Trade in Information and Communication Services: Opportunities for East and Southern Africa

Final Report on Kenya, Tanzania and Uganda

A Study Commissioned by the Global Information and Communications Department, World Bank

Telecommunications Management Group, Inc.

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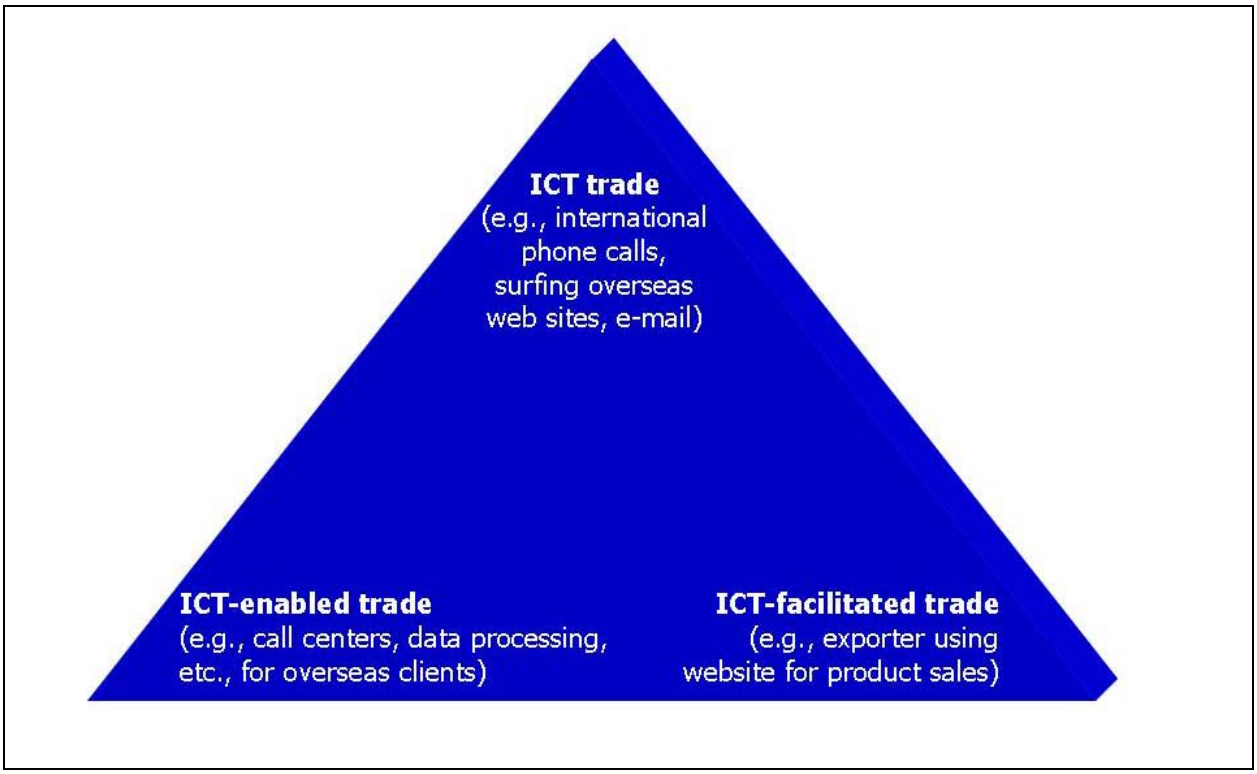
1. Introduction

In today's global environment, a critical interdependence exists between Information and Communication Technology (ICT) and trade. For most countries, the right trade environment can facilitate the development of ICTs. Likewise, ICT can foster, enable, and facilitate trade. The relationship between trade and ICT can be viewed from three angles: trade in ICT themselves (*e.g.*, international telephone calls), trade in services to which ICTs are critical inputs (*e.g.*, outsourcing data entry or computer programming services) and ICT as general facilitators of other types of trade (*e.g.*, a farmer using text messaging to check export prices). These three angles are collectively referred to herein as "ICT-related trade" and are shown in the figure below.

Figure 1-1: ICT-related trade



Source: TMG, Inc.

Many jurisdictions, particularly developing countries, seek to take advantage of the opportunities offered by ICT-related trade and the benefits that they can offer to a country's economy. Given the significant gains achieved by countries such as India, Mauritius, and South Africa from Business Processing Outsourcing (BPO) services, other countries hope to tap into this lucrative market. However, competition to attract investment for ICT-related trade is fierce. Therefore, countries are undertaking various institutional, legal, and regulatory measures, as well as multilateral commitments to make their ICT environments more attractive for investors.

ICT-related trade is generally enhanced through multilateral trade commitments. These commitments can be used by countries to demonstrate a true dedication to sector liberalization,

strengthen credibility of domestic sector reform, guard against policy reversals, and enhance the trust of private investors. Under the World Trade Organization (WTO) framework, ICT-related trade is governed by obligations under a number of agreements, including the General Agreement on Trade in Services (GATS). The GATS provides a framework for liberalizing international trade in services, such as telecommunications services and computer services. In addition, countries that sign on to the Information Technology Agreement (ITA) under the WTO can maximize opportunities in their ICT sector by committing to zero duties on ICT products.

The objective of the *Trade in Information and Communication Services: Opportunities for East and Southern Africa* project was to focus on the intersection of trade and ICTs. The project consisted of two phases. The first phase focused on an assessment of the ICT and trade environment in six countries, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda ("Initial Study Countries"), including a review of these countries' ICT-related trade competitiveness and their current trade commitments under WTO, as well as their ability to undertake trade commitments or enhance their current commitments.

The review of the Initial Study Countries demonstrated that the potential for ICT-related trade is largely untapped. Critical elements necessary for successful ICT-competitiveness are not optimal and include network infrastructure; the policy, legal and regulatory framework environment; the education and training required to have a labor force with necessary ICT skills; use of ICT applications by businesses and government; and consumer awareness. Some challenges that impede the development of ICT-related trade, particularly insufficient investment, can be addressed by trade commitments. Despite these constraints, certain Initial Study Countries are undertaking measures to facilitate ICT-related trade, including making ICT commitments under WTO and taking specific legal, regulatory and policy reforms to enhance their ICT-competitiveness.

For the second phase of the project, three countries were selected for further study – Kenya, Tanzania and Uganda ("Case Study Countries"). Although these Case Study Countries, as discussed in the report, are at different levels in terms of their ICT-competitiveness, all three are WTO Members. Moreover, Kenya and Uganda have undertaken GATS commitments on telecommunications services. Tanzania has not. None has undertaken any commitments on computer services or become a party to the ITA. In addition, these Case Study Countries have undertaken or are initiating various measures that are geared to enhancing their ICT competitiveness.

