North-South Local Government Co-operation Programme

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Strengthening e-Governance in the North-South Local Government Co-operation Programme

Ghana, Tanzania, Kenya, South Africa, Namibia and Swaziland

Local and Regional Government Finland

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Programme overview

The North-South Local Government Programme is coordinated and administered by the Association of Finnish Local and Regional Authorities, the AFLRA (Suomen Kuntaliitto in Finnish) and funded by the Ministry for Foreign Affairs of Finland. An initiative of the Association, the programme was launched in 2002.

The overall objective of the Programme is to strengthen the capacities of local government to provide basic public services and to promote good governance and local democracy, all by taking into consideration the principles of sustainable development. The aim is also to raise awareness of development issues, tolerance and development education.

The Programme supports co-operation between Finnish local governments and local governments in Southern countries (OECD/DAC list). The geographical focus in 2008-2010 is Africa. The Programme also carries out research and organises training on local government issues and the decentralization process taking place in African countries. This study is part of the North-South Local Government Co-operation Programme's publications.

For more information please visit:

www.localfinland.fi/north-south (In English)
www.kunnat.net/north-south (In Finnish)

Guidance and expertise from the Association of Finnish Local and Regional Authorities (AFLRA)

This study was guided and supervised by Mr. Heikki Lunnas, Director information society unit.

Contents

Preface

The aim of this study is to provide the Association of Finnish Local and Regional Authorities (AFLRA) and other stakeholders with information and documentation to clarify E-Government concepts and strengthen the understanding of both Northern and Southern partners about the e-readiness of the Southern Local Governments (LGs).

The specific objectives of the study are:
1. To provide basic knowledge on the concept of E-Governance, its use and importance to society.
2. To provide information on the efforts of the governments of the southern countries at creating a conducive environment for E-Governance
3. To investigate the e-readiness of the southern LGs

The results from this study provide information that can assist in planning development cooperation activities in the field of E-Governance and propose possible E-Government applications that could be used to enhance good governance and equality in the southern LGs. The study is composed of a theoretical overview and studies of six local government administrations in the six Southern Countries of Ghana, Kenya, Tanzania, Namibia, South Africa and Swaziland. The theoretical overview aims to demystify E-Government concepts and establish synergy between the objectives of the cooperation and the promise of E-Government. Additionally, it emphasises the local government level as the level where the impact of ICTs on the relationship between governments and citizens can be most effective. The country studies presents the existing environment in which E-Government will be implemented. This part was divided into two sections-first an environmental scan of the ICT landscapes of the Southern countries followed by profiling of the municipalities in the context of their e-readiness.

Many observers have argued that in the 21st century, Information and Communication technologies (ICTs) are the engine of economic and social development. Some have even gone further to argue that there are scenarios in which aspects of poverty will not be successfully addressed without sufficient emphasis on information and communication processes and the use of ICTs to facilitate them. The UN Millennium Declaration advocates for efforts to "ensure that the benefits of new technologies, especially information and communication technologies ... are available to all". Finland has responded to this call and has made it a major aspect of its development policy.

The AFLRA as part of its North- South Local Government Programme supports the integration and strategic use of ICT in development cooperation between Finnish and Southern local governments in order to achieve development goals. The overall objective of the programme is to forge co-operative relationships between Southern and Finnish local governments (LGs) to build the capacity of the local governments in order to enable them provide services, advance good governance and administrative practice as well as promote participatory democracy and sustainable social, economic and environmental development.

E-Government as 'the use of new information and communication technologies by governments as applied to the full range of government function. An effective E-Government programme can improve the way in which public services are delivered,

knowledge is utilised, policy is developed and implemented, citizens participate in governance, and public administration reform and good governance is met. Today, the growing participation of the in the information society and their awareness and competence to use IT has led to increasing demands on local government authorities to improve their service provision, governance mechanisms and communication to the people through ICT. As such, municipalities have considerable potential to assist in the process of integration of ICTs into the daily lives of its citizens.

It is the aim of the author that this study will be read and used in relation to the objectives above, and that the recommendations will serve as valuable input for actors and stakeholders of the North South Local Government Programme of the AFLRA, as well as others involved in development cooperation, for the promotion of E-Governance as an enabler for good governance, democracy and equality.

Acknowledgement

Many people have contributed to the coming into fruition of this study. First of all I would like to thank my superior Ms Heli Liikkanen of the Association of Finnish Local and Regional Authorities (AFLRA) for providing valuable guidance and support during the writing process. This work would not have been possible without the the inspiration and guidance of Mr. Heikki Lunnas, Director of the Information Society Unit of the AFLRA. My sincere thanks to my colleagues Karita Immonen, Siru Aura and Suvi Kuusi for their support during the research process.

I would also wish to express my sincere thanks to a wide range of stakeholders from Ghana, Tanzania, Namibia, South Africa, Kenya and Swaziland who participated in this study by giving their time to answer the questionnaires and share their knowledge and experience on various components of the e-readiness of their respective local governments. I would also state my immense appreciation to Mr. Mazin Yassin and Ms. Zainab Musah for their contribution and support during the whole process. Finally, many thanks are due to Ms. Sika Menka for her contribution and help during the final stages of this work.

List of Acronyms and Abbreviations

ADSL	Asymmetric Digital Subscriber Line
AFLRA	Association of Finnish Local and Regional Authorities
AIDS	Acquired Immuno Deficiency Syndrome
AM	Amplitude Modulation
ANC	African National Congress
BBC	British Broadcasting Corperation
BCCs	Business Communication Centers
CCK	Communication Commission of Kenya
CIA	Central Intelligence Agency
CLCs	Community Learning Centers
CTMM	City of Tshwane Metropolitan Municipality
CTO	Commonwealth Telecommunications Organisation
DCE's	District Chief Executives
E-BANKING	Electronic Banking
E-COMMERCE	Electronic commerce
E-GOVERNANCE	Electronic Governance
E-GOVERNMENT	Electronic Government
FLOSS	Free/ libre and Open Source Software
FLT.LT	Flight Lieutenant
FM	Frequency Modulation
G2B	Government to Business
G2C	Government to Citizen
G2E	Government to Employee
G2G	Government to Government
GCCN	Government Core Communications Network
GDP	Gross Domestic Product
GIS	Geographical Information System
GLO-1	Globacom 1(Sub – marine communications cable which is a cable system along the west cost of Africa, between Nigeria and the UK. The sub-marine cable system is 9800km long and became operational in 2010 with a minimum capacity of 640p/s.
GPRS	General Packet Radio Service
GPS	Geographical Positioning system
GT	Ghana Telecom
HIV	Human Immuno Deficiency Virus
HSPA	High Speed Packet Access
HTML	Hyper Text Markup Language
HTTP://	Hypertext Transfer Protocol
IBM	International Business Machines
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communication Technologies
ICT4D	Information and communications Technologies for Development

ICT4AD	Information and Communication Technology for Accelerated Development
IMF	International Monitoring Fund
IP	Internet Protocol
IPTV	Internet Protocol Television
ISPs	Internet Service Providers
IT	Information Technology
KANU	Kenya African National Union
KPTC	Kenya Posts and Telecommunication Corporation
MPCU	Municipal Planning Co-ordinating Unit
MS WORD	Microsoft Word
MTN	Mobile Telecommunications Network
NARC	National Rainbow Coalition
NCA	National Communications Authority
NGO	Non Governmental Organisation
NRI	Networked Readiness Index
ODM	Orange Democratic Movement
OECD	Organisation for Economic Cooperation and Development
PDA	Personal Digital assistant
RFID	Radio Frequency Identification
SACU	Southern African Customs Union
SAP	Systems Application Protocol
SAT-3/WASC	South Atlantic 3/ West Africa Submarine cable
SMS	Short Messaging Service
SPTC	State-Owned Posts And Telecommunications Operator
TC	Telecenter
TCRA	Tanzania Communications Regulatory Authority
TP&TC	Tanzania Posts and Telecommunications Corporation
TTCL	Tanzania Telecommunication Company
TV	Television
UN	United Nations
Unisys	A worldwide information technology company
WEF	World Economic Forum
WiFi	A trademark for the certification of products that meet certain standards for transmitting data over wireless networks.
WiMAX	Is an IP based, wireless broadband access technology that provides performance similar to 802.11/Wi-Fi networks with the coverage QOS (Quality Of Service) of cellular networks.
WWW	World Wide Web

1 Introduction and Background to the Study

Many observers have argued that in the 21st century, Information and Communication technologies (ICTs) are the engine of economic and social development. Some have even gone further to argue that there are scenarios in which aspects of poverty will not be successfully addressed without sufficient emphasis on information and communication processes and the use of ICTs to facilitate them[1]. ICTs offer tremendous potential to raise the standards of living and enlarge opportunities for individuals, communities, countries and regions. In particular, ICTs present an opportunity for geographically remote and poor communities whose access to information and social services can be dramatically enhanced through ICTs. The Commonwealth Telecommunications organisation (CTO) asserts that "Information and Communication Technology (ICT) connectivity is the most economical and efficient option for African Governments to ensure an all-inclusive development of their citizenry"[2].

However, the great opportunities offered by these new technologies remain largely unexploited in Africa. While there has been global progress in improving access to ICTs and creating awareness of their potential, access to these technologies remains extremely uneven with ICT productivity being to a large extent, confined to developed countries[3]. The resultant digital divide, characterized by highly unequal access to ICTs, manifests itself clearly in Africa and therefore needs to be addressed by national policy makers as well as the international community. To deal with this problem, the UN Millennium Declaration advocates for efforts to "ensure that the benefits of new technologies, especially information and communication technologies ... are available to all"[4]. Many developed countries have responded to this call and have made it a major aspect of their development policy.

Development policy contributes to the global effort to eradicate poverty through economic social and ecological development[5]. Consequently, huge investments are made globally in ICT as an undisputed and essential component of international development cooperation. It is within this set-up that the North-South Local Government Programme of the Association of Finnish Local and Regional Authorities (AFLRA) operates. The overall objective of the programme is to forge co-operative relationships between Southern and Finnish local governments (LGs) to build the capacity of the local governments in order to enable them provide services, advance good governance and administrative practice as well as promote participatory democracy and sustainable social, economic and environmental development. The programme was launched in 2002 as an initiative of the AFLRA. It presently (October 2010) involves 17 partnerships (linkages) between the Finnish and Southern LGs. During the next programme period (2011-2013), much emphasis will be placed on the principles on good governance and equality.

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1   ICTs for Democracy Information and Communication Technologies for the Enhancement of Democracy – with a Focus on Empowerment, Sida, 2009, http://www.apc.org/en/system/files/SIDA_ICTs+for+Democracy.pdf

2   Commonwealth Telecommunications Organisation, http://www.cto.int/Default.aspx?tabid=411

3   E-Government in Africa: Prospects, challenges and practices, Kitaw Yayehyirad, 2006, http://people.itu.int/~kitaw/egov/paper/E-Government_in_Africa.pdfhttp://people.itu.int/~kitaw/egov/paper/E-Government_in_Africa.pdf)

4   World Summit on the Information Society, Geneva 2003-Tunis 2005, http://www.itu.int/osg/spu/wsis-themes/com04/com04html

5   Finland's development Policy, Ministry of Foreign Affairs of Finland, http://formin.finland.fi/Public/default.aspx?nodeid=15318&contentlan=2&sculture=en-US

1.1 Motivation for the Study

Municipalities as part of public administration are the closest link between the people and public administration, and are specifically oriented to local affairs, which are those that are the most interesting to the local population. As a result, the relationship between citizens and local authorities tends to be one based on proximity. The interests at stake include those related to issues such as public services, urban development, education, public transport, environmental concerns and local politics.[6]

Today, the advantages of using information Technology (IT) have become increasingly notable through the growing participation of the citizens in the information society and their awareness and competence to use IT. Hence the increasing demands on local government authorities to improve their service provision, governance mechanisms and communication to the people through ICT. It is at the local government level that the impact of ICTs on the relationship between governments and citizens can be most effective.

In line with its objective of forging cooperative relationships with the Southern LGs, the North-South Local Government Programme of the AFLRA set itself out to explore ways in which ICTs could be leveraged in the existing and future cooperation between Finnish and Southern Local Governments (LGs). This is especially interesting in the light of great positive impact that application of ICT in government operations (e-government) can have for enhancing the capacities of governments to live up to demands of good governance.

It is well known that Finland is a highly developed information society and Finnish local government authorities have great experience in their use of ICTs to provide welfare services for their residents. It would therefore be highly beneficial for Finnish local governments that are involved in the North-South Local Government Cooperation Programme to bring their knowledge and experience to bear on the partnerships. Some of these linkage programmes are already involved in some ICT cooperation projects where E-Government solutions are used to promote citizen empowerment and inclusion. Some cooperation partners are also planning to add E-Government related projects to their activities.

Meanwhile, efforts are already being made at central and local government levels in various African countries to implement E-Governance programmes and projects, which are seen as an appropriate means of ensuring transparency, accountability, performance and efficiency in managing public services and handling governmental affairs. To this end, governments are setting up national ICT policies, putting critical information online, automating administrative processes and interacting with their citizens through online services, albeit very humble beginnings[7]. The timing is therefore right to investigate the status of ICT use in the Southern municipalities to see how the integration of ICT as a major component of the programme could be leveraged to achieve the objectives of the cooperation.

However, E-Government is not easy. It involves change, which can encounter resistance from embedded bureaucracies. Civil servants and citizens must be consulted and will likely require education. All these and many other challenges stand in the way of realizing the full potential of E-Government[8].

As a first step, it is extremely important for any local government authority to have a clear concept of the subject before embarking on the transformation journey. In the same vein, development partners that wish to partner Southern countries on this path would have to understand the various intricacies involved in the overall concept of E-Government.

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6   Kunstelj M. and Decman M. (2005) "Current State of e-Government in Slovenian Municipalities" The Electronic Journal of e-Government Volume 3 Issue 3, pp 117-128, available online at www.ejeg.com
7   Curriculum Guide on E-Governance for African Government Institutions, Africa Training and Research Centre in Administration, UNESCO, http://portal.unesco.org/ci/en/files/25720/11980630809curriculum_guide.pdf/curriculum%2Bguide.pdf
8   Infodev, E-Government Toolkit, 2008; http://www.egov.infodeb.org/en/Section.35.html

1.2 Aims & Objectives

The overall goal of this study is to provide the AFLRA and other stakeholders with information and documentation to clarify E-Government concepts and strengthen the understanding of both Northern and Southern partners about the e-readiness of the Southern LGs. This would go a long way to help in determining which E-Government applications and solutions could be employed to achieve the objectives of the cooperation. Moreover, with E-Governance being a new area, even employees who have computer skills need to be trained to fully understand how it works, how to use it and how to fully integrate it in governing systems for improved and faster public service delivery and democratic purposes.

The specific objectives of the study therefore are:
1. To provide basic knowledge on the concept of E-Governance, its use and importance to society.
2. To provide information on the efforts of the governments of the southern countries at creating a conducive environment for E-Governance
3. To investigate the e-readiness of the southern municipalities
4. To suggest, aspects of E-Government that could be incorporated into the various linkages.

1.3 Methodology

The study was mainly conducted through desk research involving a review of emerging literature on ICT for development, E-Government in general, and the application and use of ICTs in Africa in particular. A questionnaire was also administered electronically to solicit the views of respondents on key e-readiness indicators with regards to their municipalities.

The study was in three phases. A presentation of the basic concepts of E-Government and their use in local government administration was covered. This was to demystify E-Government concepts and establish synergy between the objectives of the cooperation and the promise of E-Government. Additionally, it was to strengthen the understanding of both the northern and southern partners on the concept of E-Governance. Most of the concepts were extracted from the E-Government Toolkit for Developing Countries published by the United Nations, and other sources online.

Next, was a study of the existing environment in which E-Government will be implemented. This part was divided into two sections-first an environmental scan of the ICT landscapes of the Southern countries followed by profiling of the municipalities in the context of their e-readiness. The goal was to depict a wider picture of the national context (national ICT policy, extent of liberalization of the ICT market, legal framework, ongoing projects, infrastructure etc.) and the specific situation of the respective municipalities by collecting data relevant to key factors affecting the adoption of E-Government (literacy, governance and telecommunication infrastructure).

The national level study was conducted with information from various sources on the internet, particularly from the CIA world fact book[9] and the Index Mundi website[10]. The local government level study was done by finding information on the municipalities on the internet on issues such as local government administration, economic activity, population etc.). The preparedness of the municipalities to participate in the global information society was gauged by administering a questionnaire to coordinators and officers of each of the linkages participating in North-South Local Government Co-operation Programme in 2010 to answer. This questionnaire assessed the

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9   The World Fact Book, the CIA, https://www.cia.gov/library/publications/the-world-factbook
10 www.indexmundi.com

community's maturity across a series of ICT indicators that are considered as key in facilitating development and delivering broad ICT-related benefits.

The results from this study provide information that can assist in the planning of E-Government development cooperation activities involving the Southern countries. It also proposes possible future areas where local government services can be enhanced by ICTs.

1.4   Limitations

This study experienced some limitations.

1. Some of the documents reviewed were published by national governments and seemed a bit spiced up. Great efforts were made at obtaining very objective assessments of the ICT landscapes of the countries by taking into account the fact that some of the documents were spiced up and therefore needed to be assessed critically. Even so, a few of these might have escaped the scrutiny of the researcher.

2. There was the lack of information on certain countries and municipalities. Even though it was the intention of the study to provide the same kind of information on each of the countries and the municipalities for the sake of consistency, it was difficult to achieve this. This was largely due to unavailability of electronically published information on those issues. In some cases where the information was found, they tended to be slightly outdated. This limitation notwithstanding, the study was to a large extent able to provide the reader with the general situation of the issues in focus.

3. Thirdly, the questionnaires were sent to only a few numbers of people even though this was already anticipated during the study design. Our aim was more to give an indication of the general situation on the ground within the municipalities rather than a precise situation which would have required a different research approach. Related to the above was the limited time in which the study was conducted. The whole study was conducted in four months and there was limited time for respondents to fill in and send back the questionnaires. Some municipalities also responded late. Probable lack of ICT skills or limited connectivity of some of the local governments limited the response rate.

4. Conducting the study from remote location in Finland whiles all the municipalities under investigation were in faraway Africa, obviously hindered the opportunity to observe and obtain firsthand information that could not be found online, or in any written publication.

2 Theoritical Study

2.1 Use of Certain Concepts and Terms

In this study some terms have been used nearly synonymously and in a broad sense. It therefore useful to take note of these terms and recognize that they are used as such only for the purpose of this study.

IT: Stands for "Information Technology," and is pronounced "I.T." It refers to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies[11].

ICT: According to the United Nations Economic Commission for Africa[12], ICTs cover internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities.

People/ Residents/ Citizens/ Inhabitants: Used nearly synonymously in this study to refer to persons living in a defined geographical area or under the jurisdiction of a particular government local or national.

Local government/ Municipality/ Municipal Government/ Local administration: Used nearly synonymously in this study to refer to government of the affairs of counties, towns, cities etc., by locally elected political bodies.

Developed country/ Northern Country: In this study the Human Development Index (HDI), which combines an economic measure, national income, with other measures, indices for life expectancy and education is used as the criterion. This criterion would define developed countries as those with a very high (HDI) rating[13].

Developing Country/ Southern Country: According to the criterion above, this would define developing countries as those with a very low HDI.

2.2 The Case for E-Government in Local Government Administration

Governments around the world are recognizing the value of E-Government. The need for E-Government finds its genesis into broader factor pertaining to 'good governance'. Governance primarily refers to the manner in which power is exercised by governments in managing a country's social and economic resources. Good governance involves a multifaceted approach and application of ICT is one of the important enabler of good governance[14].

