inquires, and provides its information in the form of CD-ROMs as well. NECTA is currently developing an ICT infrastructure based on fiber optic backbone to support transmission of data and voice, and to facilitate the implementation of an Examination Management System based on relational databases.

4.9 ICT Development at Tanzania Institute of Education (TIE)

TIE has developed ICT syllabi for primary and secondary education: Teknolojia ya Habari na Mawasiliano (TEHAMA) for primary schools and Information and Computer Studies (ICS) for secondary schools. TIE is currently finalizing ICT syllabi for teacher education. Two syllabi have been proposed: ICT Academic as a specialization subject and ICT Pedagogy as a compulsory subject for all student teachers. The institute is finalizing the arrangements for designing and developing e-content for all levels, starting from pre-primary, primary, and secondary to teacher education. The expected outputs are audio/visual and interactive content, for distribution in the form of CD-ROMs, tapes, video cassettes and television broadcasts.

4.10 ICT Development at Tanzania Library Services Board (TLSB)

TLSB operates 18 regional and 15 district libraries. The only ICT project that is being carried out by the Board is the production of Tanzania National Bibliographies. National library outputs are recorded and stored in a database. Individual regional libraries such as

Morogoro, Iringa and Arusha have also been providing Internet and e-mail services to their clients. TLSB has plans for having an ICT integrated system, and a local area network (LAN) system has just been installed at the National Central Library. This will enable the Board to automate its library services and functions, provide Internet and e-mail services, connect to national and international databases and resources, and provide MIS to the TLSB management and MoEVT. Similar practices will be emulated in regional and district libraries.

4.11 ICT Development at the Vocational Education and Training Authority (VETA)

VETA is charged with the overall responsibility of coordinating, regulating, financing, providing and promoting vocational education and training. The Authority owns 22 vocational training centres distributed in the regions, and coordinates more than 860 centres throughout the country, which are owned by government, NGOs or private. 15 of the VETA-owned centres conduct computer courses, and 190 Non-VETA centres have computer courses, ranging from normal applications, to computer maintenance and medium network administration. Currently, VETA is in the process of building an ICT Excellency Centre in Dar es Salaam, and three other centres will be built in Pwani, Manyara and Lindi, equipped with ICT and tools for office use and training.

4.12 Other Initiatives

Community telecenters are providing access to some primary and secondary schools. More than 1,000 refurbished computers have been distributed to schools through NGOs. The Tanzania Education Authority (TEA) has supported the acquisition of ICT resources in 7 secondary schools. The ICT for Rural Development (ICT4RD) pilot project is exploring a broadband model for rural areas, with access to secondary schools in Bunda, Serengeti and Bagamoyo districts. The Tanzania Education and Research Network Project (TERnet) of the Ministry of Higher Education, Science and Technology (MHEST) provides information for higher education. There are some ICT facilities for teachers and learners with disabilities, at the Open University of Tanzania (OUT) and University of Dar es Salaam (UDSM). UDSM has several initiatives for the use of ICT in teaching, learning and teacher education, and the OUT has an e-learning programme.

Since 1998, the International Institute for Communication and Development (IICD) of the Netherlands has been supporting pilot projects in different fields of ICT in education, including: Tanzania Computer Literacy for Secondary Schools (TCLSS), education and information services through Web sites (TanEdu, Wanafunzi) and ICT training for teachers (TC-CONNECT-TED).

5.0 Policy Context

The context of this Policy for ICT implementation in the education sector originates from a number of country policy documents. Policy documents which bring ICT into the forefront are briefly described below:

5.1 The Tanzania Development Vision 2025

The Vision envisages a nation imbued with five main attributes: high quality livelihood; peace, stability and unity; good governance; a well educated and learning society; and a strong and competitive economy capable of producing sustainable growth and shared profits. The Vision explicitly includes ICT by noting 'The new opportunities that ICT is opening up can be harnessed to meet the goals of the Vision' (p. 21).