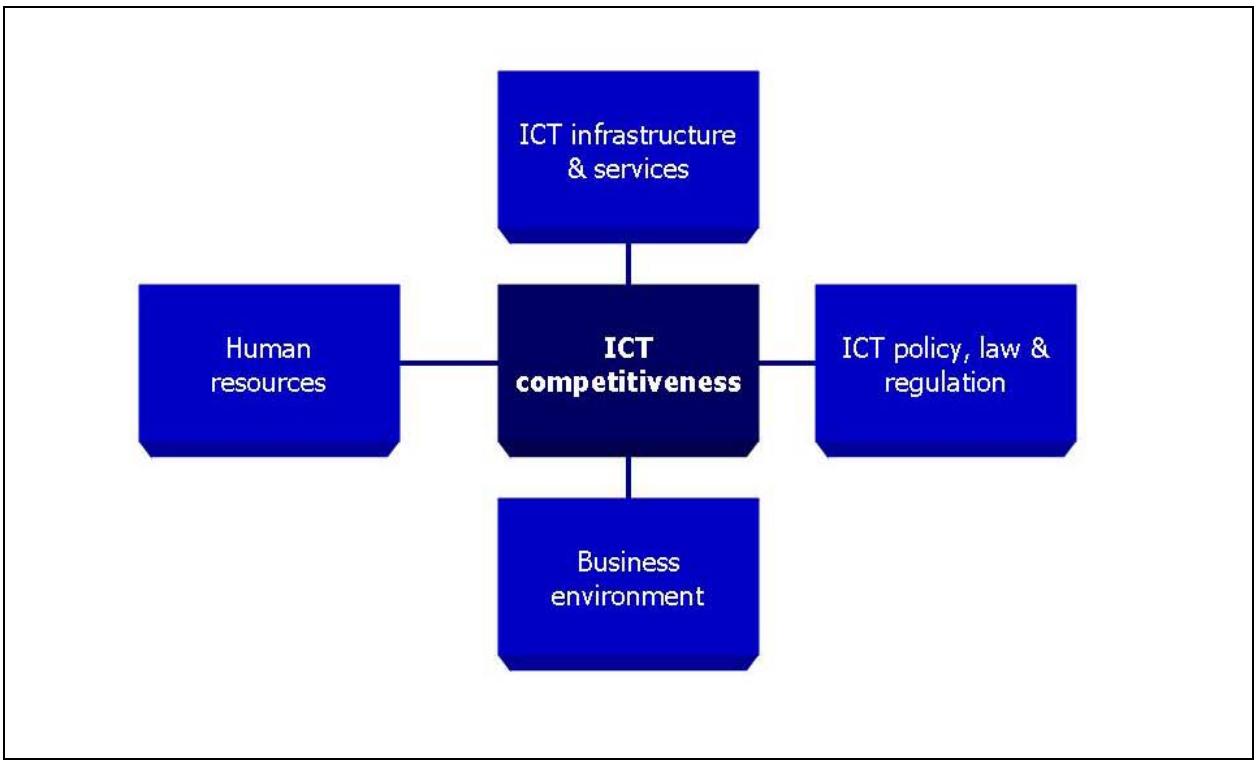
This following report is divided into four chapters, with Chapter One containing the Introduction. Chapter Two reviews the state of ICT-competitiveness in the Case Study Countries, by looking at infrastructure, the legal and regulatory situation, the business environment, and human resources. Chapter Three examines the benefits of ICT for the overall economy as well as for facilitating traditional trade and participating in emerging ICT-enabled services trade. It analyzes the Case Study Countries' potential for becoming players in ICT-enabled services. Finally, Chapter Four identifies the Case Study Countries existing WTO ICT-related commitments, pointing out what changes are necessary to make deeper commitments and hence strengthen credibility as reliable trading partners.

2. Review of ICT-Competitiveness

ICT-competitiveness refers to a country's ability to exploit information and communication technology in order to effectively participate in the global information economy. An ICT-competitive country is able to successfully trade services that are dependent on electronic communications, as well as maximize the use of information technology to facilitate traditional types of trade.

Various studies have identified different factors for analyzing ICT-competitiveness.[1] Although ICT infrastructure is fundamental, these studies also point to the necessity of other aspects such as human resources, and an enabling legal, regulatory and business environment. These factors are examined below to assess ICT-competitiveness in the Case Study Countries.

Figure 2-1: ICT-competitiveness



Source: TMG, Inc.

[1] There are a number of indexes measuring ICT-readiness. Examples include the Network Readiness Index (see the World Economic Forum web site at: http://www.weforum.org/en/initiatives/gcp/Global%20Information%20Technology%20Report/index.htm) and the Economist Intelligence Unit (EIU) e-readiness rankings (see the EIU web site at: http://www.eiu.com/site_info.asp?info_name=eiu_2007_e_readiness_rankings).

2.1 ICT Infrastructure and Services

2.1.1 Market overview

The Case Study Countries have been progressively liberalizing their ICT sector. Steps taken include introduction of privatization and competition, as well as the creation of regulatory bodies. The scope and pace of reform, however, differ among the three countries.

Kenya

The government agencies responsible for ICT policy and regulation in Kenya include the *Ministry of Information and Communication*, which is responsible for telecommunications policy and broadcasting policy and regulation, and the *Communications Commission of Kenya* (CCK) is responsible for regulating the telecommunications sector, postal services and radio spectrum use. Broadcasting policy and regulation rests with the Ministry of Information and Communication. The *National Communications Secretariat* serves as a policy advisory board for the government and is housed under the Ministry of Information and Communication. The incumbent telecommunications operator is Telkom Kenya. Its origins trace back to the East African Posts and Telecommunications Corporation, created in the late 1960s as a single operator for the East African Community (Kenya, Tanzania and Uganda). Each country eventually established its own communications carrier with the Kenya Posts and Telecommunications Corporation assuming this responsibility in Kenya. The *Communications Act (No. 2) of 1998* led to the separation of operational and regulatory functions for postal and telecommunications services. Telkom Kenya was created as a limited liability company owned by the government of Kenya to provide telecommunications services.

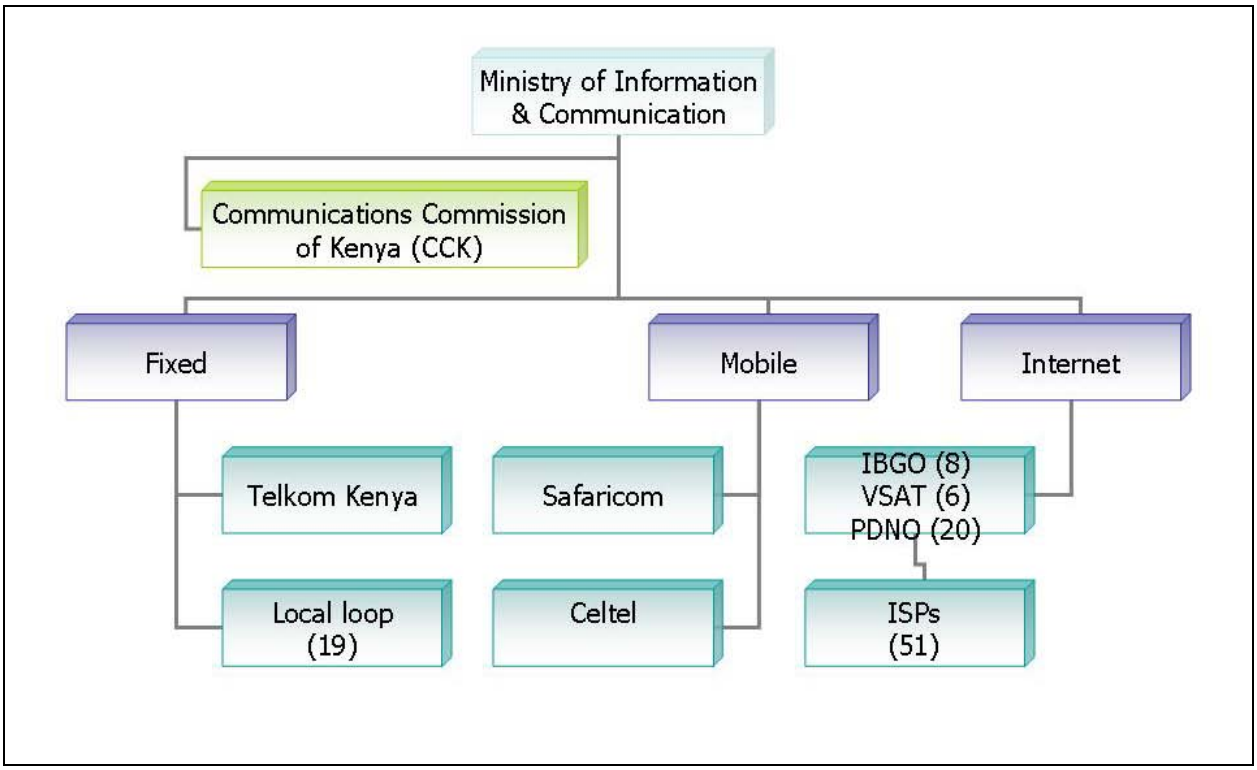
Kenya has gradually been liberalizing its telecommunications sector since the Communications Act (No. 2) of 1998. In 2000, Telkom Kenya and Vodafone of the United Kingdom began jointly providing mobile services through Safaricom, introducing private and foreign investment into the sector. Also in 2000, a new mobile provider, Celtel (called KenCell at the time), introduced competition in the mobile market segment. Three years later, in 2003, the CCK began licensing Public Data Network Operators (PDNOs) to encourage the deployment of data transport infrastructure.