Not surprisingly, therefore, policymakers and managers are looking to adopt E-Government in countries around the world – ranging from the most developed to the least developed. It has also been recognized that in any setting, public or private, small or large, the efficient use of information and communications technology (ICT) can significantly improve institutional and organizational performance. This is also true for

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11 http://www.techterms.com/definition/it
12 Economic Commission for Africa (ECA) (1999). An Overview of ICT Trends and Policy in Africa. UNECA: Addis Ababa
13 http://en.wikipedia.org/wiki/Developed_country
14 E-government Toolkit for developing Countries, UNESCO 2005, http://www.unescobkk.org/fileadmin/user_upload/ci/documents/UNESCO_e-Govt_Toolkit.pdf

public administration and governance where ICT can simplify procedures, accelerate communication and facilitate decision- and policy-making[15].

2.3　Local Governments as Fertile grounds for ICT Application

Local governments are fertile grounds for the application ICTs. They are at the front lines of government in their service-oriented interaction with the public and business, often in transaction based systems with many, interlinked components. As such, local governments have considerable potential to assist in the process of integration of ICTs into the daily lives of its citizens[16].

Municipal operations from an information technology perspective can be divided into three areas: 1. internal, 2. intra-governmental, and 3. external (with the public). Many of these operations benefit considerably from the use of ICTs[17].

Internal accounting and payroll operations are usually the first to be computerised because of their information intensive nature. At the same time, computers would also normally be used for word processing and budget planning (usually a spreadsheet, although some accounting systems would also have this functionality)[17].

Depending on the responsibilities of the particular local government authority, other internal functions that could use ICTs to assist in operations would include:

- Staff support (scheduler, contact management, email, web access)
- Scanning, documentation and Geographical Information Systems (GIS) Mapping
- Waste management
- Council property management
- Roads and pavement management (including parking)
- Vehicle and fuel management (fleet management systems)
- Inspections[17].

Functions which may be amenable to the introduction of E-Governance could include:
- Urban planning - land titles, subdivisions and zoning applications
- Building permit applications
- Council property rent applications and payments
- Hawking permit applications
- Local elections/voting
- Public health information and announcements
- Public transport information
- Tenders[17].

2.4　Key Concepts

E-Government and E-Governance have been used interchangeably in this study. There is only a slight difference between the two terms. The differences are highlighted in the definitions of the concepts as shown below:

What is E-Government/ E-Governance?

The term E-Government is of recent origin and there exists no standard definition since the conceptual understanding is still evolving. Heeks simply defines E-Govern-

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15　Same as reference 8.

16　Infodev, E-Government Toolkit, 2008; http://www.egov.infodeb.org/en/Section.35.html

17　Jensen M. 2002. Information and Communication Technologies (ICTs) as Tools for Improving Local Governance in Africa, UNESCO, http://portal.unesco.org/ci/en/files/8755/10488439950NEEDS_ASSESSMENT_AFR-final.pdf/ NEEDS%BASSESSMENT%2BAFR-final.pdf

ment as "the use of IT by public sector organisations[18]. The Organisation for Economic Cooperation and Development (OECD) defines E-Government as 'the use of new information and communication technologies by governments as applied to the full range of government functions'[19].

Governance is the societal synthesis of politics, policies, and programs and E-Governance is the application of ICT to the system of governance to ensure a wider participation and deeper involvement of citizens, institutions, Non-Governmental Organisations (NGOs) as well as private firms in the decision making process.

Through E-Government applications, governments today are able to deliver a wide range of services e.g. ration cards, motor licenses and land records, health, education etc. A well-conceived and strategic use of ICTs in government results in a more inclusive, effective, efficient, transparent, accountable and "people centred" public administration. It can also serve as a vehicle for meeting the Millennium Development Goals across sectors such as governance, economic development, health, education and the environment[20].

While E-Government is often perceived as "Internet-based government", many non-IP based technologies can be used in this context including telephone, fax, PDA, SMS, GPRS and WiFi. Other technologies can include RFID, biometric identification and smart (identity) cards. Another example is the e-voting process widely used in large democracies such as India which is entirely conducted offline through polling station technologies. There are also some technology-specific sub-categories of E-Government, such as m-government (mobile government), u-government (ubiquitous government), and g-government (GIS/GPS) applications for E-Government[20].

2.5   Critical success factors for E-Government

The full potential of e-Government can be realized through a focused attention on people, process, technology and resources appropriately[21]. Many have asserted that successful e-Government is at most 20% technology and at least 80% about people, processes, and resources. According to the National Institute for smart government in India "the collective experience of e-governance projects implemented so far around the world shows that the varied challenges faced by the entire gamut of projects can be represented in the theoretical framework depicted below. The framework rests on four pillars: people, process, technology and resources. What is important, therefore, is to recognize that e-Government is an enabler rather than an end in itself.

E-Government systems differ from commercial information systems in that they frequently encompass strategic goals that go beyond efficiency, effectiveness and economy, and include political and social objectives such as trust in government, social inclusion, community regeneration, community well-being and sustainability. E-Government is an evolutionary, multi-faceted process and can be viewed as consisting of a set of phases. E-Government initiatives sometimes span the entire government of a country, sometimes only the central government, sometimes a single sector ministry across the country and sometimes the provincial, municipal or village levels only. Designing E-Government systems that help to meet these objectives is therefore a significant challenge.

18 Heeks R.2006. Implementing and managing E-Government
19 OECD (2001a). Project on the Impact of e-Government, Public Management Service, Public Management Committee, 13 December, PUMA, 10/REV2.
20 E-governance in Africa: from theory to action: a handbook on ICTs for local governance, www.scribd.com/.../E-GOVERNANCE-IN-AFRICA-FROM-THEORY-TO- ACTION-A-Handbook-on-ICTs-for-Local-Governance
21 National Institute for smart government, India, http://www.nisg.org/home.php?page=e_gov_overview.php

Figure 1: The Big Picture of e-Governance

Source: National Institute for smart government, India.

People: As e-Government projects are rolled out across the country, people within and outside the government play an increasingly important role in ensuring the success of these projects. The scale of transformation is huge. Enormous resources not only in terms of money but also the expertise, skills and commitment of the people will be required. Hence, management of people is the biggest challenge to the success of the e-Government Program[21].

Process: E-Government is not just about the automation of manual records and existing processes, with all their inefficiencies. Rather, it is about transforming government processes and creating new relationships between the government and its citizens and businesses. Hence, a fresh set of process parameters and related workflow should be created, without creating unmanageable and chaotic changes, to maintain the consistency and sustainability of the process[21].

Technology: ICT is a key element of reform efforts that can help dramatically reshape government to improve performance and reduce costs. This challenge in a sense boils down to one of creating an IT Governance structure for the e-Governance sector[21].

Resources: New technologies demand new types of implementation models. Budget constraints within government, barriers to entry of private investment in e-Government sector, lack of skills for program and project management, absence of frameworks that enable designing e-Government projects on a self-financing model are among the important challenges in the resource area[21].

In sum, there are a plethora of challenges to the successful implementation of large e-Government programs[22]. In order for a country/government to excel at e-government, policy makers will usually need to join forces with public administrators to change mindsets and behaviours while offering civil servants the opportunity to acquire the skills needed in the modern organization[22]. In addition, successful adoption of e-Government in any country shall involve the active participation and contribution of a number of key players and stakeholders in the entire process. Some of the im-

22 E-Government Survey 2010, UN, http://www.epractice.eu/files/UN%20E-Government%20Survey%202010%20-%20 Part%20I.pdf

portant stakeholders as depicted in figure 2 below are: Political Leaders, Government Departments/Agencies; Legislative Bodies, Private Sector, International Organisations and NGOs.
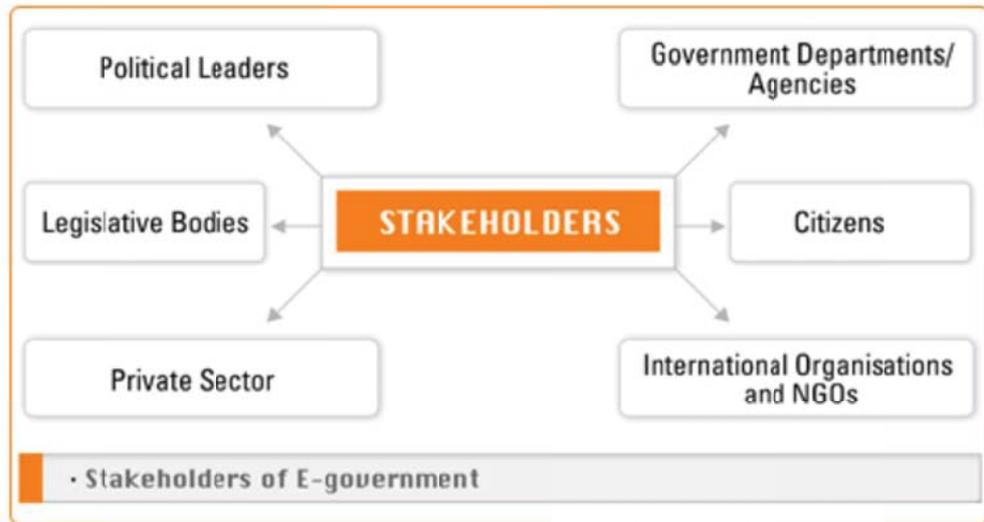
Figure 2: Stakeholders of E-Government

Source: E-Government Toolkit for Developing Countries.

2.6   Front Office Versus Back Office

Front-office refers to the government as its constituents see it, meaning the information and service providers, and the interaction between government and both citizens and businesses. Front-office implementation of E-Government involves two issues:

1) on-line services
2) citizen engagement[23]

Successful E-Government programs give considerable attention to back office support.

Back office refers both to the behind-the-scenes technology needed to maintain electronic services and to the workflow processes used to deliver a service or otherwise achieve a particular objective.

At the initial stages of E-Government, there may be a tendency for government agencies to quickly create web sites and other applications that face outwards towards the citizen without addressing the questions of how data will be processed by the bureaucracy behind the scenes. Too often, multiple agencies and departments or units within ministries create their own web sites and adopt their own software, without regard to interoperability. Resources are wasted reinventing service delivery systems.

2.7   E-Government Interaction Models

E-Government is an evolutionary, multi-faceted process and can be viewed as consisting of a set of phases. Although E-Government is complex and involves a large number of entities and processes, there are primarily four types of interaction which form the foundation of E-Government deployment.

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23 Electronic Government Front Office, UNeGov.net-School-Concepts-56, http://ocw.unu.edu/international-institute-for-software-technology/introduction-to-electronic-government/introduction4.pdf

G2G: Government to Government interaction involving sharing of data and conduct of electronic information exchange amongst various government departments and other entities. This exchange could be both intra and inter agency, at the national level as well as exchanges among the national, provincial and local levels[24].

G2C: Government to Citizen interaction where electronic dissemination of information and electronic delivery of services takes place. Initiatives in this form of interaction attempt to make transactions such as obtaining certificates, renewing licenses, paying taxes/bills and applying for government schemes less time consuming and convenient. Also included is the key component of citizen participation in the processes and policy formulation by the government[24].

G2B: Government to Business interaction involving improved and efficient procurement of goods and services by the government from the commercial business entities. It also includes sale of government goods to the public and has the potential for reducing costs through improved procurement practices and increased competition. Further, this type of interaction involves the transaction and exchange between the government and the businesses regarding licenses, taxation and policies issued for various sectors[24].

G2E: Government to Employee interaction covering employment opportunities, work guidelines, rules and regulations, benefits and pay structures for the government employees, employee welfare schemes, work rules and regulations, government housing etc.[24]

Others have labeled the E-Government interaction models as G2B, G2G, G2C and G2X where G2X is government to any (e.g. Tourists, foreign investors etc).

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24 E-government Toolkit for Developing Countries, UNESCO, 2005, http://www.unescobkk.org/fileadmin/user_upload/ci/documents/UNESCO_e-Govt_Toolkit.pdf

The table below shows a taxonomy of E-Government possibilities in Africa, where the different interaction models are depicted:

Table 1: Taxonomy of e-government possibilities in Africa

Taxonomy of E-Government possibilities in Africa		
G2B	**Government to Business**	**Example**
B-local	Government providing online services to local companies.	Online information, registration and processing of business incorporation in Accra, Ghana (Entrepreneurship)
B-regional	Government providing services to other business in the region.	The National Tourism Authority of Nigeria providing services to Travel Agents in Yaoundé, Cameroon
B-global	Government providing services to business on the global market (i.e. outside the sub-region).	The Senegalese government publishing online government's call for bids
G2C	**Government to Citizens**	
C-local	Government providing services to its citizens.	The Government of Mali sending coffee market prices directly to farmers in remote villages via Public Internet Access Points and SMS
C-regional	Government providing services to other citizens in the region.	The Ethiopian government sending disaster prevention alerts and information to citizens for possible floods of rivers crossing neighbouring countries.
C-global	Government providing services globally.	The Government of Niger launching an international appeal for donation during natural disasters
G2G	**Government to Government**	
	Government using ICTs to enhance its efficiency and effectiveness.	The Ugandan government deploying an integrated financial management system within Ministries and local government bodies.
G2X	**Government to Any**	
	Government providing ICT driven services to other players	The government of Rwanda offering an online visa delivery service for tourists and foreign investors.

Source: E-Government in Africa: Prospects, challenges and practices, Kitaw Yayehyirad, 2006, http://people.itu.int/~kitaw/egov/paper/E-Government_in_Africa.pdf

2.8   Benefits of E-Government

E-Government promises many benefits. Some of the major benefits are discussed below:

Improved and Enhanced delivery of Government Services

Electronic delivery of information and services by the government facilitates equitable access. Once the services are available through Internet, kiosks, integrated service

centers, mobile devices, it becomes very convenient for people in urban as well as rural parts of the country to avail themselves to these services. Application of ICT for delivery of services also facilitates the government becoming more responsive towards citizens[24].

Empowerment of citizens through greater access to government information and ability to interact and participate

 Effective use of technology in government, and sharing of information with stakeholders, results in the empowerment of citizens through easy and enhanced access to government information and the ability to easily interact and participate in the process of governance. Enhanced interaction among citizens and government as well as increased participation of the citizens in government functioning, decision making, policy making etc. promotes civic engagement and strengthens democracy[24].

Enhanced Transparency & Increased Accountability of the Government

Application of ICT in the processes of government also helps in enhancing transparency in government functioning, interaction with the citizens and businesses. Sharing information such as government processes, procedures, regulations as well as provision for tracking the status of application/request, introduces a lot of transparency in government functioning. This in turn helps in raising the trust level of citizens towards government and leads to better relationship between the government and citizen as well as government and businesses[24].

Increasing the internal efficiency and revenue generation by the government

Application of ICT to the internal functioning of the government has been in place for quite some time. And it has been established at many occasions that an effective use of ICT can minimize transaction costs and streamline government operations, thus making government processes more efficient and effective. Judicious deployment of technology can lead to more productivity and a possible reduction and redeployment of the workforce. Further, streamlined operations, timely reports on various aspects of the service can help in initiating timely action that results into much higher revenue collection by the government such as collection of taxes, duties etc[24].

Improving the relationship between the government and the citizens

Finally, the adoption of E-government and its benefits including higher productivity, efficiency, enhanced transparency, accountability, responsiveness lead to an overall improvement in the image of the government in the minds of the citizens. The trust level imposed by citizens and businesses in the government can significantly go up due to the increased ease and efficiency of interaction while dealing with the government. Raised trust levels lead to improved relationship between government and citizen as well as between government and businesses, fulfilling one of the major objectives of good governance[24].

Thus, it makes tremendous sense for the government sector all over the world to adopt E-government and embrace ICT advancements for streamlining their processes, connecting all the stakeholders, cutting costs, improving the delivery of services, and most importantly, realizing the vision of 'good governance'. Further, with the success stories of E-government in different parts of the world, the international call for governments to respond to standards of accountability, transparency and participatory governance as critical elements for democracy and state legitimacy, have all contributed to the growing popularity of E-government[24].

2.9   E-Government Development Phases

E-Government applications and projects generally pass through various stages in their process of maturity. A Gartner Group Report from 2000 identified four phases of E-government development that considered the level of information technology used by the government to relay information online (see Table 1 below). The Gartner Group report identified key development stages for E-government programs describing the level of technological advancement, information and communication abilities, and the kinds of services offered in each phase[24].

Figure 3: E-Government maturity model
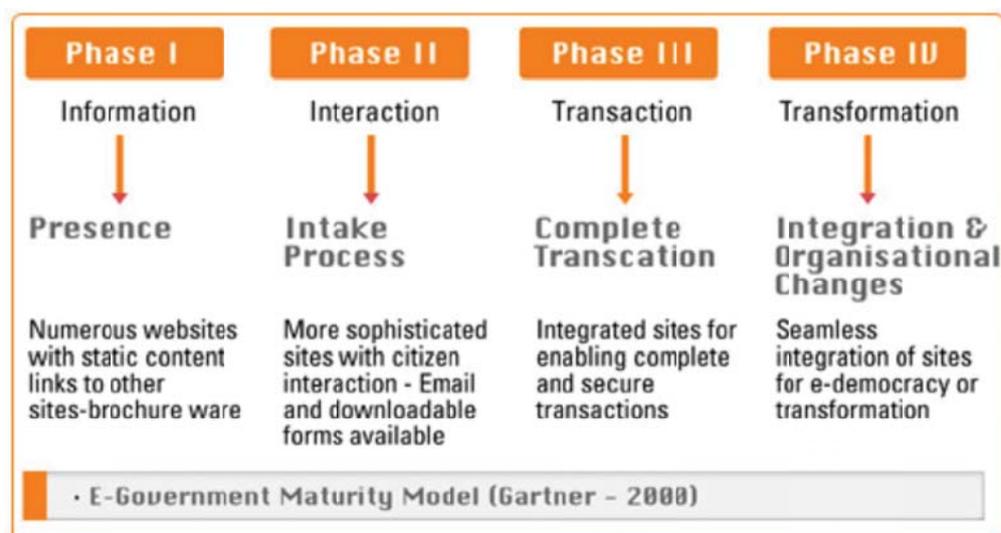
Source: E-Government Toolkit for Developing Countries, UNESCO, 2005.

Phase I: Information

This phase entails usage of ICT to expand access to government information which is of importance to individuals and businesses. An efficient utilization of Internet and communication technologies can make it possible to disseminate government information to global audience in a fast and convenient manner[24].

Although, the ways and means of disseminating this information keep on evolving further with the advancements in technology, an ideal way for a developing country municipality to enter this phase would be the setting up of a municipal portal providing a ready and comprehensive access to information online, ranging from profile of the municipality, demographic information, tourist information, policies, the executive council, publications by the local government authority, local services and local government schemes for the citizens/businesses. Setting up of this portal shall enable citizens and businesses to readily access local government information without having to travel to government offices, stand in long queues or resort to malpractices to get the task done. This simple initiative can prove to be a revolutionary advancement for local governments wrecked by complex bureaucracy and corruption[24].

Phase II: Interaction

The second phase pertains to enhancing the public involvement in the process of government functioning. Through use of technology, the interaction between the governments and citizens/businesses can be stimulated and made more effective. People can submit their queries and grievances through email or specially designed forms, check the status of their grievance, voice their opinions and help in policy formulation on important issues through online opinion polls and discussion forums and avail a whole

range of online services. This does not only raise the trust level of the citizens in the government but also saves a lot of time by providing services on a 24/7 basis which would have otherwise been done over the conventional 'counters' only during the working hours of the government[24].