5.2 The National Strategy for Growth and Reduction of Poverty (NSGRP)

The NSGRP, commonly known by its Kiswahili acronym MKUKUTA, states that education is one of the priority sectors in Tanzania. The long term impact on society of the proposed guideline include empowered citizens making better decisions based on more information, being able to use efficient communications tools to the benefit of their income generating and private activities, and thus contribute to the citizens' endeavor to achieve a better life and less poverty.

5.3 The Millennium Development Goals (MDGs)

Tanzania is committed to achieving the Millennium Development Goals (MDGs) for poverty reduction. The MDGs to achieve universal primary education and to address gender disparity in education are of direct relevance to the MoEVT, as is the goal of developing a global partnership for development. This policy takes heed of the fact that ICT is considered an important tool in assisting Tanzania to achieve all MDGs.

5.4 National Information and Communications Technologies Policy

Tanzania's National ICT policy, adopted in March 2003, recognizes that "there are new opportunities in applying ICT to enhance education, including curriculum development, teaching methodologies, simulation laboratories, life-long learning and distance education" (p.21). The policy calls for the development of a nationwide e-education system, the teaching of ICT at all levels of education and training, and the use of ICT to improve the quality of delivery of education (section 3.4). It also recognizes the role of the education system in nurturing ICT skills for future labour markets.

5.5 Education and Training Policy of 1995 (ETP)

The ETP recognises the role of computer studies in fostering technological and scientific developments. The policy states that in school curriculum, emphasis will be on the teaching of science and technological subjects including computer studies (p. 52).

5.6 The Education Sector Development Programme (ESDP)

The ESDP is a sector-wide programme for the reform and development of education in Tanzania, which includes two major programmes on basic education:

> **The Primary Education Development Plan II (PEDP II)** 2007-2011, aims at offering Universal Primary Education, i.e. education for all children at the age of 7 – 13 years. During PEDP I (2001-2006), the MoEVT reached the target of increasing enrolled primary school pupils from just under 5 million in 2002 to just

under 8 million (NER 96,1%) in 2006. The target for PEDP II is to reach 99% enrolment by 2015. This will require approximately 52,000 additional teachers by 2011.

The Secondary Education Development Plan (SEDP) 2004 – 2009, aim to have 2,000,000 pupils in forms 1 to 6 by 2010 compared to 345,000 in 2003, in other words about six times more pupils. This will require about 38,000 new teachers.

Major education reforms that are taking place in the country through PEDP and SEDP put pressure on teacher education. Teacher education programmes are striving to accommodate the rising demand for more qualified teachers as well as the changing role of teachers into facilitators of learning and problem solving. This calls for a shift from the heavy dependency on text materials for teaching and learning to one of wider access based on ICT. The use of ICT-mediated training and distance education has been identified as one of the strategies for access and quality improvement.

Both PEDP and SEDP have given priority in strengthening ICT-based information management at all levels. An introduction of computer courses into primary schools, secondary schools and teacher training colleges need be given priority.

5.7 Education Sector Review
The education sector review of 2006 reiterates the need to expand the use of ICT to improve quality in education. The review calls for improved school facilities (teaching and learning materials including ICT). It also underlines the need to harmonize MIS in the education sector and urges that the integration into EMIS be given a high priority.

5.8 The World Summit on the Information Society (WSIS)
Tanzania is a signatory to the WSIS Declaration of Principles and Action Plan, the aim of which is to build a people-centred, inclusive and development-oriented Information Society. WSIS targets for education, to be achieved by 2015, include: "to connect universities, colleges, secondary schools and primary schools with ICT; and to adapt all primary and secondary school curricula to meet the challenges of the Information Society." In addition, the WSIS Plan of Action recognizes that domestic policies need to be developed to "ensure that ICT are fully integrated in education and training at all levels, including in curriculum development, teachers training, institutional administration and management, and in support of the concept of lifelong learning."

5.9 Other Related National ICT Initiatives
Tanzania is in the process of implementing a number of policies, strategies and initiatives that will all impact the integration of ICT into education significantly. Some are directly related to national ICT infrastructure and include the National ICT Backbone Infrastructure initiative, implementing the National e-Government Strategy, and the Rural Telecommunications ICT Fund. Others less obviously ICT related, but equally relevant, include the Local Government Reform Programme and TANESCO's Rural Electrification Programme. It is imperative that the implementation of this policy takes cognisance of current and emerging programmes of this nature with a view to reducing costs, not duplicating efforts and increasing value through synergies. This places an important internal role of coordination and alignment on the MoEVT.