On June 30, 2004, Telkom Kenya's remaining exclusivities were terminated, marking the end of a semi-liberalized telecommunications environment in Kenya. In response, the CCK issued licenses to a number of local fixed operators and declared VoIP legal. In 2006, the government also granted licenses for the provision of international voice services to the two mobile operators.

However, not all measures taken to liberalize the sector have proven successful. Telkom Kenya is the only East African operator that has not been partially privatized. After several attempts, the government is once again in the process of privatizing Telkom Kenya through the sale of 51 percent to a strategic operator. In November 2007, it was announced that a consortium led by France Telecom had been selected.[2] In addition, there have been unsuccessful attempts to license a Second National Operator (SNO) and the licensing of a third mobile operator was bogged down in legal challenges for several years.

[2] France Telecom, Press Release, France Telecom Wins the Bid to Acquire 51% of Telkom Kenya (Nov. 16, 2007).

Figure 2-2: Telecommunications market structure in Kenya



Note: IBGO = Internet Backbone Gateway Operator. VSAT = Very Small Aperture Terminal. PDNO = Public Data Network Operator. ISP = Internet Service Provider. Number in parenthesis shows the number of licenses issued as of September 2007.
Source: Adapted from CCK, Vodafone, and MTC annual reports.

Tanzania

In Tanzania, the *Ministry of Infrastructure Development* is responsible for telecommunications policy while the *Tanzania Communications Regulatory Authority* (TCRA) is responsible for regulation. TCRA was created as a converged regulator in 2003, with responsibility for broadcasting, telecommunications, and postal services.

The telecommunications sector has been progressively liberalized since 1993 with licenses issued for data communications, Internet services, and mobile cellular telephony. The sector became completely liberalized in February 2005 when all exclusivities ended. Since then, numerous applications for new licenses have been submitted to the TCRA. Tanzania has also introduced a converged licensing framework with generic licenses for facilities, services, applications, and content.

Tanzania has two fixed line operators, incumbent Tanzania Telecommunications Company, Ltd. (TTCL), and Zanzibar Telecommunications Corporation, Ltd. (Zantel). Given that its license area was extended from Zanzibar to the mainland when TTCL's monopoly ended, Zantel holds a second fixed line voice license throughout Tanzania.

TTCL emerged as the nation's telecommunications operator when the Tanzania Posts and Telecommunications Corporation was abolished in 1994. TTCL was partially privatized in 2001

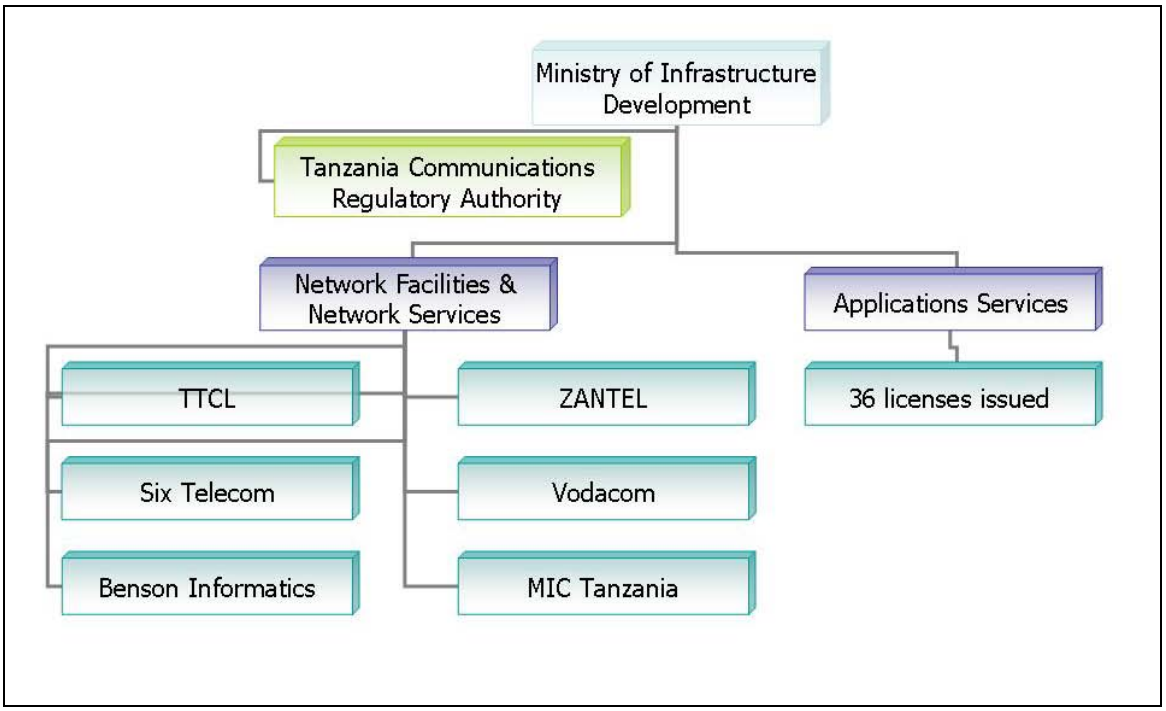
when a consortium of Detecon (Germany) and MSI (Netherlands) bought 35 percent of the company.[3]

Under the terms of the privatization agreement, TTCL was issued five new licenses in 2001 for fixed-line basic telephony, data, mobile, radio paging, and ISP services. In return, TTCL agreed to disengage from two joint ventures: Tigo (mobile services) and Datel (data services). The basic license gave TTCL an exclusivity period of four years on mainland Tanzania (and a duopoly on Zanzibar) which ended in February 2005. The consortium launched a new mobile company, Celtel, which was operationally separate from TTCL. Celtel was formally spun off from TTCL following the end of the exclusivity period in 2005.