Phase III: Transaction

While in the Interaction phase, the citizen is able to exchange information online and get details of the procedures involved, when it comes to actually conducting the transaction, he/she has to resort to the conventional means. However, in Phase 3, this situation is amended and this phase involves establishing websites and other applications that allow users to conduct transactions online. In other words, the user is able to avail the service online in the complete sense. Online monetary transaction and payments is a crucial component of this phase since the citizen can carry out the transaction without having to even visit the government office. This phase demonstrates the advancements of technologies such as digital certificates and payment gateways and results in a long term cost saving and improvement in productivity. Services such as online booking and payment of travel tickets, payment of taxes, land registration, renewal of ID cards, payment of utility bills etc which require transaction can be effectively provided in this phase through citizen kiosks and web enabled applications[24].

Phase IV: Transformation

This phase alludes to the stage where government has gone through the full transformation process and all the citizen services are being made available online through a single 'virtual' counter round the clock. In other words, in this stage the capacity to instantly access any service in a 'unified package' is provided to the citizen. Ministerial/departmental/agency lines of demarcation are removed and services are clustered along common needs. Providing such fully integrated services shall require broad organizational change, aligning organizational setup with the new capacities and integrating the back-end operations and infrastructure in such a coherent and seamless manner that the government can effectively acquire the distinction of being called a 'digital state'[24].

2.10 E-Inclusion

The value of E-government can be limited by disparities in access to ICTs and digital literacy. Poorer people and residents of rural areas and other disadvantaged communities are less likely to have Internet access, less likely to be e-Literate, and therefore less likely to make use of electronic information and services. In addition, citizens with some form of physical disability are also at risk of being left behind, unless their needs are specifically addressed in E-government strategies. Addressing equity issues throughout the planning and implementation of E-government projects can help ensure that traditionally marginalized citizens will benefit from online services, rather than becoming further isolated from the digital economy[24].

2.11 E-Government Tools and Technologies

Tools and technologies suited to E-government are undergoing intensive development by actors in both the private and the public sectors. Useful tools and technologies include both proprietary and open source platforms and applications. Many of the tools that governments are adopting were developed originally for commercial use and are available off-the-shelf or in open source format. Governments often contract with private sector consulting services to design and implement E-government applications, platforms, and infrastructure. They may also outsource to the private sector the opera-

tion of certain IT based functions and services. Whenever procuring products or services, E-government managers should undertake a cost-benefit analysis and give careful consideration to a vendor's track record with deployment and follow-on servicing[24]. Some of these tools and technologies include:

- **Geographic Information Systems:** or geospatial information systems (GIS) are sets of tools that capture, store, analyzes, manage, and present data that are linked to location(s). In the simplest terms, GIS is the merging of cartography, statistical analysis, and database technology. GIS systems are used in cartography, remote sensing, land surveying, public utility management, natural resource management, precision agriculture, photogrammetry, geography, urban planning, emergency management, navigation, aerial video, and localized search engines[25].
- **Content Management System (CMS)** is the Collection of procedures used to manage work flow in a collaborative environment. These procedures can be manual or computer-based. The procedures are designed to do the following:
    - Allow for a large number of people to contribute to and share stored data
    - Control access to data, based on user roles (defining which information users or user groups can view, edit, publish, etc.)
    - Aid in easy storage and retrieval of data
    - Reduce repetitive duplicate input
    - Improve the ease of report writing
    - Improve communication between users
    - In a CMS, data can be defined as nearly anything: documents, movies, pictures, phone numbers, scientific data, and so forth[26].
- **e-Democracy Tools and Technologies:** They include consultation tools, issues forums, blogs, personalization tools, email/SMS alerts, webcasting, online chat rooms. These "tools" are not especially esoteric or sophisticated. The most innovative ones were not developed specifically for e-Government. They capitalize on the concept of social networking – a bottom-up approach to participation that does not depend on the government to create a forum. The challenge for governments is to be receptive to these new modes of participation.
- **Mobile Phones:** The Internet is not widely available in many developing countries, but mobile phone access is on the rise, and wireless infrastructures hold promise as a platform for e-Government or "m-Government," as it is sometimes called. SMS messages can make m-Government especially affordable. South Africa and Hong Kong are exploring m-Government solutions[27].
- **Mobile kiosk-based** E-Government solutions have also been implemented. One case widely cited is the Mobile SAC project in Brazil's Bahia Province. Two large, 18-wheel trucks fitted with PCs visit some four hundred townships in Bahia and stay for three to four days in each site, providing services that include the issuance of birth certificates and identity cards.

2.12 Proprietary vs. Open Source Software (OSS)

Governments are using both proprietary software and Open Source Software (OSS) to launch E-government applications, due to OSS's perceived benefits in terms of costs, security, and flexibility. Some also argue that the use of open source in developing countries may speed the growth of local peer-to-peer open source communities and associated service industries. An EU-commissioned study explored both the spillover benefits of OSS and how governments can better support the development of open source industries.

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25 Wikipedia: http://en.wikipedia.org/wiki/Geographic_information_system
26 Wikipedia: http://en.wikipedia.org/wiki/Content_management_system
27 http://egov.infodev.org/en/Section.74.html

It is important to note, however, that OSS is never 'free.' While there may not be an initial fee associated with an open source license, there are long-term costs associated with support and management. Given that many OSS products are continually evolving, specialized knowledge is needed for ongoing maintenance and support. Specific applications can also lose favor over time, meaning that developers may move on to newer technologies and may stop supporting old versions of programs. These factors introduce risk into the use of OSS applications. In comparison, proprietary software has higher initial licensing, software support, and update fees, but support is generally more stable for such products. Further research is required on how the costs of OSS compare to the costs of proprietary software in a developing country context.

There are many open source templates, software applications, and tools available for building websites and 'interact' and 'transact' applications. Open source software providers are often non-profit organizations and websites are their primary vehicle for distributing products.

2.13 Measuring E-Government

Reliable and relevant E-government measurement can offer crucial signposts to point policy makers and practitioners in the right direction. Before defining an E-Government for development strategy or plan of action, a thorough analysis is required of the existing environment in which E-Government will be implemented An e-Readiness assessment is a useful tools for determining a country's "starting point" in terms of ICT, and constitutes the initial phase of the ICT strategic planning process for any government or community[28].

E-Government readiness: understanding key fact ors

E-Readiness is a term used to assess the preparedness of a community to participate in the global information society and digital economy. The level of e-Readiness is gauged by assessing a community's maturity across a series of ICT indicators that are considered key in facilitating national development and delivering broad ICT-related benefits[29].

Understanding a nation's level of e-Readiness provides an excellent platform for launching any national ICT endeavour, and also provides the all-important baseline for measuring progress as the national ICT agenda advances.

28 Plan of Action for E-Government Development, Government of Italy, Ministry of Innovation and Technology & United Nations Department of Economics and Social Affairs, 2002 http://unpan1.un.org/intradoc/groups/public/documents/un/unpan010301.pdf
29 Belize National ICT Policy, 2007, http://www.belize-glessimaresearch.org/downloads/e-readiness_assessment%20_sept2007.pdf

The table below forms the basis for the questionnaire for assessing the e-Readiness of the municipalities in this study.

Table 2: Key Factors for E-Government Readiness

Areas	Key Factors
Political conditions Good governance, as a condition for sustainable development, requires genuine commitment from political leaders, the private sector and organizations of civil society. In the same way, the introduction of E-Government in society requires strong political will to see through the transformation process it implies to government both in its internal operations as well as with regards to its interaction with civil society.	• Awareness of political value of E-Government • Commitment to E-Government and good governance • Leadership skills • National identity and perception of government • Legislative framework • Citizens' and civil society's participation in government's affairs • Good governance and rule of law
Regulatory framework A proper regulatory framework is needed in order to enable secure information exchanges within government and between government, citizens and businesses. It is also needed to create the economic conditions for accessible ICT infrastructures, services, and equipment	• Security standards • Privacy legislation • Legal validity of transactions on line • Degree of liberalization of tele-communication market, including the internet service providers market • Positive fiscal environment for acquisition of IT equipment
Organizational conditions International experience shows that the introduction of E-Government calls for and causes profound and evolutionary change of the institutional arrangements. To guide this transformation process, appropriate management and coordination mechanisms are needed.	• Administrative structures and legacies • Public administration reforms • Civil service reform • Central coordination and support unit • Policy coordination • Inter governmental relations • Change agents and management
Cultural and human resources conditions Positive attitudes, knowledge and skills need to be in place – especially within the public sector – to initiate, implement and sustain E-Government. Cultural aspects may cause general resistance to change and information-sharing. Inadequate human resource capacity may lead to lack of customer-orientation and overall commitment.	• Culture, traditions and languages • Gender inequality • Educational levels • IT literacy and number of on-line users • IT educational facilities and programs • Culture of information and knowledge sharing • Prevailing organizational culture • Attitude and adaptability to change, especially in public administration • Managerial skills in the public sector • Service orientation of public administration towards citizens
Communication environment In today's world, communicating with citizens is a duty and a necessity for governments. E-Government needs to be accepted and understood by all stakeholders to ensure that its benefits flow to the society as a whole. of ICT and E-Government	• Citizen's awareness and understanding • Communication culture and channels • Information and knowledge sharing

Source: Plan of Action for E-Government Development, Government of Italy, Ministry of Innovation and Technology & United Nations Department of Economics and Social Affairs, 2002.

The next chapter provides an environmental scan of the ICT landscape of the Southern countries followed by profiling of the municipalities in the context of their e-readiness. The goal is to depict a wider picture of the national context and the specific situation of the respective municipalities by collecting data relevant to key factors affecting the adoption of E-Government (literacy, governance and telecommunication infrastructure). Through this study we can be able to know what next steps to take as regards strenghtening of E-Government applications and solutions into the North-South Local Government Co-operation Programme of the AFLRA.

THE SOUTHERN COUNTRIES AND LOCAL GOVERNMENTS

The six Southern Countries profiled in this section are Ghana, Tanzania, Kenya, South Africa, Namibia and Swaziland. In those countries there were local government co-operation coordinated by North-South Local Government Co-operation Programme in 2010. First, a brief history of the country and its system of government is given. Next, the country's geographical and other democratic information are given. This is followed by a brief description of the economy. The ICT landscape is described in the context of developments in the sector with regards to such issues as the national ICT policy, extent of market liberalization and deregulation, the ICT infrastructure and the diffusion of ICT tools such as mobile phones, broadcast media, personal computers and the internet.

3 Ghana

3.1 Background and Government

The Republic of Ghana is located in Western Africa, bordering the Gulf of Guinea, between Cote d'Ivoire and Togo. Formed from the merger of the British colony of the Gold Coast and the Togoland trust territory, Ghana in 1957 became the first sub-Saharan country in colonial Africa to gain its independence. Currently, Ghana practices constitutional democracy which has become a model for other African countries. Before then, the country endured a long series of coups before Flt.Lt. Jerry Rawlings took power in 1981 and banned political parties. After approving a new constitution and restoring multiparty politics in 1992, Rawlings won presidential elections in 1992 and 1996, but was constitutionally prevented from running for a third term in 2000. John Kufuor succeeded him and was reelected in 2004. John Atta Mills took over as head of state in early 2009[30].

The Republic of Ghana is divided into ten administrative units comprising 10 regions: Ashanti, Brong-Ahafo, Central, Eastern, Greater Accra, Northern, Upper East, Upper West, Volta, and Western. Each of the regions is headed by a Regional Minister appointed by the President[31]. The local government units in Ghana are called District assemblies. There are 138 district administrative set ups and assemblies. The districts are administered by assemblies of directly elected and appointed members. District Chief Executives (DCE's) who head the assemblies are appointed by the incumbent President and approved by the District Assembly. Local government in Ghana has traditionally been subject to the central government because responsibilities between the two were not well-defined. The Local Government Law of 1988 and the Local

30 http://www.indesmundi_com/ghana/background.html
31 http://www.indexmundi.com/ghana/administrative_divisions.html

Government Act of 1993 further empowered local governments, and set the stage for efforts to assist them with development planning, working with civil society, and less dependence on central government for resources[32].

3.2   Geography and demography

Ghana has a total land area of total: 238,533 sq km and a population of 24,339,838 (July 2010). It has a youthful population comprising the following:

- 0-14 years: 36.8% (male 4,529,594/female 4,429,802)
- 15-64 years: 59.6% (male 7,252,245/female 7,262,757)
- 65 years and over: 3.6% (male 395,007/female 470,433) (2010 est.)

Other population indicators include:
- Urban population: 50% of total population (2008)
- Rate of urbanization: 3.5% annual rate of change (2005-10 est.)
- Literacy (definition: age 15 and over who can read and write): of the total population is at 57.9% comprising 66.4% male and 49.8% female (2000 census)
- Ethnic Groups: Akan 45.3%, Mole-Dagbon 15.2%, Ewe 11.7%, Ga-Dangme 7.3%, Guan 4%, Gurma 3.6%, Grusi 2.6%, Mande-Busanga 1%, other ethnic groups 1.4%, other 7.8% (2000 census)
- Religions: Christian 68.8% (Pentecostal/Charismatic 24.1%, Protestant 18.6%, Catholic 15.1%, other 11%), Muslim 15.9%, traditional 8.5%, other 0.7%, none 6.1% (2000 census)
- Languages: Asante 14.8%, Ewe 12.7%, Fante 9.9%, Boron (Brong) 4.6%, Dagomba 4.3%, Dangme 4.3%, Dagarte (Dagaba) 3.7%, Akyem 3.4%, Ga 3.4%, Akuapem 2.9%, other 36.1% (includes English (official)) (2000 census)[33]

3.3   Economy

Ghana is well endowed with natural resources, and has roughly twice the per capita output of the poorest countries in West Africa. Even so, Ghana remains heavily dependent on international financial and technical assistance. Gold and cocoa production and individual remittances are major sources of foreign exchange. Oil production is expected to expand in late 2010 or early 2011. The domestic economy continues to revolve around agriculture, which accounts for more than a third of GDP and employs more than half of the work force, mainly small landholders[34].

3.4   ICT Landscape

Ghana has been a pioneer in the African telecommunications sector. It launched the first cellular mobile network in sub-Saharan Africa in 1992 and it was among the first countries on the continent to be connected to the Internet and to introduce ADSL broadband services.

Ghana also led the way in market liberalisation and deregulation when it privatised Ghana Telecom (GT) as early as 1996. Since then, Ghana has become one of the continent's most vibrant mobile markets with six competing operators, including regional heavyweights such as MTN, Vodafone, Zain and Millicom (Tigo). The sector is highly competitive with more than 140 licensed Internet Service Providers (ISPs), although the bulk of the market is in the hands of only a few[35]. The regulatory

32 http://www.nationsencyclopedia.com/Africa/Ghana-LOCAL-GOVERNMENT.html
33 http://www.indexmundi.com/ghana/demographics_profile.html
34 http://www.indexmundi.com/ghana/economy_profile.html
35 http://www.budde.com.au/Research/Ghana-Telecoms-Mobile-Broadband-andForecasts.html

agency, the National Communications Authority (NCA backed by Act 524, 1996) has had its ups and downs but has largely promoted competition through the regulation of wire, cable, radio, television, satellite and similar means of technology for orderly development and operation of efficient communication services in Ghana[36]. Problems encountered in Ghana's ICT sector so far are blamed on the lack of a strong regulatory agency especially regarding interconnection negotiations. Experts argue the NCA lacks the full complement of staff making it vulnerable to the actions of politically supported incumbents and new entrants. Consumers' associations and civil society groups have therefore advocated the NCA be strengthened for effective development of firmer regulatory oversight[37].

The telecommunications and information technology sector has seen an increase in diffusion rates across the country with mobile phone lines exceeding fixed lines by 40:1 and recording one of the highest numbers of mobile phone usage in Africa. Competition among multiple mobile-cellular providers has spurred growth with a subscribership of 50 per 100 persons and rising. The country ended January 2009 with an active subscriber base of 11.96 million[38]. Internet services are made available to enhance connectivity in under-served and un-served rural areas. Internet user penetration is still low at around 6% of the population, mainly due to the poor condition of the national fixed-line network and the high cost of connectivity. However, developments are now speeding up dramatically following the introduction of wireless and third generation (3G) mobile broadband technologies such as iBurst, WiMAX and HSPA, and the arrival of two new international fibre links in 2009 and 2010 which has ended the monopolistic pricing of international bandwidth. The re-privatised national carrier, Ghana Telecom has begun to be more effective in driving the broadband market by expanding its retail as well as wholesale offerings. This, in combination with national fibre backbone networks that are being rolled out by various players, is revolutionising the country's broadband market and paving the way for convergence of technologies and services[38].

Apart from the government, the private sector has also been instrumental in developments in this sector, building some infrastructure on their own with great success[39]. On another front, some effort has been made in terms of awareness creation, connectivity, national policies, hardware and software improvement, and human resource development. In 2002, the government began an ICT policy, known as the Information and Communication Technology for Accelerated Development (ICT4AD) to further enhance the liberalization process. Priority areas of the ICT4AD Policy included: Human Resource Development, Education, Governance, Private Sector Development, ICT Products and Services, Industry Development, Agriculture and Agro-Business, ICT Community buy-in, National Health and Research[40]. More than 120 out of an expected 230 Community Information Centres are being constructed nationwide and are at various stages of completion. With all these developments, people all over the country, even in the remotest areas, are becoming increasingly aware of the powerful role that the new information and communication technologies can play to help in their struggle for economic and social development. As a result, there have been dramatic moves in Ghana's information communication system for some years now reflected in the use of Business Communication Centers (BCCs), Community Learning Centers (CLCs), Internet Cafes or Cyber Cafes, and the Telecenter (TC) concept[41]. An initiative to provide laptops to all school children is underway to promote ICT use

36 http://www.developingtelecoms.com/liberalising-ghanas-telecoms-sector-the-positives-and-the-negatives.html
37 Liberalization of Ghana's Telecom Sector - a look at the positives and the negatives, Emily Nyarko and Lawrence Quartey, http://www.ghananewsagency.org/s_features/r_8932
38 2009 Ghana Telecom market statistics and forecast, http://www.budde.com.au/Research/2009-Ghana-Telecoms-Mobile-Broadband-and-Forecasts.html
39 http://.budde.com.au/Research/Ghana-Internet-and-Broadband-Market-Overview-Statistics-and-Forecasts.html
40 http://www.modernghana.com/news2/246220/2/liberalixation-of-ghanas-telecom-sector.html
41 http://depot.gdnet.org/newkb/fulltext/Addom_Education_Institutions_in_Ghana.pdf

in education. The syllabus from basic to tertiary education have been revised to include ICT training in schools.

A national broadband program to promote ICT penetration is underway. Pay-per-view cable and satellite TV network, as well as technology to view TV on mobile phones, are on the market. A process has begun to transition from analogue to digital TV throughout the country by 2015. Gradually, e-banking and e-commerce services are taking root in urban centers of the country. At the end of December 2008, Zain Telecommunication Ltd. launched a 3G network, the first in Africa south of the Sahara (excluding South Africa)[42].