5.10 Stakeholder Participation

The Ministry of Education and Vocational Training (MoEVT) recognizes the input of a wide range of stakeholders in conceptualizing and implementing activities related to the introduction of ICT in education in Tanzania. Stakeholder consultations have taken place through a variety of fora since 2002, organized by key stakeholders and partners. In preparing this policy, the MoEVT recognizes stakeholder inputs as presented in the following fora/reports:

? *ICT in Education,* round table conference organized by the International Institute for Communication and Development (IICD), Bagamoyo February 2002;

? *Thinking Through the Use of ICT in Secondary Education in Tanzania*, series of workshops with key stakeholders organized by the International Institute for Communication and Development (IICD) and the Tanzania Commission for Science and Technology (COSTECH), May 2006;

? *Future of ICT in Education*, workshop organized by the MoEVT, with the support of the Swedish International Development Cooperation Agency (Sida), Kunduchi Hotel, Dar es Salaam, January 2005;

? *ICT in Education,* Follow up to Kunduchi workshop with all stakeholders, Bagamoyo, August 2005;

? *The eSchool Programme Proposal* for ICT for Secondary Education in Tanzania, based on inputs of 9 multi-stakeholder task forces, May 2006; and

? *Stakeholder Workshop on Draft ICT Policy for Education*, organized by the MoEVT, Kunduchi Hotel, Dar es Salaam, 20 October 2006.

6.0. ICT Policy Statements

The ICT policy statements have been categorized into six areas as follows:

- ? Infrastructure and Technical Issues
- ? Curriculum and Content
- ? Training and Capacity Building
- ? Planning, Procurement and Administration
- ? Management, Support and Sustainability
- ? Monitoring and Evaluation

6.1. Infrastructure and Technical Issues

A concerted effort is required to provide adequate ICT infrastructure throughout the education sector, from computers, digital equipment, telecommunications, and Internet access to radio and TV, as well as supportive infrastructure such as electricity. The infrastructure will serve the needs of all stakeholders in education, including students, teachers, parents, local communities, administrators and managers.

Given the current lack of ICT infrastructure, the roll-out of ICT will be carried out in phases, with the overall aim of nationwide coverage by 2025. From the outset, an effort will be made to provide infrastructure to remote and underserved areas, using technological solutions that are suited to local needs and conditions.

Statement No. 6.1.1.
The MoEVT will ensure the establishment of the necessary infrastructure to facilitate the adoption of ICT within the education system.

Statement No. 6.1.2.
Infrastructure development will be carried out in close collaboration with relevant ICT initiatives in Tanzania, in order to reduce costs and to optimize synergies.

Statement No. 6.1.3.
The Ministry recognizes the challenges posed by the lack of nationwide electrification and will explore alternative energy solutions, especially in rural areas.

Statement No. 6.1.4.
The Ministry recognizes the importance of ensuring that people with special needs get access to adequate ICT facilities.

Statement No. 6.1.5.
The MoEVT will work with relevant stakeholder groups to develop and implement strategies to deal with licensing, intellectual property rights, use of software, disposal of used ICT equipment, security and information dissemination associated with ICT use in the education system.

Statement No. 6.1.6.
The MoEVT will adopt to the extent possible a common set of standards for hardware, system architecture, and software (proprietary as well as free and open source) for use in the education system.

Statement No. 6.1.7.
The MoEVT will encourage the development and deployment of localized software and operating systems, as well as applications developed to meet Tanzanian contexts.

Statement No. 6.1.8.
The MoEVT will collaborate with relevant educational institutions to examine and implement the optimal configuration and utilization of ICT in classroom, library, and laboratory environments, with focus on equitable access and quality.

Statement 6.1.9.
The MoEVT will ensure that public libraries are sufficiently resourced to effectively act as points of dissemination of ICT-based information resources.