Tanzania's mobile market has improved noticeably since the licensing of additional operators from 2000 and the abolition of regional as opposed to nationwide licenses. There are now four Global System for Mobile Communications (GSM) mobile operators: Vodacom, Celtel, Mobitel (MIC Tanzania, Tigo), and Zantel.

[3] MSI's African telecommunications holding were later purchased by MTC of Kuwait. It does business under the brand name Celtel. The agreed price for TTCL had been for US$ 120 million with a first payment of US$ 60 million and the remainder due pending audit of TTCL's 2000 accounts. The government and the consortium disagreed over TTCL's valuation and it was submitted to arbitration. The findings were presented in 2004 and as a result, the consortium paid an additional US$ 4.96 million plus US$ 321,000 in interest. Thus, the final amount that the consortium paid for its 35 percent stake was US$ 65.281 million. For additional details on the final payment for the TTCL privatization, see Celtel Press Release, Conclusion of the privatisation of Tanzania Telecommunications Company (Feb. 19, 2004), available at www.celtel.com/en/news/press-release12/index.html.

Figure 2-3: Telecommunications market structure in Tanzania



Note: Status as of September 2007. Celtel has not yet migrated to the new license framework.
Source: Adapted from TCRA.

Uganda

In Uganda, the *Ministry of Information and Communications Technology*, created in 2006, is responsible for ICT policy in Uganda, assuming the duty of sector oversight previously carried out by the Ministry of Works, Housing and Communications. The *Uganda Communications Commission* (UCC), established in 1997, is the telecommunications sector regulator.

Uganda became one of the first countries in the region to adopt telecommunications liberalization policies when it licensed a private company, Celtel Limited, to provide mobile service in 1993. Celtel is today 100 percent owned by MTC of Kuwait. Thereafter, a SNO license was awarded to Mobile Telephone Networks (MTN) for US$ 5.8 million in April 1998 allowing it to provide any telecommunications service. The parent company, MTN of South Africa, spent US$ 220 million in 2006 acquiring an additional 45.3 percent of the company from other shareholders and its ownership now stands at 97.3 percent. Also in 1998, the incumbent fixed line operator, Uganda Telecom Limited (UTL) was spun off from Uganda Posts and Telecommunications Corporation. In June 2000, 51 percent of UTL was sold to the UCOM consortium for US$ 33.5 million. UTL later launched mobile services in January 2001. In 2007, UTL increased its outstanding capital shares, reducing government ownership to 31 percent.

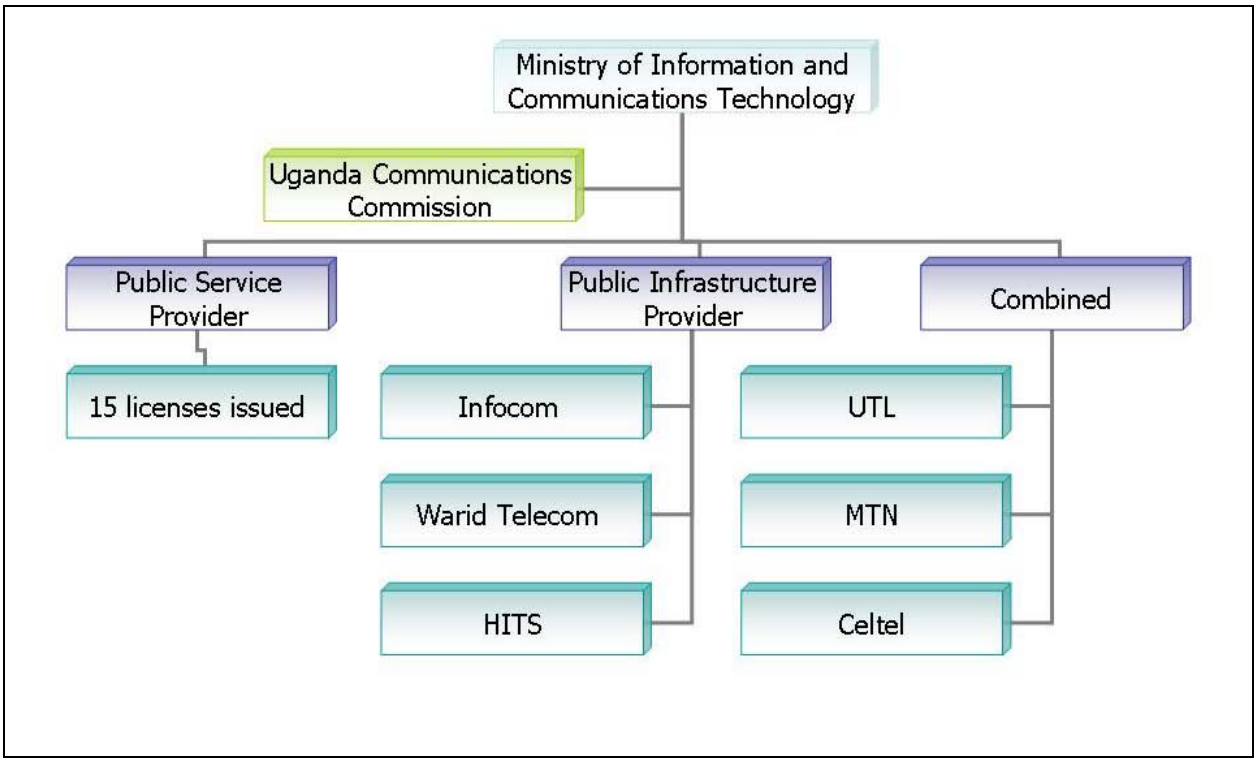
The government established a five year exclusivity period from the date of UTL's privatization. The exclusivity, which legally ended in July 2005, barred additional entry in basic telephony, mobile cellular service, and international connectivity. In 2006, infrastructure-based licenses

were awarded to Warid Telecom and House of International Technology and Systems (HITS), both backed by investors from the United Arab Emirates.

Services including Internet access and telecommunications resale have been liberalized for over years. The provision of international data connectivity was limited to the two national operators and to the six Internet Service Providers (ISP) that received licenses prior to the exclusivity period. The payphone market was liberalized in 2004 when UCC ceased requiring payphone service licenses. VoIP had been limited to UTL and MTN during the exclusivity period but is now unrestricted.

In 2006, Uganda adopted a generic approach to telecommunications licensing. Figure 2- reflects this new market structure.

Figure 2-4: Uganda telecommunications market structure, June 2007



Source: Adapted from UCC.

2.1.2 Fixed line telecommunications services

Telkom Kenya previously had exclusivity over the provision of fixed line telecommunications services. However, when the exclusivity legally ended, the fixed line market was opened to competition. Unfortunately, despite the end of Telkom Kenya's exclusivity in fixed line markets, thus far there is very limited competition. The government has issued 19 "local loop provider" licenses, but because their operations are restricted in both scope and geography, investment and interconnection have proven challenging, and so few entities holding such licenses have actually launched services.[4] Efforts to issue a SNO license have also stalled. As a

[4] Some of the challenges faced by local loop providers are identified in: CCK Board Room, Minutes of CCK Meeting with Local Loop Operators, Waiyaki Way (July 4, 2005).

result, Telkom Kenya continues to dominate the fixed line market with a 99 percent market share as of June 2006.