3.5   Ghana Telecommunications Profile 2010

Telephones - main lines in use
267,400 (2009)

Telephones - mobile cellular
15.109 million (2009)

Telephone system
General assessment: primarily microwave radio relay; wireless local loop has been installed; outdated and unreliable fixed-line infrastructure heavily concentrated in Accra
Domestic: competition among multiple mobile-cellular providers has spurred growth with a subscribership of more than 60 per 100 persons and rising
International: country code - 233; landing point for the SAT-3/WASC, Main One, and GLO-1 fiber-optic submarine cables that provide connectivity to South Africa, Europe, and Asia; satellite earth stations - 4 Intelsat (Atlantic Ocean); microwave radio relay link to Panaftel system connects Ghana to its neighbors (2009)

Radio broadcast stations
AM 0, FM 86, shortwave 3 (2007)

Television broadcast stations
7 (2007)

Internet country code
.gh

3.6   Other ICT Statistics

Table 3: Total number of telephone main lines in use in Ghana

Year	Telephones - main lines in use	Rank	Percent Change	Date of Information
2003	240,000	110		2001
2004	302,300	109	25.96 %	2003
2005	302,300	109	0.00 %	2003
2006	321,500	109	6.35 %	2005
2007	321,500	110	0.00 %	2005
2008	376,500	103	17.11 %	2007
2009	376,500	103	0.00 %	2007
2010	143,900	134	-61.78 %	2008

Source: United Nations Statistics Division.

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42 http://www.natcomreport.com/ghana/livre/telecommunications.pdf

Table 4: Total number of mobile cellular telephone subscribers in Ghana

Year	Telephones - mobile cellular	Rank	Percent Change	Date of Information
2003	150,000	86		2001
2004	799,900	89	433.27 %	2003
2005	799,900	90	0.00 %	2003
2006	2,842,000	72	255.29 %	2005
2007	2,842,000	75	0.00 %	2005
2008	7,604,000	61	167.56 %	2007
2009	7,604,000	62	0.00 %	2007
2010	11,570,000	53	52.16 %	2008

Source: United Nations Statistics Division.

Table 5: Internet Users in Ghana (2003-2010)

Year	Internet users	Rank	Percent Change	Date of Information
2003	200,000	74		2002
2004	170,000	95	-15.00 %	2002
2005	170,000	96	0.00 %	2002
2006	401,300	91	136.06 %	2005
2007	401,300	92	0.00 %	2005
2008	650,000	95	61.97 %	2007
2009	650,000	95	0.00 %	2007
2010	997,000	91	53.38 %	2008

Source: United Nations Statistics Division.

Definition: This entry gives the number of users within a country that access the Internet. Statistics vary from country to country and may include users who access the Internet at least several times a week to those who access it only once within a period of several.

Table 6: Number of personal computers in Ghana from 1990-2005

Year	Value
1990	728
1991	1500
1992	5000
1993	10000
1994	15000
1995	20000
1996	25000
1997	30000
1998	40000
1999	50000
2000	60000
2001	70000
2002	82000
2003	96000
2004	112000
2005	128000

Source: United Nations Statistics Division.

Table 7: Personal computers per 100 population of Ghana

Year	Value
1992	0.03
1993	0.06
1994	0.09
1995	0.11
1996	0.14
1997	0.16
1998	0.21
1999	0.26
2000	0.3
2001	0.34
2002	0.4
2003	0.45
2004	0.52
2005	0.58

Source: United Nations Statistics Division.

3.7   The Ho Municipality

The Ho Municipality covers an area of 2.660 sq km. The total population of Ho Municipality is about 200,000 according to the year 2000 population and housing census[43].

The Ho Municipal Assembly established by Legislative Instrument 1796 of 2004, is the highest political and administrative authority in the Ho municipality. The structure of the assembly is made up of the municipal co-ordinating directorate and eleven (11) decentralized departments. A very important component of the structure is the Municipal Planning Co-ordinating Unit (MPCU) which is responsible for co-ordinating the development planning activities of the Assembly[43]. The Municipal Assembly is headed by the Municipal Chief Executive as the direct representative of the president in the municipality. However, the co-ordinating directorate is headed by the Municipal Co-ordinating Director as the head of the administration. The legislative and deliberative organ of the assembly is made up of 41 elected members and 13 government appointees. It is headed by the presiding member who presides over meetings of the Assembly. The Assembly works through its Executive Committee and its sub committees, five of which are Finance and Administration, Development Planning, Works, Social Services, and Justice and Security Sub-committees, and are statutory. The non-statutory ones are Women Affairs, Tourism Sub-Committee, Water and Sanitation Sub-Committee, Public complaints and Disaster Management Sub-Committee[43]. Owing to lack of office space, most of the decentralized departments are scattered from the co-ordinating directorate and this makes co-ordination difficult. The staffing position of the co-ordinating directorate and the decentralized departments is not strong, especially where professional and technical staffs are concerned. This, coupled with inadequate logistical support, adversely affect the operations of the Assembly.[43]

3.8   E-Readiness Analysis for Ho

E-Readiness analysis for Ho based on questionnaire (see appendix). The electricity supply within the local government area is good. Most households have access to a radio. A large number of homes have access to a TV and the mobile phone access is high. The availability of computers to households was very low with the cost of internet access being extremely high for most households. Prices are just too prohibitive for

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43 http://ho.ghanadistricts.gov.gh/

most residents. These two factors combined means that accessing information from the internet is a preserve of only a few.

On governance, responses indicate that the local government authority's commitment to the use of ICT for service delivery is just within an average range and these executives themselves have an above average competence in basic computer skills such as browsing the internet, sending emails and creating documents. The staff of the local government has an average level of competence in basic computer skills.

The most important channel of information flow between the different departments and staff of the local government was person-to-person. The next in intensity of use was via telephone.

Most respondents said only 0-25% of the local government staff has access to a computer. A few said the range was slightly higher at 50-75%. My deduction therefore is that only a few of the local government staff has access to a computer. Some of the staff has had some personal in-service training of software applications.

The local government authority has a website at: http://ho.ghanadistricts.gov.gh/ that has information such as description of the municipality, news and events, pictures of ongoing development projects within the municipality, and contact details of the executive heads.

The main channels of communication between the general public and business on one hand, and the local government authority on the other, was still largely over the counter; meaning face-to-face. Telephone was next in intensity of use followed by mail/fax or courier. For now video conferencing technology has not been used.

The creation of Community Information Centres in all Zonal Councils to aid rural and urban connectivity and the connection of the administration to the internet are some ICT E-Governance initiatives currently underway within the municipality. With regards to ICT policies and guidelines, those relating to the introduction and learning of ICT in schools and of rural-urban connectivity are in place.

Schools within the local government have an extremely limited amount of computers for the use of students and teaching staff. Learners with disabilities have an almost nonexistent possibility to access spacialised computers for their use. Teachers and trainers' skills to teach with computers and how to integrate them into classroom learning is very low. Residents have an average level of awareness and understanding of the potential of ICT for development. ICT related education/ awareness that take place at the community level include basic computing (MS word, Excel, PowerPoint, Access) mobile phone repairs, sensitization of the people about the potential of ICT for development, encouragement to go to the internet cafés to set up email accounts and communicate via email. Respondents did not know if the local government had had any experiences in utilising ICT for cultural/heritage entertainment products or services. Respondents either did not know or were not themselves aware if there had been any earlier ICT related survey on the e-competence or e-infrastructure of the local government area.

4   Tanzania

4.1   Background and Government

The United Republic of Tanzania was formed out of the union of two sovereign states namely Tanganyika and Zanzibar. Tanganyika became a sovereign state on 9th December, 1961 and became a Republic the following year. Zanzibar became independent on 10th December, 1963 and the People's Republic of Zanzibar was established after the revolution of 12th January, 1964. The two sovereign republics formed the United Republic of Tanzania on 26th April, 1964. However, the Government of the United Republic of Tanzania is a unitary republic consisting of the Union Government and the Zanzibar Revolutionary Government[44]. The Government of the United Republic of Tanzania is a unitary republic based on multiparty parliamentary democracy. All state authority in the United Republic are exercised and controlled by the Government of the United Republic of Tanzania and the Revolutionary Government of Zanzibar. Each Central Government has three organs: The Executive; Judiciary; and The Legislature that have powers over the conduct of public affairs. In addition, Local Government Authorities assist each central government[45].

All state authority in the United Republic are exercised and controlled by the Government of the United Republic of Tanzania and the Revolutionary Government of Zanzibar. Each Central Government has three organs: The Executive; Judiciary; and the Legislature that have powers over the conduct of public affairs. The Government of the United Republic of Tanzania has authority over all Union Matters in the United Republic and over all other matters concerning Mainland Tanzania, and the Revolutionary Government of Zanzibar has authority in Tanzania Zanzibar over all matters, which are not Union Matters[46].

Prior to 1995, there was one-party rule with the first democratic elections held in the country since the 1970s. Zanzibar's semi-autonomous status and popular opposition have led to two contentious elections since 1995, which the ruling party won despite international observers' claims of voting irregularities[47]. The United Republic of Tanzania is divided into 26 (21 mainland and 5 Zanzibar) administrative regions Arusha, Dar es Salaam, Dodoma, Iringa, Kagera, Kigoma, Kilimanjaro, Lindi, Manyara, Mara, Mbeya, Morogoro, Mtwara, Mwanza, Pemba North, Pemba South, Pwani, Rukwa, Ruvuma, Shinyanga, Singida, Tabora, Tanga, Zanzibar Central/South, Zanzibar North, Zanzibar Urban/West. These are divided into 130 administrative districts (Zanzibar has 10 and Mainland has 120 administrative districts)[48].

Local Government Authorities assist each central government. Local Government Authorities exist for the purpose of consolidating and giving more power to the people to competently participate in the planning and implementation of development programmes within their respective areas and generally throughout the country. Local Government Authorities are classified into two categories. Urban authorities are responsible for the administration and development of urban areas ranging from townships, municipalities and cities of Dar es Salaam and Mwanza. Rural Authorities com-

44 http://www.tanzania.go.tz/profile1f.html
45 http://www.tanzania.go.tz/administration.html
46 http://www.tanzania.go.tz/administration.html
47 https://www.cia.gov./library/publications/the-world-factbook/geos/tz.html
48 http://www.indexmundi.com/tanzania/administrative_divisions.html

monly known as District Councils form the second category. All Local Government Authorities are mandated to play two main functions of administration, law and order; and economic and development planning in their respective areas of jurisdiction[49].

4.2   Geography and Demography

Tanzania has a total land area of 947,300 sq km and a population of 41,048,532. It has a youthful population comprising the following:

- 0-14 years: 43% (male 8,853,529/female 8,805,810)
- 15-64 years: 54.1% (male 10,956,133/female 11,255,868)
- 65 years and over: 2.9% (male 513,959/female 663,233) (2010 est.)

Other population indicators include:
- Urban population: 25% of total population (2008)
- Rate of urbanization: 4.2% annual rate of change (2005-10 est.)
- Literacy: definition: age 15 and over can read and write Kiswahili (Swahili), English, or Arabictotal population: 69.4% male: 77.5% female: 62.2% (2002 census)
- Ethnics Groups: mainland - African 99% (of which 95% are Bantu consisting of more than 130 tribes), other 1% (consisting of Asian, European, and Arab); Zanzibar - Arab, African, mixed Arab and African
- Religion: mainland - Christian 30%, Muslim 35%, indigenous beliefs 35%; Zanzibar - more than 99% Muslim
- Languages: Kiswahili or Swahili (official), Kiunguja (name for Swahili in Zanzibar), English (official, primary language of commerce, administration, and higher education), Arabic (widely spoken in Zanzibar), many local languages

4.3   Economy

Tanzania is in the bottom 10% of the world's economies in terms of per capita income. The economy depends heavily on agriculture, which accounts for more than one-fourth of GDP, provides 85% of exports, and employs 80% of the work force. Topography and climatic conditions, however, limit cultivated crops to about 4% of the land area. Industry traditionally feature the processing of agricultural products and light consumer goods. The World Bank, the IMF, and bilateral donors have provided funds to rehabilitate Tanzania's aging economic infrastructure and to alleviate poverty. Long-term growth through 2005 featured a pickup in industrial production and a substantial increase in output of minerals led by gold. Recent banking reforms have helped increase private-sector growth and investment. Continued donor assistance and solid macroeconomic policies supported a positive growth rate, despite the world recession[50].

4.4   ICT Landscape

Tanzania, since 1984, has been playing catch up in its use and adoption of ICT. This is after the government lifted a ban on the use of computers and television that was issued in 1974. The Tanzania Development Vision 2025 singles out ICTs as a key enabler for socio-economic development in Tanzania. The ICT policy vision aims at making Tanzania the hub of ICT Infrastructure and ICT solutions that enhance sustainable socio-economic development and accelerated poverty reduction both nationally and globally[51].

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49 http://www.tanzania.go.tz/profile1f.html
50 https://www.cia.gov/library/publications/the-world-factbook/geos/countrytemplate_tz.html
51 http://propoor-ict.net/docs/tanzania_report.pdf

Even so, there was no single agency yet to implement the policy. Policy elements fell into the portfolios of many ministries, namely: the Public Service under the President for E-Governance, Science and Technology, Communication and Transport, and ministries like the Ministry of Justice for Civil Registration and Identity.

The Government of Tanzania introduced liberalization of the Telecommunications Sector in 1994 following the dissolution of the then Tanzania Posts and Telecommunications Corporation (TP&TC) into two independent bodies namely Tanzania Telecommunication Company (TTCL) and Tanzania Postal Corporation. Later in 2003 the Tanzania Communications Regulatory Authority (TCRA) was established which merged the Tanzania Communications Commission and the Tanzania Broadcasting Commission[52].

Tanzania became one of very few African countries to fully liberalise its communication Sector. The liberalisation of the communications sector has given a big boost to the development of telecommunications. This meant that new data and voice providers could be licensed to compete with TTCL[53]. Growth has been impressive in Tanzania's telecoms market. Tanzania's teledensity was only 10 % in 2005 while today the same has reached 43%. This is the result of licensing of new operators who have made considerable investments into network development and expansion, thus giving access to most of the districts in the country including remotely located inhabitants.

Government institutions, private companies, and academic institutions have made a step towards computerization of their respective business processes. For example the number of people accessing the Internet is increasing with time. This can be evidenced by the increase in the number of Internet cafes especially in Dar es Salaam as well as other urban areas[54].

The liberalisation of Voice over Internet Protocol telephony as well as the introduction of third generation (3G) mobile services and wireless broadband networks has also boosted the sector which has been hampered by the low level of development of the traditional fixed-line network.

Tanzania has currently two fixed-line operators (TTCL and Zantel) and seven operational mobile networks (Vodacom, Zain, Tigo, Zantel, TTCL Mobile, Benson and[55].

4.5 Tanzania Telecommunications Profile 2010

Telephones - main lines in use

179,849 (2009)

Telephones - mobile cellular

14.723 million (2009)

Telephone system

General assessment: telecommunications services are inadequate; system operating below capacity and being modernized for better service; small aperture terminal (VSAT) system under construction

Domestic: fixed-line telephone network inadequate with less than 1 connection per 100 persons; mobile-cellular service, aided by multiple providers, is increasing rapidly; trunk service provided by open-wire, microwave radio relay, tropospheric scatter, and fiber-optic cable; some links being made digital

International: country code - 255; satellite earth stations - 2 Intelsat (1 Indian Ocean, 1 Atlantic Ocean)

52 http://propoor-ict.net/docs/tanzania_report.pdf
53 www.infodev.org/en/Document.432.pdf
54 http://www.natcomreport.com/Tanzania/pdf-new/telecommunications.pdf
55 http://www.natcomreport.com/Tanzania/pdf-new/telecommunications.pdf

Radio broadcast stations

AM 12, FM 11, shortwave 2 (1998)

Television broadcast stations

3 (1999)

Internet country code

.tz

4.6   Other ICT Statistics

Table 8: Telephones- main lines in use in Tanzania 2003-2010

Year	Telephones - main lines in use	Rank	Percent Change	Date of Information
2003	127,000	127		1998
2004	149,100	126	17.40 %	2003
2005	149,100	126	0.00 %	2003
2006	148,400	129	-0.47 %	2004
2007	148,400	128	0.00 %	2004
2008	165,013	127	11.19 %	2008
2009	165,013	127	0.00 %	2008
2010	179,849	126	8.99 %	2009

Source: United Nations Statistics Division.

Table 9: Mobile phones in use in Tanzania 2003-2010

Year	Telephones - mobile cellular	Rank	Percent Change	Date of Information
2003	30,000	121		1999
2004	891,200	85	2,870.67 %	2003
2005	891,200	85	0.00 %	2003
2006	1,942,000	83	117.91 %	2005
2007	1,942,000	86	0.00 %	2005
2008	9,358,000	55	381.87 %	2008
2009	9,358,000	56	0.00 %	2008
2010	14,723,000	46	57.33 %	2009

Source: United Nations Statistics Division.

Definition: This entry gives the total number of mobile cellular telephone subscribers.

Table 10: Internet Users in Tanzania 2003-2010

Year	Internet users	Rank	Percent Change	Date of Information
2003	300,000	71		2002
2004	250,000	85	-16.67 %	2003
2005	250,000	85	0.00 %	2003
2006	333,000	93	33.20 %	2005
2007	333,000	95	0.00 %	2005
2008	400,000	102	20.12 %	2007
2009	400,000	103	0.00 %	2007
2010	520,000	106	30.00 %	2008

Source: United Nations Statistics Division.

Table 11: Cellular subscribers for Tanzania 1990-2007

Year	Value
1990	0
1991	0
1992	0
1993	0
1994	371
1995	3500
1996	9038
1997	20200
1998	37940
1999	50950
2000	110518
2001	275560
2002	606859
2003	1942000
2004	1942000
2005	3389787
2006	5766566
2007	8322857

Source: United Nations Statistics Division.

Table 12: Cellular subscribers per 100 of the population of Tanzania 1990-2007

Year	Value
1990	0
1991	0
1992	0
1993	0
1995	0.01
1996	0.03
1997	0.06
1998	0.11
1999	0.15
2000	0.32
2001	0.78
2002	1.68
2003	5.26
2004	5.16
2005	8.84
2006	14.78
2007	20.57

Source: United Nations Statistics Division.

Table 13: Internet users in Tanzania 1990-2007

Year	Value
1990	0
1996	500
1997	2500
1998	3000
1999	25000
2000	40000
2001	60000
2002	80000
2003	250000
2004	333000
2005	384323
2006	390000
2007	400000

Source: United Nations Statistics Division.

Table 14: Internet users per 100 population of Tanzania

Year	Value
1990	0
1999	0.07
2000	0.12
2001	0.17
2002	0.22
2003	0.68
2004	0.89
2005	1
2006	1
2007	0.99

Source: United Nations Statistics Division.

Table 15: Number of personal computers in Tanzania 1997-2005

Year	Value
1997	50000
1998	55000
1999	80000
2000	100000
2001	120000
2002	144000
2003	200000
2004	278000
2005	356000

Source: United Nations Statistics Division.

Table 16: Personal computers per 100 of the population of Tanzania 1997-2005

Year	Value
1997	0.15
1998	0.17
1999	0.24
2000	0.29
2001	0.34
2002	0.4
2003	0.54
2004	0.74
2005	0.93

Source: United Nations Statistics Division.

4.7 The Mwanza Local Government

Mwanza is located on the southern shore of Lake Victoria in northwest Tanzania. Covering an area of 1,324 square kilometers, it is the second largest urban center in Tanzania[56].

Mwanza town was founded in 1892 as a regional Administration and Commercial Centre to control mainly export production of the cotton growing areas in the Lake Victoria Zone. In 1978 Mwanza obtained the status of Municipality in line with the

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56 http://www.iclei.org/indes.php?id=1222

local government structure established in 1972. In 2000, Mwanza was further promoted to a City status. Currently there are two cities, the other being Dar es Salaam[57].