Statement No. 6.1.10.
The MoEVT will explore all possible options of procuring and upgrading facilities, including refurbished computers, given due consideration to the maintenance, environmental impact and eventual replacement of these systems.

Statement No. 6.1.11.
The MoEVT will negotiate for preferential education tariffs in ICT facilities, including the cost of access, connectivity, services and equipment.

Statement No. 6.1.12.
The MoEVT will establish modalities for the sharing of ICT resources, in order to reduce costs and avoid duplication of efforts, as and when appropriate.

6.2. Curriculum and Content
The successful integration of ICT in education requires continuous reviews of the curriculum, to accommodate training in ICT as well as ICT-enabled teaching and learning. ICT will be taught as a subject, and integrated as a pedagogical tool for teaching and learning in other subject areas. The use of ICT will require adjustments to more learner-centered and interactive teaching methods, thus redefining the role of the teacher as a facilitator. In order to optimize the use of ICT in education, ICT should also form an integral part of efforts to improve the quality and relevance of the curriculum for all levels.

Curricular reviews will be accompanied by the development of content, including e-content, i.e. instructional content or learning experiences that are delivered or enabled by ICT. Content development should be well-aligned with curricular goals and objectives, while addressing the shortage of teachers as well as teaching and learning materials.

Statement No. 6.2.1.

The MoEVT will ensure that ICT is integrated into the curriculum at pre-primary, primary, secondary and teacher education levels, as well as non-formal and adult education levels, and that the curriculum is revised accordingly.

Statement No. 6.2.2.
The MoEVT will collaborate with other educational institutions to ensure that subject-specific pedagogy includes the integration of ICT in the teaching and learning process, e.g. the classroom. If necessary, it will be advised that courses be modified or new courses be introduced to satisfy that need.

Statement No. 6.2.3.
The MoEVT will develop guidelines to promote and encourage the development of high-quality e-content and local content, and establish appropriate mechanisms for regulation, while ensuring that the content is made uniformly available in all learning institutions through the use of appropriate ICT.

Statement No. 6.2.4.
The MoEVT will collaborate with relevant institutions to develop and disseminate content that addresses critical development issues, and the preservation and promotion of Tanzania's history and cultural identity and diversity, within the education sector.

Statement No. 6.2.5.
The MoEVT will provide appropriate guidelines for selection, evaluation, management and utilization of relevant software packages and e-resources for integration into the curriculum.

Statement No. 6.2.6.
The MoEVT will encourage the use of free and easily accessible teaching and learning materials, as well as free and open source software.

Statement No. 6.2.7.
The MoEVT will ensure that ICT is used in the teaching and learning process to support the mastery of subject matter while addressing individual learner's differences, critical thinking skills, and language, through interactive and participatory learning.

Statement No. 6.2.8.
The MoEVT will ensure that special efforts are made to use ICT in education for teachers and learners with disabilities and other special needs.

Statement No. 6.2.9.
The MoEVT will provide the opportunity for fostering the creative and interactive capacity of learners and teachers through the use of ICT and multimedia.

Statement No. 6.2.10.
The MoEVT will optimize the use of a combination of ICTs (e.g. radio broadcasts of online content, SMS-enabled interactive TV programmes etc) for the development and distribution of content, as well as networking and collaborative exchanges between teachers and learners, within and outside the country.

Statement No. 6.2.11.

The MoEVT will ensure that learners and educators are empowered to deal with Internet-related risks such as the protection of privacy, content verification, and avoiding harmful content. The Ministry will develop guidelines for ethical use of ICT.

6.3. Training and Capacity Building

The MoEVT recognizes the need for continuous training programmes to build sufficient capacity among staff and other stakeholders. ICT training will range from ICT literacy and technical development skills to the use of ICT in management and administration. Special efforts will be made to train teachers and educators in ICT content development, trouble-shooting, and pedagogical uses.

Given the wide applicability of ICT for training and professional development, ICT-enabled training methods will be fully explored, including distance education, e-learning, m-learning and blended learning. Training will be offered on a continuous basis to enable staff and other stakeholders to keep up to date with technological and pedagogical developments.