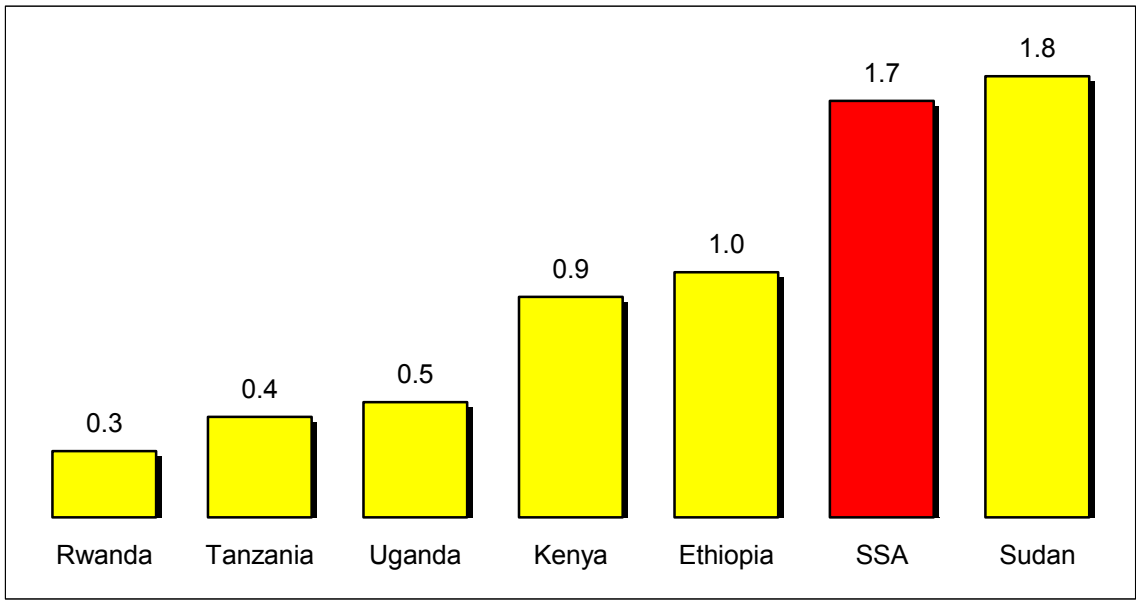
Kenya had 303,905 fixed line subscriber connections in June 2006 for a teledensity of 0.90 (connections per 100 people). Growth has been uneven with Kenya having less fixed telephone lines in 2006 than in 2001. The level of teledensity in Kenya is low, but consistent with the average in the Initial Study Countries. However, Kenya's teledensity is about half the Sub-Saharan Africa (SSA) average.

Tanzania had 169,135 fixed line subscriber connections in June 2007 for a teledensity of 0.4 (connections per 100 people). Tanzania had less fixed telephone lines in 2006 than in 2000. The decline in subscribers has been reversed somewhat since 2004. Tanzania's level of teledensity is the second lowest among the Initial Study Countries and four times less than the SSA average.

UTL and MTN were the two companies providing fixed line telephone service at the end of 2006 in Uganda. UTL had an 83 percent share of the market, while MTN had a 17 percent market share in 2005. Whereas UTL's fixed lines are largely wired, MTN uses primarily fixed wireless access.

As of December 2006, there were 129,863 fixed lines in service in Uganda. Despite the popularity of mobile, Uganda still managed to grow its fixed lines by 13 percent a year between 2000 and 2006, second highest among the Initial Study Countries. Nevertheless, teledensity remains low at 0.5 (connection per 100 people). This is less than the Study Country average as well as below the SSA average.

Figure 2-5: Telephone main lines (per 100 people), 2006



Note: SSA = Sub-Saharan Africa region average (data for SSA refer to 2005).
Source: TMG, Inc.

The Initial Study Countries publish limited quality of service statistics for fixed line networks.[5] In Kenya, the waiting list for fixed lines has dropped from 127,169 in 2000 to 64,618 in 2006, a decrease of 49 percent. Nevertheless, according to World Bank surveys, firms reported waiting over three months for a main line connection in Kenya in 2003 or over one and half times the Africa average.[6]

Telkom Kenya experienced 145.4 outages per 100 fixed lines in 2005, a figure that has been relatively stable since 2002. The percentage of outages cleared by the next working day has improved, from about 32 percent in 2002 to about 43 percent in 2005. The incomplete call percentage has remained relatively stable in the 20 percent range since 2002. Nevertheless, the available quality of service data for the region suggests substantial potential for improvement. On average, there are almost 1.5 faults per line in Kenya, the highest of any of the Initial Study Countries for which there is data. Kenya's main line fault rate is three times higher than the SSA average.

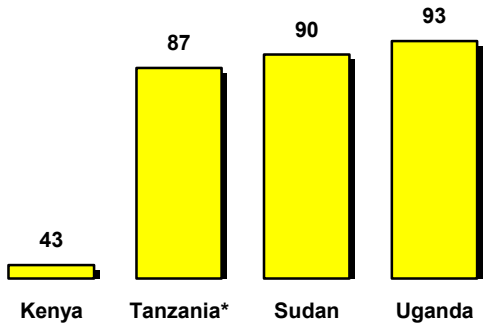
Despite the limited number of lines, there is not much of an official waiting list in Tanzania. The number of pending applications has declined from 14,375 in 2000 to 5,320 in 2005. Presumably most of these wait listed consumers have switched to mobile services. According to World Bank surveys, firms reported waiting some three weeks (23 days) for a main line connection in Tanzania in 2006. Although there has been no improvement since 2003, the wait is less than half the Africa average and second best among the Initial Study Countries. TTCL experienced 47 outages per 100 fixed lines in 2004, equivalent to the SSA average. The percentage of outages cleared by the next working day was 87 percent in 2003.

Quality of service for fixed networks has improved in Uganda over the last few years. The average waiting time for a traditional fixed line declined from six days to two in urban areas and from twenty days to three in rural areas between 2001 and 2005. The percentage of telephone faults cleared by the next working day increased from 40 percent in 2001 to 93.3 percent in 2005, while call completion rates on the local fixed network increased from 47.9 percent to 97.2 percent. According to World Bank surveys, firms reported waiting over 13 days for a main line connection in Uganda in 2006 compared to the Africa average of 58 days.

[5] The Uganda Communications Commission recently issued a document on quality of service, identifying a number of key areas it plans to collect indicators for. Targets are also proposed. See http://www.ucc.co.ug/licensing/qosParameters.pdf.

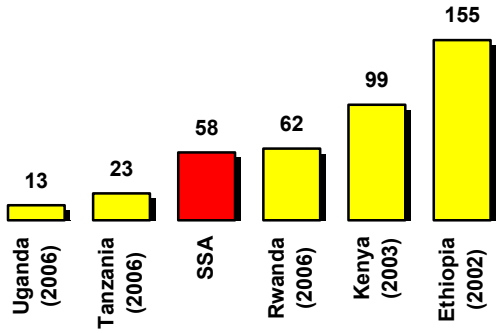
[6] World Bank, Enterprise Surveys. (Retrieved Sept. 9, 2007 from http://www.enterprisesurveys.org/ExploreTopics/CompareAll.aspx?topic=infrastructure).

Figure 2-6: Percentage of telephone faults cleared by next working day, 2005



*Note: * = 2004.*
Source: TMG, Inc.

Figure 2-7: Delays in obtaining a fixed line (days)



Source: World Bank.