Mwanza City is comprised of two Districts, namely Nyamagana and Ilemela. There are also two Divisions and 21 Wards. These Wards are:

Rural wards: Ilemela (Sangabuye, Bugogwa, Ilemela, Buswelu) - Nyamagana (Igoma, Buhongwa and Mkolani).

Urban wards: Ilemela (Kirumba, Kitangiri, Nyamanoro, Pansiasi, Nyakato) - Nyamagana (Pamba, Isamilo, Mkuyuni, Nyamagana, Mbugani, Butimba, Mirongo).

Administratively, the City Council is run by the Councillors under the leadership of Lord Mayor. However, the day-to-day administration of the city is done by the City Director who is assisted by Heads of Departments – and sections. At the Ward level there are Ward Executive Officers who are under the City Director.

According to the 2002 National Census, Mwanza City has a total population of 476,646 (Nyamagana District 210,735 and Ilemela 265, 911). The current population is estimated to be just above half a million people with an annual natural growth rate of 3.2% and rural to urban immigration of almost 8% (National Population Causes 2002). The population density is 134 people per sq. km, being the second in the country after Dar es Salaam.

Mwanza City is endowed with reasonably good communication infrastructure. Because of its economic importance in the Lake-zone and a good transport system, many communication companies have opened offices in the City. There are two radio stations in the City i.e. Radio Free Africa owned by Sahara Communication and SAUT Radio owned by the Roman Catholic Church. There is one TV Station known as Star – TV that was opened in year 2000. It uses satellite transmission and again it is owned by Sahara Communication.

The TV coverage is 90% in the Mwanza region. Telephone communication is supplied by TCCL for landlines that link the city to the rest of the world. The cellular phone companies operating in the City include VODACOM, CELTEL, and MOBITEL. They are functional, effective and efficient.

The municipality is experiencing rapid economic and population growth in 1995 the population 420,000, and by 2011 is expected to be over 1,400,000. Squatter housing poses serious social and environmental problems.

Local government authority is administratively under the prime minister's office. Mwanza operates under a committee system, comprising twenty-five elected and nominated councillors. Committees range from finance to health to urban planning.

The Tanzanian Local Government Act stipulates that basic functions of every urban authority must include maintenance of peace and order, promotion of social welfare and economic wellbeing, and planning for rural and urban development to further social and economic development[58].

4.8   E-Readiness Analysis for Mwanza

E-Readiness analysis for Mwanza based on questionnaire (see appendix). The electricity supply within the local government area is very good. Most households have access to a radio. The number of homes that have access to a TV is average but and the mobile phone access is very high. The availability of computers to households was very low with the cost of internet access being very high for most households. Prices are just too prohibitive for most residents. The combination of these two factors means that accessing information from the internet is a preserve for only a few.

On governance, responses indicate that the local government authority's commitment to the use of ICT for service delivery is high and these executives themselves

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57 http://www.mwanza.de/index.php?option=com_content&view=article&id=52:mwanza-city-profile-english&catid=17:die-stadt-mwanza&Itemid=33&land=de

58 http://www.iclei.org/index.php?id=1222

have an average competence in basic computer skills e.g. in browsing the internet, sending emails and creating documents. The staff of the local government has an average level of competence in basic computer skills. The most important channel of information flow between the different departments and staff of the local government could not be ascertained from the response.

Only 26-50% of the local government staff has access to a computer and a very small group of the staff has received computer training. Respondent observed that there is the need to expand the classroom and computers so that more staff could be enrolled. The local government authority has no website.

The main channels of communication between the general public and business on one hand, and the local government authority on the other, was still largely over the counter; meaning face-to-face. Telephone and mail/fax/ courier were next in intensity of use. For now video conferencing technology has not been used. With regards to the question of some ICT or E-Governance initiatives currently underway within the municipality respondent said the city website was under construction.

Schools within the local government have an extremely limited amount of computers for the students and staff. Learners with disabilities have almost a nonexistent possibility to access spacialised computers for their use. Teachers and trainers' skills to teach with computers and how to integrate them into classroom learning is average. Residents have a low level of awareness and understanding of the potential of ICT for development. The local government had had no experiences in utilising ICT for cultural/heritage entertainment products or services. There had been an earlier ICT related survey on the e-competence and e-infrastructure of the local government area.

5   Kenya

5.1   Background and Government

Kenya is a country in Eastern Africa. It is bordered by Ethiopia to the north, Somalia to the east, Tanzania to the south, Uganda to the west, and Sudan to the northwest, with the Indian Ocean running along the southeast border[59].

Founding president and liberation struggle icon Jomo Kenyatta led Kenya from independence in 1963 until his death in 1978, when President Daniel Toroitich Arap Moi took power in a constitutional succession. The country was a de facto one-party state from 1969 until 1982 when the ruling Kenya African National Union (KANU) made itself the sole legal party in Kenya. Moi acceded to internal and external pressure for political liberalization in late 1991. The ethnically fractured opposition failed to dislodge KANU from power in elections in 1992 and 1997, which were marred by violence and fraud, but were viewed as having generally reflected the will of the Kenyan people. President Moi stepped down in December 2002 following fair and peaceful elections. Mwai Kibaki running as the candidate of the multiethnic, united opposition group, the National Rainbow Coalition (NARC), defeated KANU candidate Uhuru Kenyatta and assumed the presidency following a campaign centered on an anticorruption platform. Kibaki's NARC coalition splintered in 2005 over the constitutional review process. Government defectors joined with KANU to form a new opposition coalition, the Orange Democratic Movement, which defeated the government's draft constitution in a popular referendum in November 2005. Kibaki's reelection in December 2007 brought charges of vote rigging from ODM candidate Raila Odinga and unleashed two months of violence in which as many as 1,500 people died. UN-sponsored talks in late February produced a power sharing accord bringing Odinga into the government in the restored position of prime minister.

Kenya is divided into seven provinces: Coast, Northeastern, Eastern, Central, Rift Valley, Nyanza, and Western. These are subdivided into 63 districts, each headed by a presidentially appointed commissioner; provincial administration is closely supervised by the central government. There are two types of upper local authorities (municipalities and county councils) and four types of lower authorities (urban councils, township authorities, area councils, and local councils). The Nairobi area is separate and has special status. The Nairobi area, administered by a city council, is the direct responsibility of the central government. Many of the councils raise their own revenues by taxes, construct and maintain roads, carry out public health schemes, construct and improve housing, support education, and provide agricultural and social welfare services[60].

5.2   Geography and Demography

Kenya has a total land area of 580,367 sq km and a population of 39,002,772. It has a youthful population comprising the following:

- 0-14 years: 42.3% (male 8,300,393/female 8,181,898)
- 15-64 years: 55.1% (male 10,784,119/female 10,702,999)
- 65 years and over: 2.6% (male 470,218/female 563,145) (2010 est.)

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59 http://www.international.ucla.edu/africa/countries/article.asp?parentid=96749
60 http://www.nationsencyclopedia.com/Africa/Kenya-LOCAL-GOVERNMENT.html

Other population indicators include:

- Urban population: 22% of total population (2008)
- Rate of urbanization: 4% annual rate of change (2005-10 est.)
- Ethnic Groups: Kikuyu 22%, Luhya 14%, Luo 13%, Kalenjin 12%, Kamba 11%, Kisii 6%, Meru 6%, other African 15%, non-African (Asian, European, and Arab) 1%
- Religions: Protestant 45%, Roman Catholic 33%, Muslim 10%, indigenous beliefs 10%, other 2%
  note: a large majority of Kenyans are Christian, but estimates for the percentage of the population that adheres to Islam or indigenous beliefs vary widely
- Languages: English (official), Kiswahili (official), numerous indigenous languages
  Literacy: definition: age 15 and over can read and write
  total population: 85.1%
  male: 90.6% female: 79.7% (2003 est.)[61]

5.3 Economy

The country has a market-based economy with a liberalized foreign trade policy. Though Kenya is the regional hub for trade and finance in East Africa, growth has been slowed by by reliance upon several primary goods whose prices have remained low. Agriculture is the dominant economic sector with over 80% of the population dependent on it for their livelihoods. Agriculture contributes over one third of the Gross Domestic Product (GDP). Agricultural crops include tea, coffee, horticultural products, pyrethrum, pineapples, sisal, tobacco and cotton. Food crops for domestic consumption include maize, beans, cane sugar, wheat, rice, bananas, cassava, potatoes, sorghum, millet, etc. There is also small scale livestock farming. Tourism is also a big foreign exchange earner.

Kenya's GDP has been inconsistent since its independence in 1963. During the initial years of independence, the country achieved high economic growth of 6%, which declined to below 4% in the following decades. Inflation is also a serious concern for the growth of the Kenyan economy. Since 2004, the inflation rate has consistently been above 9%. However, owing to the political instability and budget deficits, it reached 26.3% in 2009.

Corruption is the biggest impediment to Kenya's economic growth. The post-election violence in 2008 worsened the case. Thus, without the establishment of political stability, Kenya's economic growth will remain volatile[62].

5.4 ICT Landscape

Kenya has witnessed significant growth in the ICT sector as demonstrated by the number of telephone lines, Internet Service Providers (ISPs), the number of Internet users, broadcasting stations, and market share of each one of them[63].

In the National Information and Communications Technology (ICT) Policy released in January 2006, the Government of Kenya's vision is to make Kenya 'A prosperous ICT-driven society'. Among other things, it recognizes the use of ICT as an empowerment tool and its role in social, cultural, and environmental issues, poverty eradication, government, and the general welfare of the population.

The telecommunication sector in Kenya is the responsibility the Communication Commission of Kenya (CCK). Prior to 1998, the Kenya Posts and Telecommunication Corporation (KPTC) was the sole provider of basic telecommunications services. In 1998, a modern regulatory regime was established by the Kenya Telecommunications

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61 http://www.indexmundi.com/kenya/demographics_profile.html
62 http://www.economywatch.com/world_economy/kenya
63 http://www.infobridge.org/asp/documents/2651.pdf

Act, which set up the Communications Commission of Kenya (CCK) an independent industry regulator with the mission to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services.

Kenya's telecommunications and broadband market is undergoing a revolution following the arrival of three fibre optic international submarine cables in Kenya in 2009 and 2010 (Seacom, TEAMS and EASSy), ending its dependency on limited and expensive satellite bandwidth. Bandwidth prices had already fallen significantly following the liberalisation of international gateway and national backbone network provision in 2005, but they have now fallen by 90%, enabling cheaper tariffs for telephone calls and broadband Internet services. However, Internet service providers (ISPs) have only reluctantly passed on the cost savings to end customers, which has prompted the industry regulator to consider price caps.

Besides tariff regulation, other regulatory issues on the agenda in 2010 include interconnection, number portability and universal service.

A simplified and converged licensing regime introduced in 2008 has lowered the barriers to market entry and increased competition by allowing operators to offer any kind of service in a technology – and service-neutral regulatory framework.

Several fibre infrastructure sharing agreements have been forged. At least six major deployments of WiMAX technology are underway and 3G mobile broadband services with up to 7.2Mb/s have been launched. Advanced services such as IPTV/triple-play, e-commerce, e-learning and e-government are now rapidly evolving.

The country's incumbent fixed-line telephone company, Telkom Kenya, is revamping its infrastructure and services under the Orange brand with fresh capital from its new majority shareholder, France Telecom. It has also re-entered the mobile market and has embarked on a strategy to transform itself into a true broadband connectivity provider.

The Internet first became available in Kenya to in 1993. Full Internet access was established in 1995. Since many people do not have fixed phone lines, computers, or electricity, internet shops, known as cyber cafes, provide access to internet and email. This is mainly in the major towns. Kenya has 10 fixed phone lines per 1000 people. For mobile phones, the number is 50 phones per 1000 people. In Africa, about 100 million out of the total 906 million people now use cell phones. Many users in the urban areas run their own small businesses. In the rural areas, cell phones are mostly used in social circles.

A major factor that may have influenced the use of ICT both positively and negatively is the use of the English language. English is the official language in Kenya. Information technology services are largely based in English, so this is an advantage. However, there are at least forty tribal languages in the country, and this sometimes presents problem in content creation.

5.5   Kenya Telecommunications Profile 2010

Telephones - main lines in use

243,700 (2008)

Telephones - mobile cellular

16.304 million (2008)

Telephone system

General assessment: inadequate; fixed-line telephone system is small and inefficient; trunks are primarily microwave radio relay; business data commonly transferred by a very small aperture terminal (VSAT) system
Domestic: no recent growth in fixed-line infrastructure and the sole provider, Telkom

Kenya, is slated for privatization; multiple providers in the mobile-cellular segment of the market fostering a boom in mobile-cellular telephone usage with teledensity exceeding 40 per 100 persons in 2008

International: country code - 254; The East Africa Marine System (TEAMS) and the SEACOM undersea fiber-optic cable systems; satellite earth stations - 4 Intelsat

Radio broadcast stations

AM 24, FM 82, shortwave 6 (2008)

Television broadcast stations

8 (2008)

Internet country code

.ke

5.6   Other ICT Statistics

Table 17: Telephone Main Lines in Use in Kenya 2003-2010

Year	Telephones - main lines in use	Rank	Percent Change	Date of Information
2003	310,000	101		2001
2004	328,400	105	5.94 %	2003
2005	328,400	105	0.00 %	2003
2006	281,800	112	-14.19 %	2005
2007	281,800	112	0.00 %	2005
2008	264,800	118	-6.03 %	2007
2009	264,800	118	0.00 %	2007
2010	243,700	120	-7.97 %	2008

Definition: This entry gives the total number of main telephone lines in use.
Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of November 3, 2010.

Table 18: Number of Mobile Cellular Telephone Subscribers

Year	Telephones - mobile cellular	Rank	Percent Change	Date of Information
2003	540,000	57		2001
2004	1,590,800	66	194.59 %	2003
2005	1,590,800	66	0.00 %	2003
2006	4,612,000	59	189.92 %	2005
2007	6,500,000	52	40.94 %	2006
2008	11,440,000	46	76.00 %	2007
2009	11,440,000	46	0.00 %	2007
2010	16,304,000	43	42.52 %	2008

Definition: This entry gives the total number of mobile cellular telephone subscribers.
Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of November 3, 2010.

Table 19: Number of Internet Hosts in Kenya 2004-2010

Year	Internet hosts	Rank	Percent Change	Date of Information
2004	8,325	70		2003
2005	8,325	70	0.00 %	2003
2006	11,645	74	39.88 %	2005
2007	13,274	80	13.99 %	2006
2008	27,376	84	106.24 %	2008
2009	27,376	84	0.00 %	2008
2010	47,676	91	74.15 %	2010

Definition: This entry lists the number of Internet hosts available within a country. An Internet host is a computer connected directly to the Internet; normally an Internet Service Provider's (ISP) computer is a host. Internet users may use either a hard-wired terminal, at an institution with a mainframe computer connected directly to the Internet, or may connect remotely by way of a modem via telephone line, cable, or satellite to the Internet Service Provider's host computer. The number of hosts is one indicator of the extent of Internet connectivity.
Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of November 3, 2010.

Table 20: Number of People in Kenya that access the internet 2003-2010

Year	Internet users	Rank	Percent Change	Date of Information
2003	500,000	57		2002
2004	400,000	80	-20.00 %	2002
2005	400,000	80	0.00 %	2002
2006	1,054,900	67	163.73 %	2005
2007	1,055,000	68	0.01 %	2005
2008	3,000,000	55	184.36 %	2007
2009	3,000,000	55	0.00 %	2007
2010	3,360,000	56	12.00 %	2008

Definition: This entry gives the number of users within a country that access the Internet. Statistics vary from country to country and may include users who access the Internet at least several times a week to those who access it only once within a period of several months.
Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of November 3, 2010.

Table 21: Number of Cellular Subscribers in Kenya 1990-2007

Year	Value
1990	0
1991	0
1992	1100
1993	1162
1994	1990
1995	2279
1996	2826
1997	6767
1998	10756
1999	23757
2000	127404
2001	600000
2002	1187122
2003	1590785
2004	2546157
2005	4611970
2006	7340317
2007	11349412

Source: United Nations Statistics Division.

Table 22: Cellular subscribers per 100 of the Kenyan population 1990-2007

Year	Value
1990	0
1991	0
1996	0.01
1997	0.02
1998	0.04
1999	0.08
2000	0.42
2001	1.91
2002	3.71
2003	4.86
2004	7.61
2005	13.46
2006	20.91
2007	30.23

Source: United Nations Statistics Division.

Table 23: Internet Users in Kenya 1990-2007

Year	Value
1990	0
1995	200
1996	2500
1997	10000
1998	15000
1999	35000
2000	100000
2001	200000
2002	400000
2003	1000000
2004	1054920
2005	1111000
2006	2770296
2007	3000000

Source: United Nations Statistics Division.

Table 24: Internet users per 100 of the Kenyan population

Year	Value
1990	0
1997	0.03
1998	0.05
1999	0.12
2000	0.33
2001	0.64
2002	1.25
2003	3.05
2004	3.15
2005	3.24
2006	7.89
2007	7.99

Source: United Nations Statistics Division.

Table 25: Number of Personal computers in Kenya 1990-2007

Year	Value
1990	8000
1991	10000
1992	12000
1993	14000
1994	16000
1995	18000
1996	50000
1997	75000
1998	100000
1999	125000
2000	150000
2001	175000
2002	204000
2003	300000
2004	396000
2005	492000

Source: United Nations Statistics Division.

Table 26: Personal computers per 100 of the Kenyan population

Year	Value
1990	0.03
1991	0.04
1992	0.05
1993	0.05
1994	0.06
1995	0.07
1996	0.18
1997	0.26
1998	0.34
1999	0.42
2000	0.49
2001	0.56
2002	0.64
2003	0.92
2004	1.18
2005	1.44

Source: United Nations Statistics Division.

Table 27: Telephone Lines in Use in Kenya 1990-2007

Year	Value
1990	175050
1991	200000
1992	207442
1993	214759
1994	228522
1995	256434
1996	266780
1997	271816
1998	288251
1999	290000
2000	291706
2001	309379
2002	321482
2003	328358
2004	299255
2005	286729
2006	293364
2007	264822

Source: United Nations Statistics Division.

Table 28: Telephone lines per 100 of the Kenya population 1990-2007

Year	Value
1990	0.75
1991	0.83
1992	0.83
1993	0.83
1994	0.86
1995	0.94
1996	0.95
1997	0.95
1998	0.98
1999	0.97
2000	0.95
2001	0.99
2002	1
2003	1
2004	0.89
2005	0.84
2006	0.84
2007	0.71

Source: United Nations Statistics Division.

5.7   The Nyahururu Local Government

Nyahururu Town was established early in the century as a Railway Service Station to serve the surrounding areas along farms of the former white settlers along the Uaso-Narok river and other streams. The Town is situated 190 kms Northwest of Nairobi, 100 km South of Maralal and 52 kms west of Nakuru Towns[64].

It is now part of Laikipia District in Rift Valley Province. Nyahururu was formerly the administrative capital of Nyandarua District, one of seven districts that make up Central Province in Kenya, but the headquarters was shifted to Ol Kalou. The town has an urban population of 24,751[65].

Nyahururu is on the Junction of Nyeri-Rumuruti road and the Nyeri-Nakuru road. In addition, Egerton University's Laikipia campus is on the outskirts of Nyahururu town. With the quality education offered by the private schools, most children from this area have been successful in life. Nyahururu is also used by marathon and cross-country runners for practicing before major events due to its high altitude.

The town was once an important player in the timber milling industry. The region around Nyahururu is mainly Agricultural. It is also an important milk processing hub. Lately, flower farming has brought new life to Nyahururu. The cool temperate weather, land availability and cheap labor may be some of the attractions to flower farming.