Statement No 6.3.1.
The MoEVT will establish a cadre of ICT technicians, system administrators, and ICT experts to manage, control and maintain ICT facilities, at all levels.

Statement No 6.3.2.
The MoEVT will ensure adequate training of administrative and management staff in relevant ICT systems, including standard office software and EMIS.

Statement No 6.3.3.
The MoEVT will ensure that every educational institution and administrative office has at least one staff member who is sufficiently trained to provide ongoing technical and user support for ICT integration.

Statement No 6.3.4.
The MoEVT will ensure pre-service and in-service training of teachers and educators in computer literacy and the educational uses of ICT. A sufficient number of specialized ICT teachers will also be trained, and retention mechanisms put in place.

Statement No 6.3.5.
The MoEVT will ensure that a sufficient number of subject experts, curriculum developers, and educational content developers are trained in the development and use of ICT as a pedagogical tool.

Statement No 6.3.6.
The MoEVT will ensure that library and resource center staff are trained in ICT use and in ICT-enabled information management, including on-line search, retrieval, storage, security, and distribution of information.

Statement No 6.3.7.
The MoEVT will ensure that technical staff receive continuous in-service training to stay up-to-date with technological developments.

Statement No 6.3.8.

The MoEVT will work in close collaboration with relevant stakeholders to explore and make use of ICT-enabled training methods, including distance education, e-learning (on- and off-line), m-learning (learning through mobile technologies) and blended learning (a combination of ICT-based and classroom learning).

Statement No 6.3.9.

The MoEVT will ensure the use of ICT-enabled training methods in the training and professional development of people with disabilities and other special needs.

Statement No 6.3.10.

The MoEVT will promote sensitization of key stakeholders on the use of ICT in education.

6.4. Planning, Procurement and Administration

Effective and efficient planning for ICT provides important strategies to advance the State Purchasing Policy objectives as well as provision of knowledge to all stakeholders. In terms of planning for ICT procurement, the Ministry will consider and plan its strategies for ICT total cost of ownership, value for money, risk management, training and the review of existing ICT supply arrangements.

Statement No. 6.4.1.

The MoEVT will collaborate with stakeholder groups to establish and review procurement guidelines and procedures for the acquisition and security of ICT equipment, peripherals and accessories, within the framework of the Tanzania Procurement Act.

Statement No. 6.4.2.

The MoEVT will ensure the establishment of protocols for the identification, evaluation and selection of appropriate software, including free and open source software (FOSS), for use in computers at all levels.

Statement No. 6.4.3.

The MoEVT will oversee the recruitment, training, deployment and retention of suitable persons for the development, management and operation of ICT systems throughout the Ministry. Local personnel will be given priority.

Statement No. 6.4.4.

The MoEVT will implement mechanisms for attracting and retaining teachers and administrators in ICT within the education system by providing incentives to teachers and administrators who are exceptional in effectively promoting and utilizing ICT in the classroom and in simultaneously performing other functions.

Statement No. 6.4.5.

The MoEVT will ensure that all educational institutions are linked together in a secure network for administrative purposes (e.g. EMIS), with access to the Internet for teaching and learning and professional development (e.g. electronic research and communication).

6.5. Management, Support and Sustainability

Integration of ICT into the education system requires the leadership of the government and the ministry of education, working together with other relevant ministries and other stakeholders and partners. The leadership will provide a clear vision of why the government is enabling the use of ICT within the various sectors of the education system and the type of society it hopes to achieve by doing so.

Statement No. 6.5.1.
The MoEVT will make necessary budgetary provisions associated with the capital and operational costs of ICT facilities.

Statement No. 6.5.2.
The MoEVT will adopt an explicit strategy for technical support and maintenance, with adequate staff and budget to service the needs of the Ministry, at all levels.

Statement No. 6.5.3.
The MoEVT will foster collaboration and partnerships with stakeholders in the integration of ICT. Private sector partnerships will be encouraged in the spirit of corporate social responsibility.

Statement No. 6.5.4.
The MoEVT will build and encourage a culture of responsible service and maintenance of hardware and software.