Telkom Kenya offers both postpaid and prepaid tariff plans for basic telephony. The postpaid tariff is mainly applicable to the conventional fixed wireline network while the prepaid applies to the newer wireless Code-Division Multiple Access (CDMA) network. National long distance prices for calls to a destination greater than 60 kilometers away are more than a local call but significantly cheaper than a call to a mobile network.

A monthly basket of fixed line local (fixed-fixed) calls and subscription charges (see *Note* to Figure 2-9 for the basket composition) cost US$ 15 in Kenya, highest among the Initial Study Countries. The high tariffs are surprising given that Telkom Kenya has *not* yet been privatized. The fixed line monthly basket as a percent of per capita income is 27 percent in Kenya, less than in Rwanda, Tanzania and Uganda.

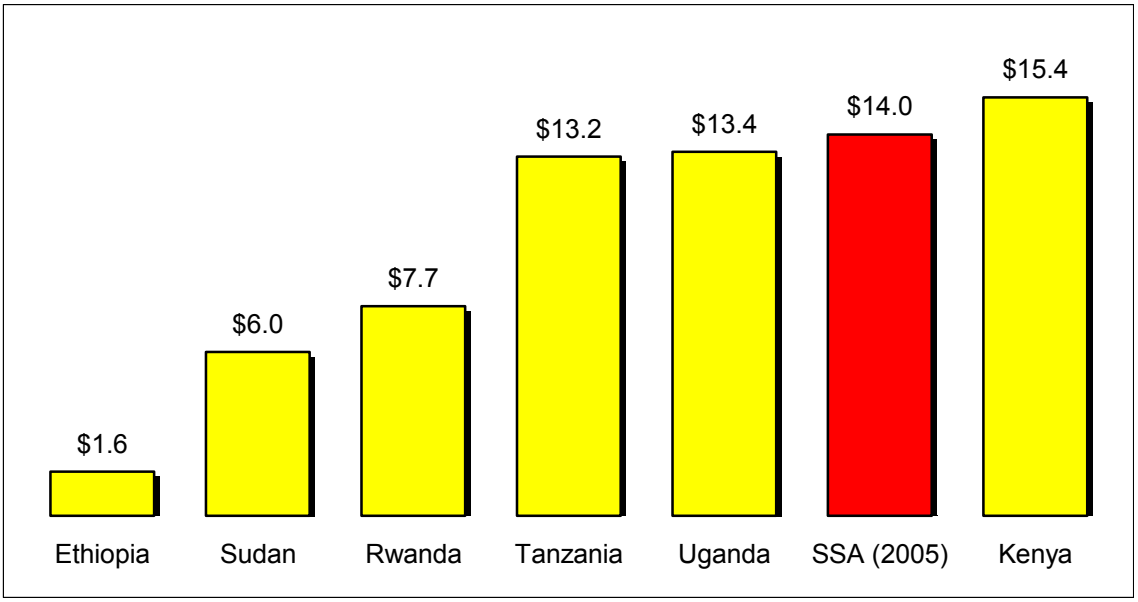
In Tanzania, TTCL offers both postpaid and prepaid tariff plans. The postpaid tariff is mainly applicable to the conventional fixed network while the prepaid applies to the newer wireless CDMA network. There is a separate charge for national long distance calls, which cost around 50 percent more than a local call (US$ 0.12 per minute excluding tax versus U$ 0.08). Calls from a TTCL fixed line to a TTCL wireless phone cost the same as a national long distance call whereas calls to other mobile networks are higher at U$ 0.19 per minute.

A monthly basket of fixed line local (fixed-fixed) calls and subscription charges cost US$ 13 in Tanzania, just below the SSA average.

Uganda has progressively rebalanced tariffs over the last few years, raising fixed subscription and national call charges while reducing international call charges. While this has aligned prices more closely with costs, it has also made fixed service more expensive. There are two tariff plans for fixed service, either postpaid or prepaid. The fixed price structure is meticulous with calls to each network operator generally priced at a different rate. Unlike Kenya and Tanzania, there is a single nationwide calling rate (*i.e.*, no distinction between a local call and domestic long distance).

Uganda has the second highest fixed line prices at over US$ 13 per month for a basket of local (fixed-fixed) calls and subscription charges. The higher tariffs in Uganda would be expected given that it has partially privatized the incumbent while the other fixed line provider is fully private. Privatized operators tend to bring prices in line with costs (*i.e.*, raising local calls and subscriptions and lowering long distance prices).

Figure 2-8: Price basket for fixed line, US$ per month, 2006



Note: SSA = 2005. Based on 1/5 connection, monthly subscription, 15 3-minute peak and 15 3-minute off peak calls.
Source: TMG, Inc

2.1.3 International voice services

The international voice service market in the Case Study Countries has become more competitive over the last few years. Following the end of Telkom Kenya's exclusivity on international voice services, the two mobile operators today also provide international voice service. Telkom Kenya offers a single flat rate tariff of US$ 0.60 per minute to anywhere in the world over the public switched telephone network (PSTN). The mobile operators' tariffs vary by destination, peak and off-peak and postpaid and prepaid. In general, their tariffs are less than Telkom's PSTN services. The price of a conventionally dialed call (from the incumbent's network using the PSTN) to the United States is second highest in Kenya among the Initial Study Countries (see Figure 2-9).

TTCL of Tanzania offers two prices for international voice calls depending on the destination. Calls to East Africa, Western Europe, North America, and some other destinations are TZS 360 (US$ 0.28) (tax included) per minute and TZS 474 (US$ 0.37) to other destinations. Other Tanzanian operators have tariffs slightly higher than TTCL. A one minute call to the United States is TZS 360 (US$ 0.28), cheapest among the Initial Study Countries except for Telkom Kenya's Voice over Internet Protocol (VoIP) rate. TTCL's tariff to the United States is almost three times cheaper than the SSA average.

UTL and MTN had a quasi-duopoly prior to the end of the exclusivity period. Celtel was allowed to provide international voice to its own customers. With the expiration of the duopoly, service providers can now apply for a public service provider (PSP) license to offer international