The council has got six electoral wards represented by six elected councilors and two nominated councilors. The council's chief executive is the Town clerk who is supported by Departmental heads with other staff falling under various Departments[66].

5.8   E-Readiness Analysis for Nyahururu

E-Readiness analysis for Nyahururu based on questionnaire (see appendix). The electricity supply within the local government area is good. Most households have access to a radio. A large number of homes have access to a TV and the mobile phone access

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64 http://www.nyahururumunicipal.go.ke/index.php?option=com_content&view=article&id=46:history-of-nyahururu&catid=52:about-us&showall=1

65 http://en.wikipedia.org/wiki/Nyahururu

66 http://www.nyahururumunicipal.go.ke/index.php?option=com_content&view=article&id=89&Itemid=58&limitstart=1

is very high. The availability of computers to households was very low with the cost of internet access being extremely high for most households. Prices are just too prohibitive for most residents. These two factors combined means that accessing information from the internet is a preserve for only a few.

On governance, responses indicate that the local government authority's commitment to the use of ICT for service delivery is very high and these executives themselves have a high level of competence in basic computer skills e.g. in browsing the internet, sending emails and creating documents. The staff of the local government has high competence in basic computer skills.

The most important channel of information flow between the different departments and staff of the local government was person-to person. The next in intensity of use was via telephone.

It was difficult to even infer from the answers given, the percentage range of local government staff that has access to a computer. There were answers from all the ranges given ie 0-25%, 26-50%, 51-75% and 76-100% and in each of these answers the weight. Some of the staff has had some personal in service training of software applications.

The local government authority has a website at: http://www.nyahururumunicipal. go.ke/ that has information such as description of the municipality, tourist attractions, pictures of development projects currently going on, profile of the Council and contact details of the executive heads.

The main channels of communication between the general public and business on one hand, and the local government authority on the other, was still largely over the counter; meaning face-to-face. Telephone was next in intensity of use. For now video conferencing technology has not been used.

Currently, there are moves to equip all the Council premises and the Social Hall with computers. With regards to ICT policies and guidelines, those relating to telephone, email and website are in place.

Schools within the local government have close to nothing in terms of the amount of computers for the students and staff. Learners with disabilities are even worse off as they have no possibility to access spacialised computers for their use. Teachers and trainers' skills to teach with computers and how to integrate them into classroom learning is extremely low.

Residents have an average level of awareness and understanding of the potential of ICT for development. There is no known ICT related education/ awareness that take place at the community level. Respondents did not know if the local government had had any experiences in utilising ICT for cultural/heritage entertainment products or services. Respondents either did not know or ware not themselves aware if there has been any earlier ICT related survey on the e-competence or infrastructure of the local government area.

6 South Africa

6.1 Background and Government

The Republic of South Africa is located in Southern Africa, at the southern tip of the continent of Africa. Until 1994 South Africa was ruled by a white minority government which was so determined to hang onto power that it took activists most of the last century before they succeeded in their fight to get rid of apartheid and extend democracy to the rest of the population[67]. The African National Congress (ANC) led the opposition to apartheid and many top ANC leaders, such as Nelson Mandela, spent decades in South Africa's prisons. Internal protests and insurgency, as well as boycotts by some Western nations and institutions, led to the regime's eventual willingness to negotiate a peaceful transition to majority rule. The first multi-racial elections in 1994 brought an end to apartheid and ushered in majority rule under an ANC-led government. The new leadership encouraged reconciliation. But the cost of the years of conflict will be paid for a long time yet, not least in terms of lawlessness, social disruption and lost education. South Africa since then has struggled to address apartheid-era imbalances in decent housing, education, and health care. ANC infighting, which has grown in recent years, came to a head in September 2008 when President Thabo Mbeki resigned, and Kgalema Motlanthe, the party's General-Secretary, succeeded him as interim president. Jacob Zuma became president after the ANC won general elections in April 2009[68].

The Republic of South Africa is divided into 9 provinces comprising: Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North-West, Western Cape. The South African government has clear policies that local municipalities and councilors should be sensitive to community views and responsive to local problems. A number of laws outline participation processes that municipalities have to use to consult the community. The Department of Provincial and Local Government is responsible for national co-ordination of provinces and municipalities.

Most of the civil servants in the country fall under provincial government – these include teachers and nurses.

The whole of South Africa is divided into local municipalities. Each municipality has a council where decisions are made and municipal officials and staff who implement the work of the municipality. The work of the council is co-ordinated by a mayor who is elected by council. The mayor is assisted by an executive or mayoral committee, made up of councilors. The mayor together with the executive also oversees the work of the municipal manager and department heads[69].

6.2 Geography and Demography

South Africa has a total land area of 1,219,090 sq km and a population of 49,052,489 (July 2009). It has a population comprising the following:

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67 http://news.bbc.co.uk/2/hi/africa/country_profiles/1071886.stm
68 http://www.indesmundi.com/south_africa/background.html
69 http://www.etu.org.za/toolbox/docs/localgov/webundrstdlocgov.html

- 0-14 years: 28.9% (male 7,093,328/female 7,061,579)
- 15-64 years: 65,8% (male 16,275,424/female 15,984,181)
- 65 years and over: 5.4% (male 1,075,117/female 1,562,860) (2009 est.)

Other population indicators include:
- Urban population: 61% of total population (2008)
- Rate of urbanization: 1.4% annual rate of change (2005-10 est.)
- Population: black African 79%, white 9.6%, colored 8.9%, Indian/Asian 2.5% (2001 census)
- Religions: Zion Christian 11.1%, Pentecostal/Charismatic 8.2%, Catholic 7.1%, Methodist 6.8%, Dutch Reformed 6.7%, Anglican 3.8%, Muslim 1.5%, other Christian 36%, other 2.3%, unspecified 1.4%, none 15.1% (2001 census)
- Languages: IsiZulu 23.8%, IsiXhosa 17.6%, Afrikaans 13.3%, Sepedi 9.4%, English 8.2%, Setswana 8.2%, Sesotho 7.9%, Xitsonga 4.4%, other 7.2% (2001 census)
- Literacy: definition: age 15 and over can read and write
  total population: 86.4%
  male: 87%
  female: 85.7% (2003 est.)

6.3   Economy

South Africa is a middle-income, emerging market with an abundant supply of natural resources; well-developed financial, legal, communications, energy, and transport sectors; a stock exchange that is 18th largest in the world; and modern infrastructure supporting an efficient distribution of goods to major urban centers throughout the region. Very much Africa's superpower, South Africa has the continent's biggest economy, though this went into recession in May 2009 following a sharp slowdown in the mining and manufacturing sectors. Growth was robust from 2004 to 2008 as South Africa reaped the benefits of macroeconomic stability and a global commodities boom, but began to slow in the second half of 2008 due to the global financial crisis' impact on commodity prices and demand. GDP fell by nearly 2% in 2009. The construction industry, on the other hand, has benefited from a huge programme of government investment ahead of the 2010 World Cup.

Many South Africans remain poor and unemployment is high - a factor blamed for a wave of violent attacks against migrant workers from other African countries in 2008 and protests by township residents over poor living conditions during the summer of 2009.

Land redistribution is an ongoing issue. Most farmland is still white-owned. Having so far acquired land on a "willing buyer, willing seller" basis, officials have signalled that large-scale expropriations are on the cards. The government aims to transfer 30% of farmland to black South Africans by 2014.

South Africa has the second-highest number of HIV/Aids patients in the world. Around one in seven of its citizens is infected with HIV. Free anti-retroviral drugs are available under a state-funded scheme[70].

Unemployment remains high and outdated infrastructure has constrained growth. Daunting economic problems remain from the apartheid era - especially poverty, lack of economic empowerment among the disadvantaged groups, and a shortage of public transportation. More than one-quarter of South Africa's population currently receives social grants.

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70 http://news.bbc.co.uk/2/hi/africa/country_profiles/1071886.stm

6.5   ICT Landscape

South Africa has shown its committed to the global vision of building an information society, and gathered with the rest of the world in November 2005, in Tunis, Tunisia, to reaffirm its support for the Geneva Declaration of Principles and Plan of Action[71].

According to the World Economic Forum (WEF) Global Information Technology Report, South Africa has the most modern and best developed telephone system in Africa and a vibrant ICT sector with an annual investment of USD$9.6 billion. The Report uses the Networked Readiness Index (NRI), covering a total of 115 economies in 2005-2006, to measure the degree of preparation of a nation or community to participate in and benefit from ICT developments. The WEF ranks South Africa 37th out of the 115 economies. The leader of information and communication technology (ICT) development in Africa, South Africa is the 20th largest consumer of IT products and services in the world. New legislation, such as the Telecommunications Amendment Act of 2001, has opened up communications in South Africa, prompting international telecoms operators such as Virgin Mobile to launch their products in the country[72].

South Africa's ICT products and services industry is also penetrating the fast-growing African market. South African companies and locally based subsidiaries of international companies have supplied most of the new fixed and wireless telecoms networks that have been established across the continent in recent years[73].

South Africa's IT industry is characterized by technology leadership, particularly in the field of electronic banking services. South African companies are world leaders in pre-payment, revenue management and fraud prevention systems, and in the manufacture of set-top boxes, all exported successfully to the rest of the world. Several international corporations, recognised as leaders in the IT sector, operate subsidiaries from South Africa, including IBM, Unisys, Microsoft, Intel, Systems Application Protocol (SAP), Dell, Novell and Compaq[74].

Yet, most of South Africa's infrastructure is also poorly linked and spread unevenly throughout the country. Various provincial governments and municipalities in South Africa have invested significantly in infrastructure development and are expected continue to do so over the next few years[74].

Gartner, the international research group, rates South Africa as one of its top 30 software development outsourcing destinations, with 2007 research putting it on par with Israel in the Europe, Middle East and Africa region, and next to Australia and India globally[74].

Below is an overview of some of the public entities, agencies and companies, in which the South African Government has a major shareholding, that operate in the broader ICT domain, and contribute towards the ICT infrastructure of the country. This list is not to be seen as comprehensive, but rather indicative of South Africa's ICT infrastructure[75].

South Africa's Innovation Hub, established in Pretoria in 2002, is Africa's first internationally accredited science and technology park. Taking its benchmark from the best such developments in the world, the creativity-driven centre houses technology-related businesses across a range of disciplines, including ICT, electronics, bio-science, and advanced manufacturing sectors such as defence spin-off and automotive manufacturing. South Africa's ICT industry is also supported by the African Advanced Institute for Information and Communication Technology, also known as the Meraka Institute. Set

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71 Overview of ICT Infrastructure in South Africa, http://www.ist-africa.org/home/default.asp?page=doc-by-id&docid=3574

72 http://www.observatoiretic.org/countries/institutions/32

73 Think Investment Think South Africa Sector Information, http://www.brandsouthafrica.com/davos/images/stories/davos/doingbusiness1.pdf

74 www.southafrica.info/business/economy/.../icte-overview.htm

75 http://www.ist-africa.org/home/default.asp?page=doc-by-id&docid=3574

up as a strategic government initiative, the institute promotes ICT skills development, research and innovation, as well as the adoption of free/libre and open source software (FLOSS)[73].

Another partnership between industry, academia and the government is the Johannesburg Centre for Software Engineering. The centre aims to grow South Africa's capacity to deliver world-class software, strengthen the local software development industry, and promote best practice in software development within an African context[76].

The statutory Universal Service and Access Agency of South Africa, launched in 1997, has been working together with service providers and non-governmental organisations to set up centres across the country where disadvantaged communities can access ICT services and skills training[76].

The Independent Communications Authority of South Africa - ICASA is responsible for regulating the telecommunications and broadcasting industries to ensure affordable services of a high quality for all South Africans.

South African websites attract close to 4,5 million highly educated users. Johannesburg has the largest audience with 30% of users, followed by Cape Town (20%), Pretoria (15%) and Durban (10%). South Africa's online audience has grown 121% over the past two years, as high broadband prices have slowly started to decrease. The Internet has started moving away from being a niche activity in the country, to become a mainstream form of media and an integral part of modern life[77].

6.5   South Africa Telecommunications Profile 2010

Telephones - main lines in use

4.425 million (2008)

Telephones - mobile cellular

45 million (2008)

Telephone system

General assessment: the system is the best developed and most modern in Africa
Domestic: combined fixed-line and mobile-cellular teledensity exceeds 110 telephones per 100 persons; consists of carrier-equipped open-wire lines, coaxial cables, microwave radio relay links, fiber-optic cable, radiotelephone communication stations, and wireless local loops; key centers are Bloemfontein, Cape Town, Durban, Johannesburg, Port Elizabeth, and Pretoria
International: country code - 27; the SAT-3/WASC and SAFE fiber optic cable systems connect South Africa to Europe and Asia; satellite earth stations - 3 Intelsat (1 Indian Ocean and 2 Atlantic Ocean)

Radio broadcast stations

AM 14, FM 347 (plus 243 repeaters), shortwave 1 (1998)

Television broadcast stations

556 (plus 144 network repeaters) (1997)

Internet country code

.za

6.6   Other ICT Statistics

Table 29: Telephone lines-main lines in use in South Africa

Year	Telephones - main lines in use	Rank	Percent Change	Date of Information
2003	5,000,000	30		2001
2004	4,844,000	31	-3.12 %	2002
2005	4,844,000	31	0.00 %	2002
2006	4,729,000	33	-2.37 %	2005
2007	4,729,000	34	0.00 %	2005
2008	4,642,000	33	-1.84 %	2007
2009	4,642,000	33	0.00 %	2007
2010	4,425,000	35	-4.67 %	2008

Source: United Nations Statistics Division.

Table 30: Telephones- mobile cellular in use in South Africa 2001-2010

Year	Telephones - mobile cellular	Rank	Percent Change	Date of Information
2003	7,060,000	17		2001
2004	16,860,000	17	138.81 %	2003
2005	16,860,000	18	0.00 %	2003
2006	33,960,000	16	101.42 %	2005
2007	33,960,000	18	0.00 %	2005
2008	42,300,000	20	24.56 %	2007
2009	42,300,000	20	0.00 %	2007
2010	45,000,000	24	6.38 %	2008

Source: United Nations Statistics Division.

Table 31: South Africa Internet Users 2003-2010

Year	Internet users	Rank	Percent Change	Date of Information
2003	3,068,000	31		2002
2004	3,100,000	34	1.04 %	2002
2005	3,100,000	36	0.00 %	2002
2006	5,100,000	33	64.52 %	2005
2007	5,100,000	34	0.00 %	2005
2008	5,100,000	41	0.00 %	2005
2009	5,100,000	41	0.00 %	2005
2010	4,187,000	49	-17.90 %	2008

Source: United Nations Statistics Division.

Table 32: Cellular subscribers in South Africa 1990-2007

Year	Value
1990	5680
1991	7100
1992	12510
1993	40000
1994	340000
1995	535000
1996	953000
1997	1836000
1998	3337000
1999	5188000
2000	8339000
2001	10787000
2002	13702000
2003	16860000
2004	20839000
2005	33959958
2006	39662000
2007	42300000

Source: United Nations Statistics Division.

Table 33: Cellular subscribers per 100 population of South Africa 1990-2007

Year	Value
1990	0.02
1991	0.02
1992	0.03
1993	0.1
1994	0.83
1995	1.28
1996	2.23
1997	4.21
1998	7.52
1999	11.52
2000	18.28
2001	23.39
2002	29.43
2003	35.93
2004	44.14
2005	71.6
2006	83.33
2007	87.08

Source: United Nations Statistics Division.

Table 34: Internet users in South Africa 1990-2007

Year	Value
1990	0
1991	5000
1992	15000
1993	45000
1994	100000
1995	280000
1996	355000
1997	700000
1998	1266000
1999	1820000
2000	2400000
2001	2890000
2002	3100000
2003	3283000
2004	4000000
2005	3600000
2006	3700000
2007	3966000

Source: United Nations Statistics Division.

Table 35: Internet users per 100 population of South Africa 1990-2007

Year	Value
1990	0
1991	0.01
1992	0.04
1993	0.11
1994	0.24
1995	0.67
1996	0.83
1997	1.61
1998	2.85
1999	4.04
2000	5.26
2001	6.27
2002	6.66
2003	7
2004	8.47
2005	7.59
2006	7.77
2007	8.16

Source: United Nations Statistics Division.

Table 36: Number of Personal Computer in use in south Africa between 1990 and 20005

Year	Value
1990	250000
1991	333000
1992	440000
1993	560000
1994	875000
1995	1100000
1996	1430000
1997	1800000
1998	2300000
1999	2600000
2000	2900000
2001	3100000
2002	3300000
2003	3513000
2004	3740000
2005	3966000

Source: United Nations Statistics Division.

Table 37: Number of Personal computers per 100 population of South Africa 1990-2005

Year	Value
1990	0.68
1991	0.88
1992	1.13
1993	1.4
1994	2.14
1995	2.63
1996	3.34
1997	4.13
1998	5.19
1999	5.78
2000	6.36
2001	6.72
2002	7.09
2003	7.49
2004	7.92
2005	8.36

Source: United Nations Statistics Division.

6.6   The Local Government of Tshwane

Tshwane is the capital city of South Africa and the seat of government administration. Established in 1855, the city has grown into a metropolis that encapsulates our rainbow nation where people of all races, colours and creeds live and work alongside each other. Tshwane resembles Africa with a touch of Europe and a pinch of oriental spice[76].

The City of Tshwane Metropolitan Municipality (CTMM) is a result of 13 former local authorities in the greater Pretoria metropolitan area being integrated into one unicity. The borders of this huge municipal area extend for almost 60 kilometres east/west and 70 kilometres north/south and include the following areas: Centurion, Crocodile River, Pretoria, Akasia, Soshanguve, Ga-Rankuwa, Mabopane, Winterveldt, Temba, Hammanskraal, Mamelodi and Atteridgeville. The municipal area has 76 municipal wards. It has a population of 2,2 million[77].

The Executive Mayor and the Mayoral Committee have a political responsibility for sound governance and effective service delivery, promotion of economic growth and development, management of the city's physical development, promotion of the well-being of the community at large, safety and security, preservation of the city's natural and cultural resources and the strengthening of the city's national status as a capital.

The Executive Mayor and the Mayoral Committee have established the administrative arm of the Municipality to implement broad political and strategic objectives. The Municipal Manager, assisted by the Chief Operating Officer, heads up the administration of the Municipality. The Municipality`s administration has been arranged into ten departments, each headed by a strategic executive officer. The departments are Metropolitan Police, Economic Development, Marketing and Tourism, Social Development, Corporate Services, Emergency Management Services, Service Delivery, Legal Services, Finance, and City Planning, Housing and Environmental Management[78].

Another South African Municipality that cooperates with a municipality in Finland is the moses Kotane Municicpality. The municipality is profiled below.

6.7   Moses Kotane Local Government

E-Readiness analysis for Moses Kotane based on questionnaire (see appendix). Moses Kotane Local Municipality is one of the five local municipalities constituting the Bojanala Platinum District Municipality. The municipality was named after the late Moses Mauane Kotane, a dedicated leader and fighter for democracy and freedom in South Africa. Moses The l Municipality is a category B municipality[79].

The Municipality is mostly rural, comprising of 109 villages and two small townships of Mogwase and Madikwe. It has 30 wards. Political affairs are managed by a joint Executive committee headed by the Mayor with 60 councillors.

The Moses Kotane Local Municipality Executive Committee is made up of councillors with specific portfolios which match the departments within the municipal administration. The executive committee is headed by the mayor and together, they oversee the work of the municipal manager and department heads. The executive proposes policy and presents budget proposals to the whole council. The executive is accountable to the council and has to get approval from the council.