Statement No. 6.5.5.
The MoEVT will ensure that standard human health principles are adhered to in the use of ICT in education.

Statement No. 6.5.6.
The MoEVT will ensure an environmentally sustainable use and disposal of ICT, to avoid harmful consequences and abide to environmental care requirements.

Statement No. 6.5.7.
The MoEVT recognizes the challenges posed by digital ageing and will explore solutions to be incorporated in the education system, including open document formats and alternative storage media.

Statement No. 6.5.8.
The MoEVT will develop and issue guidelines for ethical and acceptable use of ICT in education and ensure adherence.

Statement No. 6.5.9.
The MoEVT will provide guidelines for inventory of ICT resources, including software licenses.

Statement No. 6.5.10.
The MoEVT will encourage educational institutions to make ICT facilities available to the community and will use the proceeds from the sale of these services to upgrade and sustain the facilities and programmes. However, these activities should not compromise access and quality of services for teachers and learners.

Statement No. 6.5.11.
The MoEVT will adopt a partnership approach to the financing of ICT in education.

Statement No. 6.5.12.
The MoEVT will optimize the use of ICT for improved communication and information systems in administration, management and professional development.

6.6. Monitoring and Evaluation
The implementation of this policy requires systematic Monitoring & Evaluation (M&E) by all stakeholders. M&E will be used to research and develop ICT integration, to learn from past experiences, to improve implementation and service delivery, to assess and allocate resources, and to demonstrate results. It will also enable the MoEVT to coordinate all activities, while offering a means for accountability to key stakeholders.

Statement No 6.6.1.
The MoEVT will work in close collaboration with key stakeholders to establish instruments and mechanisms for continuous monitoring and evaluation, including criteria, indicators and benchmarks for assessment of implementation and impact.

Statement No 6.6.2.
The MoEVT will expect stakeholders to provide regular M&E input to ensure the harmonization of all ICT in education activities.

Statement No 6.6.3.
The MoEVT will develop and strengthen EMIS to accommodate M&E of ICT in education.

Statement No 6.6.4.
The MoEVT will explore the use of suitable ICT, including mobile technology, to facilitate M&E of ICT in education.

Statement No. 6.6.5.
The MoEVT will establish appropriate mechanisms for the involvement of all stakeholders in determining the relevance and future use of ICT within the education system.

Statement No. 6.6.6.
The MoEVT will establish appropriate mechanisms for stakeholders to undertake research and development of ICT in education and to assess the impact of ICT in the education system.

Statement No 6.6.7.
The MoEVT will collaborate with appropriate stakeholders to monitor the environmental impact of the use and disposal of ICT resources.

Statement No 6.6.8.

The MoEVT will promote information sharing, equity, transparency and accountability to all stakeholders in the implementation of this policy.

7.0. Modalities for Implementation

It is imperative to have a well organised framework for the implementation of this policy. The following are the basic guidelines for safeguarding a proper integration of ICT in education:

?   The MoEVT will publicise this policy on ICT in education in as many ways as possible to make it known to all stakeholders, and take stakeholder views into consideration in future reviews of this policy;

?   The Ministry will form an ICT4E Unit and a network of ICT4E Focal Persons in all departments to oversee the integration of ICT in basic education;

?   The ICT4E Unit will facilitate the preparation and implementation of the necessary Action Plans, in collaboration with stakeholders;

?   The ICT4E Unit will be advised by a Steering Committee, comprised of key stakeholders, partners and Ministry representatives, as well as Technical Advisory Groups for specific areas;

?   The implementation of this policy will be via a partnership approach involving the community, private and public organizations, and development partners;

?   The Ministry will value what work has been done by other partners, and together with those partners, use their work to foster greater success in implementation; and

?   The implementation of this policy will be aligned to all relevant national and sectoral ICT programmes in Tanzania, as well as related regional and international initiatives.

8.0. Appendices

Appendix I: Draft Terms of Reference for ICT4E Unit at MoEVT
The ICT4E Unit has overall responsibility for the coordination and integration of ICT in basic education, in accordance with the ICT Policy for Basic Education and other relevant national, sectoral and MoEVT policies. The terms of reference for the ICT4E Unit will be revised, as and when required.