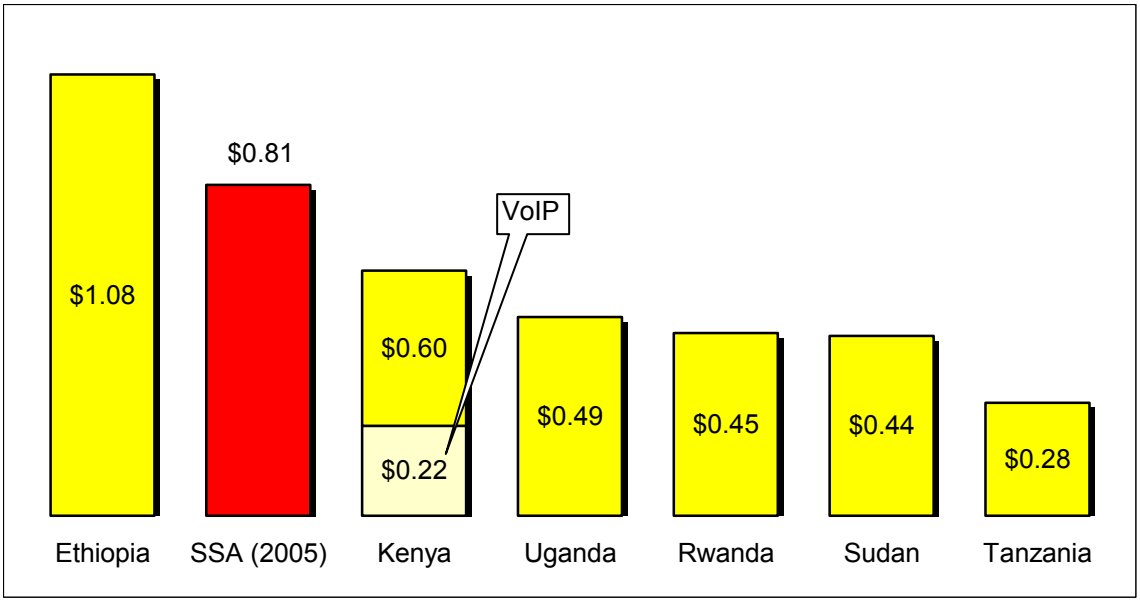
gateway services. Operators in Uganda generally have differentiated international rates based on whether the call is destined for East Africa or the rest of the world. In addition, MTN also differentiates its rates based on peak and off-peak times. As a result of tariff rebalancing and of direct and indirect competition, the price of international calls has significantly decreased in Uganda. For example, the price of a three minute call to the United States was US$ 4.20 in 2000. By 2007, the rate for a three minute call to the United States over Uganda Telecom's network had dropped to US$ 1.27.

VoIP is legal in the Case Study Countries. In Kenya, VoIP was legalized in August 2005, after a public consultation process conducted earlier that year.[7] The introduction of VoIP services has lowered international telephone prices. Telkom Kenya along with several other providers offer international VoIP calling. Telkom Kenya's price for a one minute call to the United States is KES 15 (US$ 0.22), about one third the price of its conventional international calling price.

VoIP is permitted in Tanzania as long as the provider has an application service license.

Since the new licensing reform in Uganda is technology neutral, an operator who wants to provide VoIP can do so with a license that allows for the provision of voice services (either through a public infrastructure provider license or a service provider license, depending on whether it intends to provide the service deploying its own infrastructure or not). In addition, cyber cafes and resellers can provide retail VoIP services through a general license.

Figure 2-9: Price of call to United States (US$ per minute), 2007



Note: While VoIP is legal in most of the Initial Study Countries, Telkom Kenya is the only operator that publicly lists prices for the service. In other countries, VoIP is available through calling cards or Internet cafes.
Source: TMG, Inc.

[7] The Policy Guidelines on the Provision of VoIP Services in Kenya defined four modes of VoIP and stated that commercial providers of VoIP services are required to meet certain obligations related to emergency services, interconnection, universal service, quality of service levels, billing accuracy and numbering.

2.1.4 Mobile communications

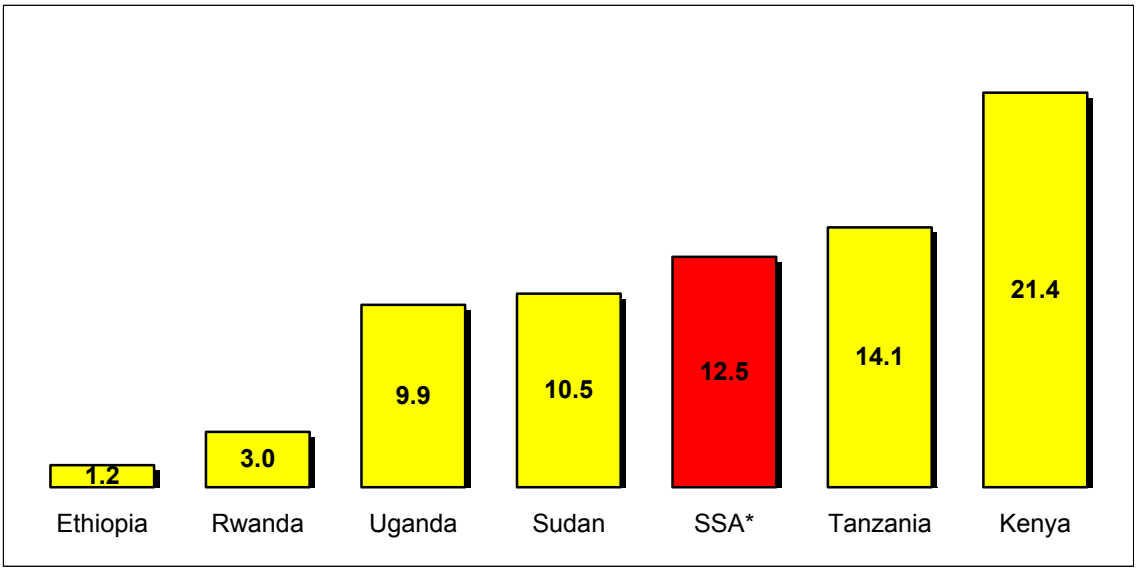
Mobile has grown significantly throughout the Case Study Countries and dominates the communications sector. With 7.7 million subscribers at June 2007, Kenya has the largest mobile market in East Africa.[8] Kenya had two GSM operators and one CDMA operator as of June 2007. The availability of mobile phone service in Kenya has grown significantly since 2000. At that time, less than one percent of the population subscribed to mobile service. By June 2007, one quarter of its population were mobile subscribers. The annual average growth rate since 2000 has been almost 100 percent, second highest among the Initial Study Countries. Coverage has expanded from less than half the population in 2000 to over 90 percent by 2006. Kenya's mobile penetration is highest among the Initial Study Countries and significantly above the SSA average of 12.5 (2005).

Tanzania has one of the most competitive mobile markets in Africa with four GSM operators and 4.9 mobile subscribers at June 2007 for a mobile density of 18 subscribers per 100 inhabitants. Tanzania's mobile penetration is second highest among the Initial Study Countries despite the relatively low level of coverage of only around half the population in 2006.

Uganda had three GSM operators as of June 2007 with 3.2 million subscribers. In 2000, Uganda's mobile penetration (subscribers per 100 people) was just above one in 2000; by December 2006 it was 9.9 and by June 2007, it had risen to 11. However, growth has been lower than other Initial Study Countries. While Uganda had the highest penetration among the six countries in 2000, by 2006 it had dropped to fourth. Despite a relatively competitive market and the highest population coverage in the region (96 percent at end 2006), Uganda's mobile market has not kept pace with its neighbors. One possible reason for this underperformance is high taxes on communications services discussed later in this report. Another factor is that Uganda has a marginally lower level of urbanization than the other countries. Despite Uganda's below average mobile performance compared to the Initial Study Countries, the level of potential access in the country is high. The percent of the population living within range of a mobile signal is the most of any of the Initial Study Countries.[9] Moreover, penetration of mobile phones in households stood at 16.7 percent in 2006 (including almost sixty percent of households in Kampala), in contrast to less than one percent household penetration for fixed lines.[10]

[8] Information on the number of mobile subscribers, penetration and operator market shares comes from MTC which operates in all three countries (under the brand "Celtel") and thus provides harmonized definitions for subscribers. See Mobile Telecommunications Company K.S.C. 2007, H1-2007 Earnings Release.
[9] GSM Association, Taxation and the Growth of Mobile in East Africa (2007).
[10] Uganda Bureau of Statistics, Uganda National Household Survey 2005/06 (Dec. 2006).