The Moses Kotane Local Municipality Council consists of 60 councillors - including the Mayor, the Speaker, and the Chief Whip.

76 http://www.tshwanetourism.co.za/about/index.php
77 http://www.tshwane.gov.za/residents.cfm
78 http://www.tshwane.gov-za/council.cfm
79 http://moseskotane.gov.za/

- 7 Members of the Executive Committee (of which 2 are Ward Councillors)
- 30 Ward Councillors
- 22 Proportional Representation Councillors

6.8   E-Readiness Analysis for Moses Kotane

E-Readiness analysis for Moses Kotane based on questionnaire (see appendix). The electricity supply within the local government area is very good. Most households have access to a radio. A large number of homes have access to a TV and the mobile phone access is very high. The availability of computers to households is low which when combined with the very high cost of internet access, implies low internet access for most of the residents.

On governance, responses indicate that the local government authority's commitment to the use of ICT for service delivery is high and these executives themselves have a high level of competence in basic computer skills such as browsing the internet, sending emails and creating documents. The staff of the local government has a high level of competence in basic computer skills.

The most important channel of information flow between the different departments and staff of the local government could not be ascertained from the responses as it seems person-to-person, telephone fax, mail and courier were all ranked with the maximum point of 5.

Respondent said 76-100% of the local government staff have access to a computer. The staff have also undergone training in end user computing to boost their competence with computers and to help them in their work

The local government authority has a website at: http://moseskotane.gov.za that has information such as description of the municipality, news and events, video message by the mayor, documents such as budgets for download, bids, a database of suppliers, contact details of the executive heads and links to some important websites.

The main channels of communication between the general public and business on one hand, and the local government authority on the other, could not be ascertained as respondent ranked over the counter, telephone and mail/fax or courier with the maximum point of 5. Video conferencing technology will soon be used.

Schools within the local government have a very limited amount of computers for the students and staff and learners with disabilities have almost a non existent possibility to access spacialised computers for their use. Teachers and trainers' skills to teach with computers and how to integrate them into classroom learning is also very poor. Residents have a high level of awareness and understanding of the potential of ICT for development. Respondents did not know if the local government had had any experiences in utilising ICT for cultural/heritage entertainment products or services. Respondents either did not know or were not themselves aware if there has been any earlier ICT related survey on the e-competence or infrastructure of the local government area.

7 Namibia

7.1 Background and Government

The Republic of Namibia is a vast, sparsely populated country situated along the south Atlantic coast of Africa. It is the first country in the world that has incorporated the protection of the environment into its constitution.

South Africa occupied the German colony of South-West Africa during World War I and administered it as a mandate until after World War II, when it annexed the territory. In 1966 the Marxist South-West Africa People's Organization (SWAPO) guerrilla group launched a war of independence for the area that became Namibia, but it was not until 1988 that South Africa agreed to end its administration in accordance with a UN peace plan for the entire region. Namibia has been governed by SWAPO since the country won independence in 1990. Hifikepunye Pohamba was elected president in November 2004 in a landslide victory replacing Sam Nujoma who led the country during its first 14 years of self rule. Pohamba was reelected in November 2009.

In recent years supporters of land reform have become more vocal. The expropriation of white-owned farms began in 2005 and the government says it aims to resettle many thousands of landless citizens. Like its neighbours, Namibia's wellbeing is being threatened by the HIV/Aids epidemic, which is estimated to affect 25% of Namibians[80].

Geography and Demography

Population: 2,108,665. Age structure:
- 0-14 years: 35.9% (male 381,904/female 375,059)
- 15-64 years: 60.2% (male 641,995/female 627,146)
- 65 years and over: 3.9% (male 36,894/female 45,667) (2009 est.)

Other population indicators include:
- Urbanization: urban population: 37% of total population (2008)
  rate of urbanization: 2.9% annual rate of change (2005-10 est.)
- Ethnic groups: about 50% of the population belong to the Ovambo ethnic group and 9% to the Kavangos ethnic group; other ethnic groups include Herero 7%, Damara 7%, Nama 5%, Caprivian 4%, Bushmen 3%, Baster 2%, Tswana 0.5%, white 6 %, other 6,5 %.
- Religions: Christian 80% to 90% (Lutheran 50% at least), indigenous beliefs 10% to 20%
- Languages: English 7% (official), Afrikaans common language of most of the population and about 60% of the white population, German 32%, indigenous languages 1% (includes Oshivambo, Herero, Nama)
- Literacy: definition: age 15 and over can read and write
  total population: 85%
  male: 86.8%
  female: 83.5% (2001 census)
- Administrative divisions: 13 regions; Caprivi, Erongo, Hardap, Karas, Khomas, Kunene, Ohangwena, Okavango, Omaheke, Omusati, Oshana, Oshikoto, Otjozondjupa [81]

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80 http://news.bbc.co.uk/2/hi/africa/country_profiles/1063245.stm
81 http://www.indexmundi.com/namibia/demographics_profile.html

7.3   Economy

The economy is heavily dependent on the extraction and processing of minerals for export. Mining accounts for 8% of GDP, but provides more than 50% of foreign exchange earnings. Rich alluvial diamond deposits make Namibia a primary source for gem-quality diamonds. Namibia is the fourth-largest exporter of nonfuel minerals in Africa, the world's fifth-largest producer of uranium, and the producer of large quantities of lead, zinc, tin, silver, and tungsten. The mining sector employs only about 3% of the population while about half of the population depends on subsistence agriculture for its livelihood. Namibia normally imports about 50% of its cereal requirements; in drought years food shortages are a major problem in rural areas. A high per capita GDP, relative to the region, hides one of the world's most unequal income distributions. The Namibian economy is closely linked to South Africa with the Namibian dollar pegged one-to-one to the South African rand. Namibia draws 40% of its budget revenues from the Southern African Customs Union (SACU). Increased payments from SACU put Namibia's budget into surplus in 2007 for the first time since independence, but SACU's receipts declined in 2009 due to the global economic crisis. Increased fish production and mining of zinc, copper, uranium, and silver spurred growth in 2003-08, but growth in recent years was undercut by poor fish catches, higher costs of producing metals, and the global recession[82].

7.4   ICT Landscape

Namibia has a fairly advanced ICT infrastructure, limited to developed areas. However the majority of the population lives in rural areas, and is not touched by the ICT revolution, aggravated by low income and the lack of electricity and fixed line telecommunication in those areas. Mobile phone reception is available in all more densely populated areas although unaffordable for most of the rural poor communities. The dominance of State Owned Enterprises as sole providers in the communication industry is hindering development, as short-term profitability is overruling long-term objectives[83].

The Information and Communication Technology sector in Namibia is divided into two sections where Communication Technology is controlled by State Owned Enterprises (SOE's) whilst the Information Technology is controlled by the private sector. The communication technology section of the Information and Communication Technology sector is channeled through two different ministries, with the Ministry of Information and Broadcasting responsible to supervise the Mobile Telecommunications Company (MTC) and Namibia Broadcasting Corporation (NBC), whilst the Ministry of Works, Transport and Communication is responsible for the regulation of Telecom Namibia.

It is a general opinion within the Information Technology industry that the government as well as the private sector should work towards the creation of a technically competent workforce that can contribute to a dynamic economy and participate in the Information Society. The main challenge facing the telecommunications sector is to make information communication technologies cheaper and more accessible to the public. While most Namibians can afford to have cellular phones in both rural and urban areas, the majority of people cannot afford to have access to the Internet.

Despite being a monopoly, the incumbent Telecom has invested steadily and substantially in its network and the countrywide fiber-based digital backbone is of high quality and reliability.

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82 http://www.indexmundi.com/namibia/economy_overview.html
83 http://www.highcommissionofindia.web.na/documents/Survey%20Report%20on%20IT%20Sector%20in%20Namibia.pdf

7.5   Namibia Telecommunications Profile 2010

Telephones - main lines in use

140,000 (2008)

Telephones - mobile cellular

1.052 million (2008)

Telephone system

General assessment: good system; core fiber-optic network links most centers and connections are now digital
Domestic: multiple mobile-cellular providers with a combined subscribership of 50 telephones per 100 persons; combined fixed-line and mobile-cellular teledensity about 55 per 100 persons
International: country code - 264; fiber-optic cable to South Africa, microwave radio relay link to Botswana, direct links to other neighboring countries; connected to the South African Far East (SAFE) submarine cable through South Africa; satellite earth stations - 4 Intelsat (2008)

Radio broadcast stations

AM 2, FM 39, shortwave 4 (2001)

Television broadcast stations

2 (2007)

Internet country code

.na

7.6   Other ICT Statistics

Table 38: Total number of main telephone lines in use in Namibia 2003-2010

Year	Telephones - main lines in use	Rank	Percent Change	Date of Information
2003	110,200	129		2000
2004	127,400	132	15.61 %	2003
2005	127,400	132	0.00 %	2003
2006	127,900	134	0.39 %	2004
2007	127,900	133	0.00 %	2004
2008	138,100	131	7.97 %	2007
2009	138,100	130	0.00 %	2007
2010	140,000	137	1.38 %	2008

Source: United Nations Statistics Division.

Table 39: Total number of mobile cellular phones in use in Namibia 2003-2010

Year	Telephones - mobile cellular	Rank	Percent Change	Date of Information
2003	82,000	97		2000 est.
2004	223,700	130	172.80 %	2003
2005	223,700	131	0.00 %	2003
2006	495,000	133	121.28 %	2005
2007	495,000	133	0.00 %	2005
2008	800,300	139	61.68 %	2007
2009	800,300	142	0.00 %	2007
2010	1,052,000	141	31.45 %	2008

Source: United Nations Statistics Division.

Table 40: Number of Internet Users in Namibia 2003-2010

Year	Internet users	Rank	Percent Change	Date of Information
2003	45,000	114		2002
2004	65,000	130	44.44 %	2003
2005	65,000	131	0.00 %	2003
2006	75,000	142	15.38 %	2005
2007	75,000	140	0.00 %	2005
2008	101,000	141	34.67 %	2007
2009	101,000	141	0.00 %	2007
2010	113,500	149	12.38 %	2008

Source: United Nations Statistics Division.

Table 41: Number of Mobile Cellular subscribers in Namibia 1990-2007

Year	Value
1990	0
1991	0
1992	0
1993	0
1994	0
1995	3500
1996	6644
1997	12500
1998	19500
1999	30000
2000	82000
2001	106600
2002	150000
2003	223671
2004	286095
2005	448857
2006	608846
2007	800270

Source: United Nations Statistics Division.

Table 42: Mobile Cellular subscribers per 100 population of Namibia 1990-2003

Year	Value
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0.21
1996	0.39
1997	0.71
1998	1.08
1999	1.62
2000	4.33
2001	5.52
2002	7.65
2003	11.26
2004	14.24
2005	22.1
2006	29.67
2007	38.58

Source: United Nations Statistics Division.

Table 43: Number of Internet users in Namibia 1990-2007

Year	Value
1990	0
1995	100
1996	150
1997	1000
1998	5000
1999	6000
2000	30000
2001	45000
2002	50000
2003	65000
2004	75000
2005	80563
2006	90100
2007	101000

Source: United Nations Statistics Division.

Table 44: Internet users per 100 of the population of Namibia 1990-2007

Year	Value
1990	0
1997	0.06
1998	0.28
1999	0.32
2000	1.58
2001	2.33
2002	2.55
2003	3.27
2004	3.73
2005	3.97
2006	4.39
2007	4.87

Source: United Nations Statistics Division.

Table 45: Number of Personal computers in Namibia 1996-2007

Year	Value
1996	20000
1997	30000
1998	40000
1999	50000
2000	75000
2001	102806
2002	133000
2003	191100
2004	220000
2005	249000
2006	400000
2007	500000

Source: United Nations Statistics Division.

Table 46: Number of Personal computers per 100 of the Namibian population

Year	Value
1996	1.17
1997	1.71
1998	2.21
1999	2.7
2000	3.96
2001	5.33
2002	6.79
2003	9.62
2004	10.95
2005	12.26
2006	19.49
2007	24.11

Source: United Nations Statistics Division.

7.7   The Windhoek Local Government

Windhoek is the capital and largest city of the Republic of Namibia. It is located in central Namibia in the Khomas Highland plateau area. With Namibia's independence from South African administration in 1990, Windhoek was recognised as the capital city of South-West Africa as administered by the South African government. It continues to be the capital city of the Republic of Namibia, as well as the provincial capital of the central Khomas Region. Since then the city experienced accelerated growth and development. The 2001 census determined Windhoek's population was 233,529. A population influx from all over Namibia has caused researchers to estimate the figure to be well over 300,000[84].

Due to its relative size Windhoek is even more so than other capitals the social, economic, and cultural centre of the country. Virtually every national enterprise has its headquarters there. The University of Namibia is there, as is the country's only theatre, most of Namibia's governmental institutions, and all major media bodies. The City of Windhoek's budget nearly equals that of all other Namibian local authorities combined. Due to the website of the city being under construction at the time of writing, information on local government could not be found.

7.8   E-Readiness Analysis for Windhoek

E-Readiness analysis for Windhoek based on questionnaire (see appendix). The electricity supply within the local government area is good. Most households have access to a radio and more than average have access to a TV. Mobile phone access is very high. The availability of computers to households is very low with the cost of internet access being very high. As such only a few residents can easily afford to access the internet due to this high cost.

On governance, responses indicate that the local government authority has shown a some commitment to the use if ICT for service delivery and these executives themselves have high competence in basic computer skills e.g. in browsing the internet, sending email and creating documents. The local government staff are also highly competent in this area.

The most important channels of information flow between the different departments and staff of the local government was via email. Next in intensity in the terms of these channels was telephone, followed by person-to-person communication.

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84 http://www.highcommissionofindia.web.na/documents/Survey%20Report%20on%20IT%20Sector%20in%20Namibia.pdf

More than 75% of the local government staff has access to a computer. The staff have had internal training courses to improve their ICT proficiency such as MS Word, Excel Outlook, Internet etc.

The local government authority has a website at: http://www.windhoekcc.org.na/ that seems comprehensive with such menus as: about the city, inside the city, services, investor relations, news and publications, projects tourism, etc., that each had many subheadings but which were largely inaccessible. An alert indicates that a new website was under construction. It was not exactly clear from the answers what was the most intensely used channel of communication between the general public and business on one hand, and the local government authority on the other. But it was clear that the telephone even though not the most intense was also intensely used. For now video conferencing technology is the least used if even used at all.

Some E-Governance initiatives are currently underway. The local government is "busy introducing ICT to poorer communities in order to increase ICT services to those who cannot afford it". Also, billing statements can be emailed to clients and pay-ment of rates and taxes can also be done via internet banking, indicating the transac-tional phase of E-Governance has already began. There was no response with regards to any ICT policies and guidelines being in place.

Schools within the local government have a very limited amount of computers for the students and staff while learners with disabilities are very constrained in their pos-sibilities to access spacialised computers for their use. Only a small amount of teach-ers and trainers have the skills to teach with computers and how to integrate them into classroom learning. Residents have only a small awareness and understanding of the potential of ICT for development. Even so, basic ICT training takes place at the Business Information Centres. An ICT centre was created at the Greenwell Matongo Library to provide training and ICT access to the community. This is however not suf-ficient to address the need. Respondents did not know if the local government had had any experiences in utilising ICT for cultural/heritage entertainment products or serv-ices. There has been an earlier ICT related survey on the e-competence of local govern-ment staff and on the e- infrastructure of the local government area.

8   Swaziland

8.1   Background and Government

The kingdom of Swaziland is one of the world's last remaining absolute monarchies. Its king rules by decree over his million subjects, most of whom live in the countryside and follow traditional ways of life. Swaziland is governed as a traditional monarchy, with the King wielding extensive executive, legislative and judicial powers vested in him by the 1973 Royal Proclamation under which the constitution was suspended and political parties banned. The supremacy of the 1973 Proclamation was reaffirmed in a Decree issued by King Mswati in July 2001. The power of the throne, however, has not gone unchallenged[85].

Autonomy for the Swazis was guaranteed by the British in the late 19th century and independence was granted in 1968. Student and labor unrest during the 1990s pressured King Mswati III, the world's last absolute monarch, to grudgingly allow political reform and greater democracy, although he has backslided on these promises in recent years[86]. With peaceful change in neighbouring South Africa and Mozambique, Swaziland has been described as an island of dictatorship in a sea of democracy. Royalists have argued that democracy creates division, and that a monarch is a strong unifying force. A constitution came into effect in 2006, but political parties remain banned[87]. The African United Democratic Party tried unsuccessfully to register as an official political party in mid 2006. Talks over the constitution broke down between the government and progressive groups in 2007. Swaziland is virtually homogenous with most of the population being of the same tribe.

Swaziland is divided into four (4) geographical and administrative regions of Hhohho, Manzini, Lubombo and Shiselweni. Each region has a district administration responsible for coordinating the functions of Government at district level. The political head of a region is the Regional Administrator. The Administrative Head of the region is the Regional Secretary who facilitates coordination and provision of technical and social services to the people within the region. Several Ministries such as Education, Health, Agriculture, operate with district level personnel. District Administration falls within the portfolio of the Deputy Prime Minister who is responsible for Regional Development and Tinkhundla Administration. According to the Urban Government Act of 1969, urban local authorities fall administratively within the portfolio of the Ministry of Housing and Urban Development. The administration of local authorities in the constituencies (Tinkhundla) consists of an elected Headman (indvuna) and Council (Bucopho) whose term of office coincides with Parliamentary elections. There appears to be some overlap and duplication between the roles and functions of Member of Parliament, Chief, Traditional Headman, Elected Headman, as well as local councils[87].

8.2   Geography and Demography

Swaziland has a total land area of 17,364 sq km and a population of 1,354,051. It has a very youthful population comprising the following:

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85   http://news.bb.co.uk/2/hi/africa/country_profiles/1069035.stm
86   http://www.indexmundi.com/swaziland/background.html
87   Kingdom of Swaziland Public administration country Profile, http://unpan1.un.org(intradoc/groups/public/documents/un/unpan023290.pdf

- 0-14 years: 38.6% (male 260,840/female 254,781)
- 15-64 years: 57.9% (male 383,236/female 391,478)
- 65 years and over: 3.5% (male 19,857/female 26,994) (2010 est.)

Other population indicators include:
- Urban population: 25% of total population (2008)
  rate of urbanization: 1.7% annual rate of change (2005-10 est.)
- Literacy (definition: age 15 and over can read and write of the total population: 81.6% male: 82.6% female: 80.8% (2003 est.)
- Population: African 97%, European 3%
- Religions: Zionist 40% (a blend of Christianity and indigenous ancestral worship), Roman Catholic 20%, Muslim 10%, other (includes Anglican, Bahai, Methodist, Mormon, Jewish) 30%

8.3   Economy

In this small, landlocked economy, subsistence agriculture occupies approximately 70% of the population. The manufacturing sector has diversified since the mid-1980s. Sugar and wood pulp remain important foreign exchange earners. In 2007, the sugar industry increased efficiency and diversification efforts, in response to a 17% decline in EU sugar prices. Mining has declined in importance in recent years with only coal and quarry stone mines remaining active. Surrounded by South Africa, except for a short border with Mozambique, Swaziland is heavily dependent on South Africa from which it receives more than nine-tenths of its imports and to which it sends 60% of its exports. Swaziland's currency is pegged to the South African rand, subsuming Swaziland's monetary policy to South Africa. Customs duties from the Southern African Customs Union (SACU) account for two-thirds of Swaziland's government revenues, and worker remittances from South Africa substantially supplement domestically earned income. Customs revenues plummeted during the global economic crisis and Swaziland has appealed to SACU for assistance. With an estimated 40% unemployment rate, Swaziland's need to increase the number and size of small and medium enterprises and attract foreign direct investment is acute. Overgrazing, soil depletion, drought, and sometimes floods persist as problems for the future. More than one-fourth of the population needed emergency food aid in 2006-07 because of drought, and more than one-quarter of the adult population has been infected by HIV/AIDS[88].