Responsibilities:
1. Coordination and integration of:
    a. ICT in teaching and learning (academic/pedagogical)
    b. ICT in administration and management (technical tools and systems)
2. Management and maintenance of Ministry-wide ICT resources (e.g. hardware, software, network, intranet, web site etc)
3. Technical support for Department-specific ICT systems (e.g. EMIS)
4. Training, capacity development and awareness of Ministry staff
5. ICT end-user support
6. Recruitment of technical staff
7. Up to date and relevant ICT4E expertise
8. Development of ICT policies, standards and regulations, and oversee their implementation
9. Technical direction of ICT integration
10. Coordination of as well as advice and support to ICT4E Focal Persons in MoEVT and its Agencies
11. Liaison with ICT Coordinators in other ministries and agencies
12. Liaison with relevant regional and international ICT4E initiatives
13. Establishment and management of partnerships as well as stakeholder collaboration and participation in MoEVT ICT for education initiatives
14. Liaison with Steering Committee and Technical Advisory Groups
15. Timely, open and transparent communication and information sharing with all relevant stakeholders, within and outside the MoEVT
16. Any other responsibilities as specified by MoEVT

Reporting
? Regular reporting to the Permanent Secretary of MoEVT

Appendix II: Proposed Operational Structure for ICT4E Unit in MoEVT
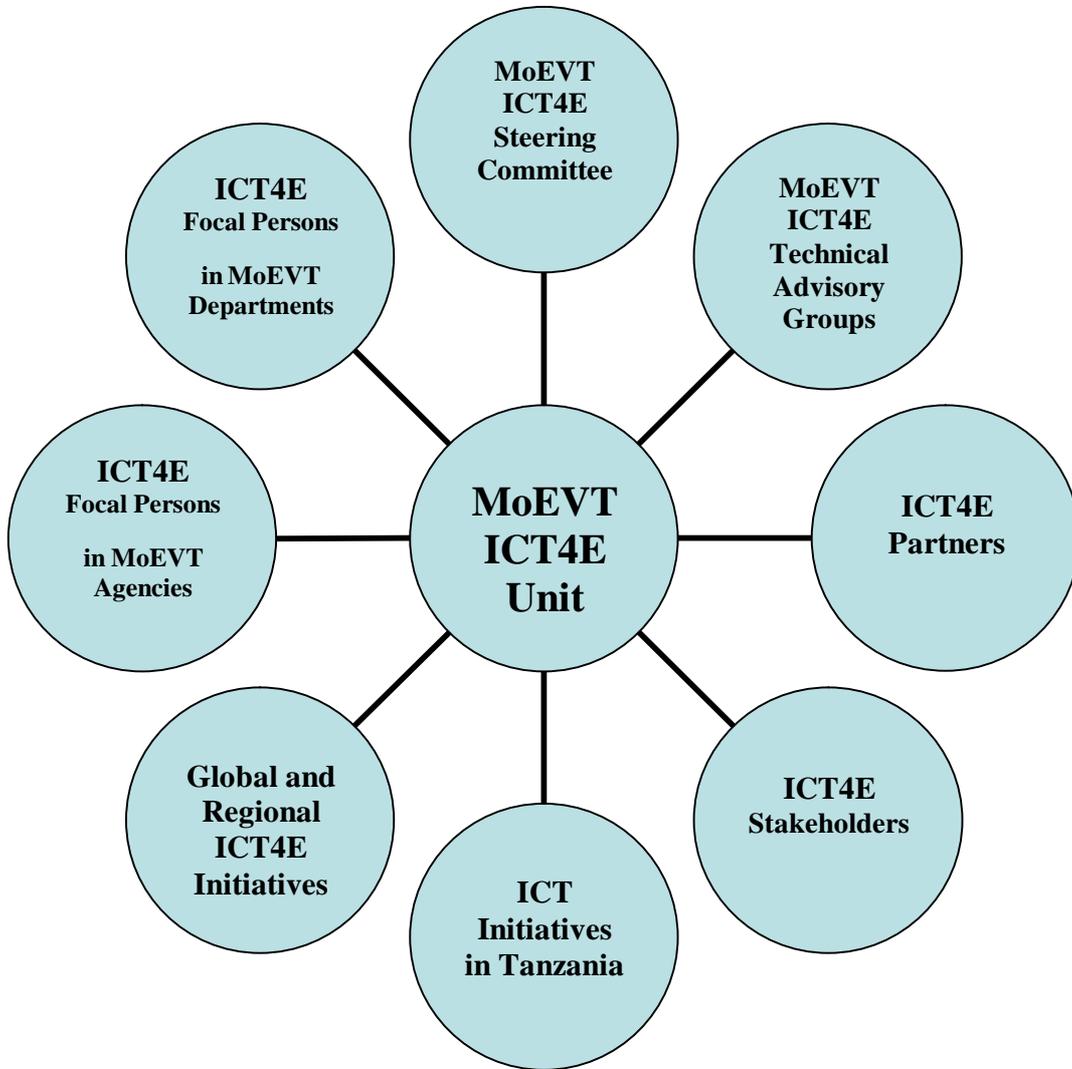
Appendix III: Indicative Partnership Framework for Implementation

Public sector	Private Sector	Civil Society/Public Interest/Advocacy	
Infrastructure and Technical Issues			
-Ministry of Energy and Minerals -Ministry of Finance -Ministry of Higher Education, Science and Technology -Ministry of Infrastructure Development -President's Office-Public Sector Management (PO-PSM) -Tanzania Communications Regulatory Authority (TCRA) -Tanzania National Electricity Supply Company (TANESCO)	-ICT Suppliers -Service Providers	-Community Based Organizations (CBOs) -Non-Governmental Organizations (NGOs) -Technical Industry Groups	- - - (-
Curriculum and Content			
-Ministry of Information, Culture and Sports -National Examinations Council of Tanzania (NECTA) -President's Office-Public Sector Management (PO-PSM) -Tanzania Global Development Learning Centre (TGDLC) -Tanzania Institute of Education (TIE) -Tanzania Library Services Board (TLSB)	-Content Providers -Media & Broadcast companies -Publishers -Service Providers	-Community Based Organizations (CBOs) -Non-Governmental Organizations (NGOs) -Tanzania Education Network	- - -
Training and Capacity Building			
-Agency for Development of Educational management (ADEM) -Dar es Salaam Institute of Technology (DIT) -Institute of Adult Education (IAE) -Ministry of Community Development, Gender and Children -Tanzania Global Development Learning Centre (TGDLC) -Tanzania Institute of Education (TIE) -Vocational Education and Training Authority (VETA)	-Content Providers -ICT Suppliers -Service Providers	-Community Based Organizations (CBOs) -Non-Governmental Organizations (NGOs) -Tanzania Education Network -Technical Industry Groups	- - -
Planning, Procurement and Administration			
-Ministry of Energy and Minerals -Ministry of Regional Administration and Local Government -Ministry of Infrastructure Development -President's Office-Public Sector Management (PO-PSM) -Tanzania Education Authority (TEA)	-Content Providers -ICT Suppliers -Service Providers	-Community Based Organizations (CBOs) -Non-Governmental Organizations (NGOs) -Tanzania Education Network -Technical Industry Groups	-
Management, Support and Sustainability			
-Dar es Salaam Institute of Technology (DIT) -Ministry of Energy and Minerals -Ministry of Finance -Tanzania Global Development Learning Centre (TGDLC) -Vice President's Office-Environment	-Content Providers -ICT Suppliers -Service Providers	-Community Based Organizations (CBOs) -Non-Governmental Organizations (NGOs) -Technical Industry Groups	- (-
Monitoring and Evaluation			
-President's Office-Public Sector Management (PO-PSM) -Ministry of Planning and Economic Empowerment -Ministry of Regional Administration and Local Government -Tanzania Institute of Education (TIE)	-Content Providers -ICT Suppliers -Service Providers	-Community Based Organizations (CBOs) -Non-Governmental Organizations (NGOs) -Tanzania Education Network	- (-

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