8.4   ICT Landscape

Swaziland is one of the last countries in the world with an almost complete monopoly in all sectors of its telecommunications market. The state-owned posts and telecommunications operator, SPTC also acts as the industry regulator and has a stake in the country's sole mobile network, in partnership with South Africa's MTN. Nevertheless, fixed and mobile penetration is relatively high compared with other countries in the region. Mobile market penetration is at more than 60%. More than 90% of all telephones in the country are mobile phones. While Internet usage is growing reasonably fast, the level of penetration is still well below international standards, but about average in the region[89]. The planned unbundling and eventual privatisation of the incumbent and the introduction of more competition would enable the market to live up to its relative GDP strength.

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88 http://indexmundi.com/swaziland/economy_overview.html
89 http://www.infodev.org/en/Publication.431.html

Despite the lack of competition, mobile market penetration at close to 70% is well above the African average. More than 90% of all telephones in the country are mobile phones. Swazi MTN has entered the Internet sector with basic mobile data services in a bid to generate additional revenues in an environment of rapidly declining average revenue per user, and the company is preparing for the introduction of third generation mobile broadband services.

The Internet sector is open to competition with four licensed ISPs, but prices have remained high and market penetration relatively low. Broadband services are still very limited and expensive. Development of the sector has been hampered by the limited fixed-line infrastructure and a lack of competition in the access and backbone network, although the country has a relatively well-developed fibre optic backbone. However, being landlocked, Swaziland depends on neighboring countries for international fibre bandwidth which has led to high prices. Improvements can be expected when several new submarine fibre optic cables reach the region in 2010 and 2011.[90]

In 2006, the information communication technology (ICT) policy was launched with the hope of making ICT accessible to a broader community, even in the rural areas[91]. The Kingdom of Swaziland through its Government Computer Centre has initiated various successful and ongoing ICT projects. The enabling environment has led to a flourishing private sector in ICT. Swaziland has the largest Internet Service Providers per capita in Africa[92].

Telephones - main lines in use

44,000 (2008)

Telephones - mobile cellular

457,000 (2008)

Telephone system

General assessment: a somewhat modern but not an advanced system
Domestic: single source for mobile-cellular service with a geographic coverage of about 90% and a rising subscribership base; combined fixed-line and mobile cellular tel-edensity reaching 50 telephones per 100 persons in 2008; telephone system consists of carrier-equipped, open-wire lines and low-capacity, microwave radio relay
International: country code - 268; satellite earth station - 1 Intelsat (Atlantic Ocean) (2008)

Radio broadcast stations

AM 3, FM 2 (plus 4 repeaters), shortwave 3 (2004)

Television broadcast stations

12 (includes 7 relay stations) (2004)

Internet country code

.sz

90 http://www.budde.com.au/Research/Swaziland-Telecoms-Mobile-and-Broadband.html
91 http://www.ifg.cc/index.php?option=com_content&task=view&id=29891&Itemid=93
92 http://www.uneca.org/aisi/NICI/Swaziland/swaziland.htm

8.5   Other ICT Statistics

Table 47: Number of Telephone Main Lines in Swaziland 2003-2010

Year	Telephones - main lines in use	Rank	Percent Change	Date of Information
2003	38,500	162		2001
2004	46,200	165	20.00 %	2003
2005	46,200	165	0.00 %	2003
2006	35,000	177	-24.24 %	2005
2007	35,000	174	0.00 %	2005
2008	44,000	165	25.71 %	2006
2009	44,000	164	0.00 %	2006
2010	44,000	167	0.00 %	2008

Source: United Nations Statistics Division.

Table 48: Number of Mobile Cellular Phones in Swaziland 2003-2010

Year	Telephones - mobile cellular	Rank	Percent Change	Date of Information
2003	45,000	111		2001
2004	88,000	152	95.56 %	2003
2005	88,000	152	0.00 %	2003
2006	200,000	158	127.27 %	2005
2007	200,000	157	0.00 %	2005
2008	380,000	151	90.00 %	2007
2009	380,000	153	0.00 %	2007
2010	457,000	157	20.26 %	2008

Source: United Nations Statistics Division.

Table 49: Number of Internet Users in Swaziland 2003-2010

Year	Internet users	Rank	Percent Change	Date of Information
2003	7,000	165		2002
2004	27,000	154	285.71 %	2003
2005	27,000	154	0.00 %	2003
2006	36,000	165	33.33 %	2005
2007	36,000	162	0.00 %	2005
2008	42,000	168	16.67 %	2006
2009	42,000	167	0.00 %	2006
2010	48,200	171	14.76 %	2008

Source: United Nations Statistics Division.

Table 50: Number of Cellular subscribers in Swaziland 1990-2007

Year	Value
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0
1996	0
1997	0
1998	4700
1999	14000
2000	33000
2001	55000
2002	68000
2003	85000
2004	145000
2005	200000
2006	250000
2007	380000

Source: United Nations Statistics Division.

Table 51:Number of cellular subscribers per 100 of the population of Swaziland 1990-2007

Year	Value
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0
1996	0
1997	0
1998	0.47
1999	1.38
2000	3.23
2001	5.34
2002	6.58
2003	8.21
2004	14.02
2005	19.37
2006	24.29
2007	33.29

Source: United Nations Statistics Division.

Table 52: Number of Personal computers in Swaziland 2000-2006

Year	Value
2000	12000
2001	16000
2002	25000
2003	30000
2004	36000
2005	42000
2006	42000

Source: United Nations Statistics Division.

Table 53: Number of Personal Computers per 100 of the population of Swaziland

Year	Value
2000	1.17
2001	1.55
2002	2.42
2003	2.9
2004	3.48
2005	4.07
2006	4.08

Source: United Nations Statistics Division.

8.7   Mbabane Local Government

Mbabane (Swati: ÉMbábáne), with an estimated population of 95,000 (2007), is the capital and largest city of Swaziland. It is located on the Mbabane River and its tributary the Polinjane River in the Mdimba Mountains. It is located in the district of Hhohho, of which it is also the capital. The population (estimated) in 1987 was 30,000.

The town grew after the nation's administrative centre moved from Bremersdorp (now called Manzini) in 1902. It derives its name from a Chief, Mbabane Kunene, who lived in the area when British settlers arrived. It is also a commercial hub for the surrounding region, while tin and iron were mined nearby[93].

The Municipal Council of Mbabane is governed by the Urban Government Act of 1969. It is a progeny of the Ministry of Housing and Urban Development which is responsible for general governance of the urban areas in Swaziland. The Minister of Housing and Urban Development delegates most of his powers to the public to run the affairs of their own urban community. The public then elects a body of Councillors to form the Municipal Council which will in turn exercise the delegated authority to run the municipality. The Council enjoys a certain degree of autonomy. The responsibility of the Council is to make policies and draw different pieces of legislation necessary for the implementation of these policies. The minister, however, has to assent first to most of these operations.

The Council employs a Town Clerk (Chief Executive Officer or City Manager) to implement the policies and dictates pronounced at Council convergences. This officer reports direct to Council and in certain instances, to the minister. The other officers that are directly employed by the Councillors are the Directors of Public Works, Health and Finance. These officers can only be dismissed by the Council. The rest of the managers and staff are employed at the instance of the Chief Executive Officer[94].

Mbabane, and Swaziland itself, depend on tourism and sugar exports. The city has two sites for light industries.

8.8   E-Readiness Analysis for Mbabane

E-Readiness analysis for Mbabane based on questionnaire (see appendix). The electricity supply within the local government area is very good. Most households have access to a radio, TV and mobile phone access is very high. The availability of computers to households was average with the cost of internet access being high. Not many residents can easily afford to access the internet due to this high cost.

On governance, responses indicate that the local government authority has shown a high commitment to the use if ICT for service delivery and these executives themselves have good competence in basic computer skills e.g. in browsing the internet, sending

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93 http://en.wikipedia.org/wiki/Mbabane
94 http://www.mbabane.ord.sz/

email and creating documents. The local government staff are also highly competent in this area.

We could not assess the most important channels of information flow between the different departments and staff of the local government due to that part of the questionnaire not being editable and therefore the respondents could not fill it in. This problem was rectified for the other questionnaires.

More than 75% of the local government staff has access to a computer. The staff have had training in MS Word and Excel and just recently also had training in financial management systems.

The local government authority has a website at: http://www.mbabane.org.sz/ that has information such as the mission statement, vision and contact details of executive heads of the different departments. It also describes the municipality in the about us section and has some information on the current weather conditions in Mbabane. A few documents are available for download indicating some publish aspect of E-Governance. The main channels of communication between the general public and business on one hand, and the local government authority on the other, was still largely over the counter; meaning face-to-face. Telephone was next in intensity of use followed by mail/fax or courier. For now video conferencing technology has not been used.

Interactive billing, customer accounts management and integrated GIS are some ICT E-Governance initiatives currently underway within the municipality. With regards to ICT policies and guidelines, administrative and IT hardware and software procurement policies are in place.

Schools within the local government have a limited amount of computers for the students and staff and learners with disabilities have very limited possibilities to access spacialised computers for their use. Teachers and trainers have a limited ability to teach with computers and how to integrate them into classroom learning. Residents have only a small awareness and understanding of the potential of ICT for development. There was no response on the form as of ICT related education/ awareness that take place at the community level. Respondents did not know if the local government had had any experiences in utilising ICT for cultural/heritage entertainment products or services. Respondents either did not know or ware not themselves aware if there has been any earlier ICT related survey on the e-competence or infrastructure of the local government area.

9 Summary Conclusions and Recommendations

The study has sought to clarify E-Government concepts and give an idea of the e-readiness of the Southern Local Governments (LGs) to both Northern and Southern partners. The study contains a theoretical overview and studies of six local government administrations in the six Southern Countries of Ghana, Kenya, Tanzania, Namibia, South Africa and Swaziland. The theoretical overview aims to demystify E-Government concepts. Additionally, it emphasises the local government level as the level where the impact of ICTs on the relationship between governments and citizens can be most effective. The country studies presents the existing environment in which E-Government will be implemented. This part was divided into two sections-first an environmental scan of the ICT landscapes of the Southern countries followed by profiling of the municipalities in the context of their e-readiness.

The theoretical review began with the definition for E-Government which was defined as the use of new information and communication technologies by governments as applied to the full range of government functions. These technologies include other non-IP based technologies. E-Government also includes some technology specific sub categories like m-government (mobile government), u-government (ubiquitous) and g-government (GIS/GPS applications for E-Government). The study also pointed out that E-Government systems differ from commercial information systems because they frequently encompass strategic goals that go beyond efficiency, effectiveness and economy, and include political and social objectives. E-Government is evolutionary as well multi-faceted, and can be viewed as consisting of a set of phases. E-Government initiatives could span the entire government of a country, only the central government, a single sector ministry across the country and sometimes the provincial, municipal or village levels only.

The review also mentioned the critical success factors required to achieve the full potential of E-Government to include the right combination of people, processes, technology and resources. Front office and back office integration issues were mentioned as important issues to consider for addressing the questions of how data will be processed by the bureaucracy behind the scenes and the need to create interoperability within and between multiple agencies and departments or units within ministries to avoid waste of resources and reinventing service delivery systems.

E-Government development goes through different phases. These include the Information stage which entails usage of ICT to expand access to government information which is of importance to individuals and businesses; the Interaction Stage where technology is used to enhance the public involvement in the process of government functioning; the Transaction stage which involves establishing websites and other applications that allow users to conduct transactions online; and the Transformation stage which alludes to the stage where government has gone through the full transformation process and all the citizen services are being made available online through a single 'virtual' counter on a 24/7 basis. A taxonomy of E-Government possibilities in Africa was presented in a table which included the interaction models of E-Government that include G2G, G2B, G2C, G2E and G2X.

Well conceived and implemented, E-Government promises many benefits. These include increased and enhanced delivery of government services; empowerment of citizens through greater access to government information and ability to interact and

participate; enhanced transparency and increased accountability of the government; increased internal efficiency and revenue generation by the government; improved relationship between the government and the citizens etc. However, disparities in access to ICTs, neglect of disadvantaged groups in society and digital illiteracy can limit these benefits. To achieve the full potential of E-Government the needs of these groups among others will have to be factored into the overall strategic planning of E-Government interventions.

Tools and technologies suited to E-Government include both proprietary and open source platforms and applications. Some of these tools and technologies include geographical information systems, content management systems, e-Democracy tools, mobile phones etc.

Before defining an E-Government for development strategy or plan of action, a thorough analysis is required of the existing environment in which E-Government will be implemented. An e-Readiness assessment is a useful tools for determining a country's "starting point" in terms of ICT, and constitutes the initial phase of the ICT strategic planning process for any government or community. The level of e-Readiness is gauged by assessing a community's maturity across a series of ICT indicators that are considered key in facilitating national development and delivering broad ICT-related benefits.

In the second part of the study involved the profiling of the southern countries and local governments in terms of their e-readiness. Data and information on such issues as the background of the country, geography and demography, the economy, the ICT landscape were presented. The analysis of the e-readiness of the local governments was presented at the end of the country profile after the profile and administration of local government area has been presented.

The analysis based on questionnaire (see appendix) showed that basic ICT tools such as TV, Radio and mobile phones were readily available in all the local governments that were studied. Power supply was good but the number of household computers and access to the internet were very low. The local government authorities have all shown commitment to the adoption and use of ICT for service delivery. There was however very limited use of ICT for this purpose with most of the local governments being at the Information stage of E-Government development where local government authority has a website that provides basic information about the municipality. Mwanza was the only local government authority with no website at the moment but respondents said it was under construction. Moses Kotane's website had documents such as budgets for download, bids, and a database of suppliers in addition to providing information about the municipality. Communication between staff of the local government authorities and with residents and business were still largely over the counter, meaning face-to-face. More needs to be done to transition to the next stage of E-Government development i.e. the Interaction stage.

Local government authorities and their staff generally had basic ICT skills but there was the need to improve this with further capacity building initiatives. These capacity building initiatives should be extended to the schools and colleges where most of the teachers and students lacked basic ICT skills. The schools also lacked computers and there was neglect or total lack of facilities for the physically challenged to access specialised computers for their work. Moves should be initiated to cater for the needs of the physically challenged. More efforts should be made at creating awareness of the potential of ICTs for development at the community level and a serious look should be taken at utilising ICTs for cultural/entertainment products and services.

From the perspective of cooperating partners, we suggest cooperation partners sit to discuss a few areas where ICTs could be factored into the cooperation in case there wasn't any and if there is something already going on to that effect, efforts be made at strengthening it taking into account some of the weaknesses that have been highlighted in this study.

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Appendix 1

E-READINESS QUESTIONNAIRE FOR NORTH-SOUTH LOCAL GOVERNMENT COOPERATION PROGRAMME

This questionnaire is directed to a coordinator of a North-South Linkage for onward distribution to officers and staff of the Local Government Administration.

Please tick the box/boxes that apply, or type the appropriate response in the textbox provided. When finished save the document and send back to the sender by email at: ahmed.meyaki@kuntaliitto.fi

Kindly return this questionnaire by Tuesday 24 September 2010

Your Local Government Name:

Your Position/Role in your in your Local Government   :

INFRASTRUCTURE AND ACCESS						
Please indicate how much you agree with the statements that follow	1=Strongly disagree 2= Disagree 3= Neither agree nor disagree 4= Agree 5= Strongly agree					
	1	2	3	4	5	I Don't know
1. Most households within the Local government have access to a mobile phone	☐	☐	☐	☐	☐	☐
2. Most households within the Local government have access to a radio	☐	☐	☐	☐	☐	☐
3. Most households within the Local government have a television	☐	☐	☐	☐	☐	☐
4. Most households within the Local government have a computer	☐	☐	☐	☐	☐	☐

| | 1=Strongly disagree
2= Disagree
3= Neither agree nor disagree
4= Agree
5= Strongly agree | | | | | |

		1	2	3	4	5	I Don't know
5.	The cost of internet access for the residents of the local government area is affordable	☐	☐	☐	☐	☐	☐

GOVERNANCE AND ADMINISTRATION

		1	2	3	4	5	I Don't know
6.	The local government executives have shown commitment to the use of ICT for service delivery	☐	☐	☐	☐	☐	☐
7.	The local government executives have basic computer Skills for creating documents, browsing the internet and sending email	☐	☐	☐	☐	☐	☐
8.	The local government staff have basic computer Skills for creating documents, browsing the internet and sending email	☐	☐	☐	☐	☐	☐

Please tick the box that applies or provide the answer to the questions that follow

9. **Rank the main channels of information flow between the different departments and staff of the local government in terms of frequency of use (where 5 = most frequent and 1= least frequent)**

------------   **Person-to-person**
------------   **Via telephone**
------------   **Via mail/fax/courier**
------------   **Via Internet/ email**
------------   **Video conferencing**

10. **In my estimation, the percentage of the staff of the local government administration that has access to computers is around…**
    - ☐ **0-25%**
    - ☐ **26-50%**
    - ☐ **51-75%**
    - ☐ **76-100%**

11. **What kind of ICT/ eGovernment training is there for the staff of the local government?**

12. **Does the Local Government Authority have a website?   Yes ☐ No ☐**
    If yes, what is the address?

13. **If your answer to the previous question was yes, what kind of information/ services are found on the website?**

14. **Rank the main channels of communication of the general public and the business community with the local government in terms of frequency of use (where 5 = most frequent and 1= least frequent)**

    ------------   **Over the counter**

    ------------   **Via telephone**

    ------------   **Via mail/fax/courier**

    ------------   **Via Internet/kiosks**

    ------------   **Video conferencing**

15. What e-Government, ICT or IT initiatives are currently underway/ under consideration by the local government authority?

16. What ICT policies and guidelines does your local government have?

EDUCATION, TRAINING AND CITIZEN AWARENESS						
Please indicate how much you agree with the statements that follow	1=Strongly disagree 2= Disagree 3= Neither agree nor disagree 4= Agree 5= Strongly agree					
	1	2	3	4	5	Don't Know
17. Schools within the local government have enough computers for the students and staff	☐	☐	☐	☐	☐	☐
18. Learners with disabilities are able to access specialized computers for their use	☐	☐	☐	☐	☐	☐
19. Teachers/trainers know how to teach With computers and how to integrate them into classroom learning	☐	☐	☐	☐	☐	☐
20. Residents are aware of and understand the potential of ICT for development	☐	☐	☐	☐	☐	☐

21. What forms of ICT related education, awareness and training take place at a community level?

22. Has your local government had any experiences in utilizing ICT for cultural/ heritage/ entertainment products or services?   Yes ☐ No ☐ I don't know ☐

If yes, what?

23. Has there been any earlier ICT related survey on the

    a) E-competence (skills in using computers, the internet, making presentations etc.) of local government staff?   Yes ☐ No ☐ I don't know ☐

    b) E-Infrastructure (e.g. mobile phones, internet connectivity, power supply) of the local government?   Yes ☐ No ☐ I don't know ☐

24. How would you rate the electricity supply within the local government area is:		
	Excellent	☐
	Very Good	☐
	Good	☐
	Fair	☐
	Poor	☐

25. Any other comments you would like to make?

Thank you very much for taking time to answer this questionnaire.