Figure 2-10: Mobile subscribers (per 100 people), 2006



*Note: * 2005.*
Source: TMG, Inc.

Safricom and Celtel offer a variety of postpaid and prepaid plans catering to different consumer needs. There are plans that offer pricing per second (versus per minute), lower charges for on-net and off-peak calls and text messaging. Most end up costing roughly the same when converted to a basket of monthly charges using the OECD low user methodology.[11] Kenya's monthly prepaid prices are the second highest among the Initial Study Countries but very close to those in other Case Study Countries (see Table 2-1). Additionally, a monthly prepaid basket as a percentage of average per capita income is second lowest in Kenya.

The monthly price of a basket of mobile services in Tanzania, US$ 9, is third cheapest among the Initial Study Countries and below the SSA and low-income group averages, which were US$ 12.5 and US$ 9.6 respectively in 2006. The fact that the price in Tanzania is slightly lower may result from the fact that Tanzania enjoys a higher level of competition.

Uganda's mobile operators offer a wide variety of tariffs including different prepaid plans and per second billing (less than 1% of subscribers are post-paid). Connection charges are between Ush 3,000-5,000 (US$ 1.62-2.71) with Ush 2,000 (US$ 1.12) of airtime included. Prepaid card vouchers come in a minimal denomination of Ush 1,000 (US$ 0.56); value can also be added online or via Short Message Service (SMS) for any amount starting from Ush 1,000 (US$ 0.56). Prepaid users can keep their number valid by making a call or sending a SMS at least once every 90 days.

Operators generally have three plans: a common per minute tariff across networks, different pricing across networks and per second pricing. Taxes form a significant portion of mobile

[11] For basket methodology, see
http://www.olis.oecd.org/olis/2002doc.nsf/0/02842f20bb153c97c1256beb00404cf5/$FILE/JT00129163.PDF

prices with Value Added Tariff (VAT) (at 18 percent) and excise tax (at 12 percent), adding 30 percent to the price of a call. If taxes were reduced or eliminated, many more Ugandans could afford service. According to a 2007 GSM Association study, the share of taxes within the total cost of mobile service in Uganda is the third highest in the world.[12] Despite Uganda's high taxes, the price of a mobile monthly prepaid basket is below the average for the Initial Study Countries.

Table 2-1: Prepaid mobile tariffs, October 2006, US$

Economy (Operator)	On-Net			Fixed			Off-net			SMS	Monthly basket (including taxes)	
	Peak	Off-peak	Week-end	Peak	Off-peak	Week-end	Peak	Off-peak	Week-end		Total	As % of per capita GNI
Ethiopia (ETC)	0.08	0.03	0.03	0.08	0.08	0.08	0.08	0.03	0.03	0.04	$ 4.03	30%
Kenya (Celtel)	0.45	0.15	0.15	0.62	0.31	0.31	0.69	0.34	0.34	0.07	$15.86	36%
Rwanda (MTN)	0.26	0.22	0.07	0.27	0.27	0.27	0.26	0.22	0.07	0.09	$11.25	59%
Sudan (Areeba)	0.09	0.09	0.09	0.09	0.09	0.09	0.13	0.13	0.13	0.02	$ 4.54	9%
Tanzania (Celtel)	0.20	0.17	0.04	0.27	0.27	0.27	0.26	0.26	0.26	0.03	$ 9.19	32%
Uganda (MTN)	0.24	0.19	0.13	0.28	0.22	0.13	0.28	0.25	0.19	0.05	$ 9.46	41%
Average	0.28	0.20	0.17	0.36	0.29	0.28	0.36	0.29	0.28	0.07	$12.78	37%

Note: For basket methodology, see http://www.olis.oecd.org/olis/2002doc.nsf/0/02842f20bb153c97c1256beb00404cf5/$FILE/JT00129163.PDF
Source: TMG, Inc.

2.1.5 Internet access

Kenya and Uganda were the first Initial Study Countries to connect to the Internet in 1995 with Tanzania following a year later.

According to an Internet market study commissioned by the Communications Commission of Kenya (CCK), in October 2006, some 50 ISPs have been licensed of which 39 are in operation.[13] The Kenyan Internet market is tiered: ISPs requiring leased lines and international connectivity must either apply for separate licenses (*e.g.*, international backbone and gateway operator (IBGO) or lease capacity from a licensed operator higher up in the hierarchy. Though specific companies are not identified, the Internet market study suggests that retail market competition is limited despite the relatively large number of ISPs. For example, only one ISP operates in 15 districts (out of 47 with Internet access), with others operating in eight or less districts. On the other hand, the report suggests significant competition exists in the provision of international bandwidth among the IBGOs and two Very Small Aperture Terminal (VSAT) operators.

Kenya, like Tanzania and Uganda, has an Internet Exchange Point (IXP), allowing members to exchange domestic traffic and avoid expensive international transit fees. The Kenya Internet

[12] GSM Association, GlobalMobile Tax Review (2007).
[13] Communications Commission of Kenya (CCK), Internet Market Study (Oct. 2006), available at http://www.cck.go.ke/internet_market_study/.

Exchange Point (KIXP) is run by the Telecommunication Service Providers Association of Kenya (TESPOK), a non-profit organization representing ISPs and other telecommunications service providers. KIXP had 23 members in September 2007.

Tanzania achieved full Internet connectivity in August 1996 and the country's first ISPs were licensed soon after.[14] Prior to the new licensing framework, a Public Data Operator (PDO) license was needed to provide data infrastructure including international connectivity. Therefore, ISPs had to lease infrastructure from a PDO. According to TCRA's license registry, twelve ISPs and six PDOs had been licensed under the old regime. With the new licensing framework, it is difficult to determine precisely how many companies are involved in Internet provision. Under the new regime, there are three types of licenses: facilities, services, and applications. Essentially, a company providing international or national Internet bandwidth needs a facilities and/or services license whereas an ISP would need an applications license. As of September 2007, there were 36 applications services licenses; some of these previously had been licensed as ISPs.

To reduce inefficient international routing of traffic among local ISPs, the Tanzania Internet Exchange (TIX) was established in late 2003 allowing local ISPs to exchange traffic among themselves.[15] As of October 2007, there were 14 companies connected to TIX.

Uganda's Internet market has been liberalized from the start, with Internet service providers (ISPs) allowed to procure their own international connectivity provided they had the requisite license. By February 2000, six of the eight ISPs operating in the country had their own international connectivity.[16] Although a freeze on new international data licenses was later imposed during the duopoly exclusivity, this has since ended.

There were 17 licensed ISPs in Uganda as of December 2006,[17] seven of which were members of the Uganda IXP.[18] Although the two licensed fixed line operators, UTL and MTN, both offer Internet access, the largest ISP is Infocom, owned by mobile operator Celtel, with an estimated 80 percent market share.[19] Another noteworthy ISP is Africa Online, which operates in a number of African countries, including Kenya and Tanzania.

Uganda had some 11,800 Internet subscribers in June 2006 accessing the Internet via fixed line and wireless local loop dial-up, pre-WiMAX wireless technologies, leased lines, and VSAT.

A serious constraint for the Case Study Countries is the lack of affordable international Internet bandwidth. They do not have international Internet connectivity via fiber optic cable, which provides the best quality and the most economic solution. This affects the development of national Internet markets, as well as the potential for providing ICT-enabled services. For more information on international connectivity initiatives for the region, see the next section.

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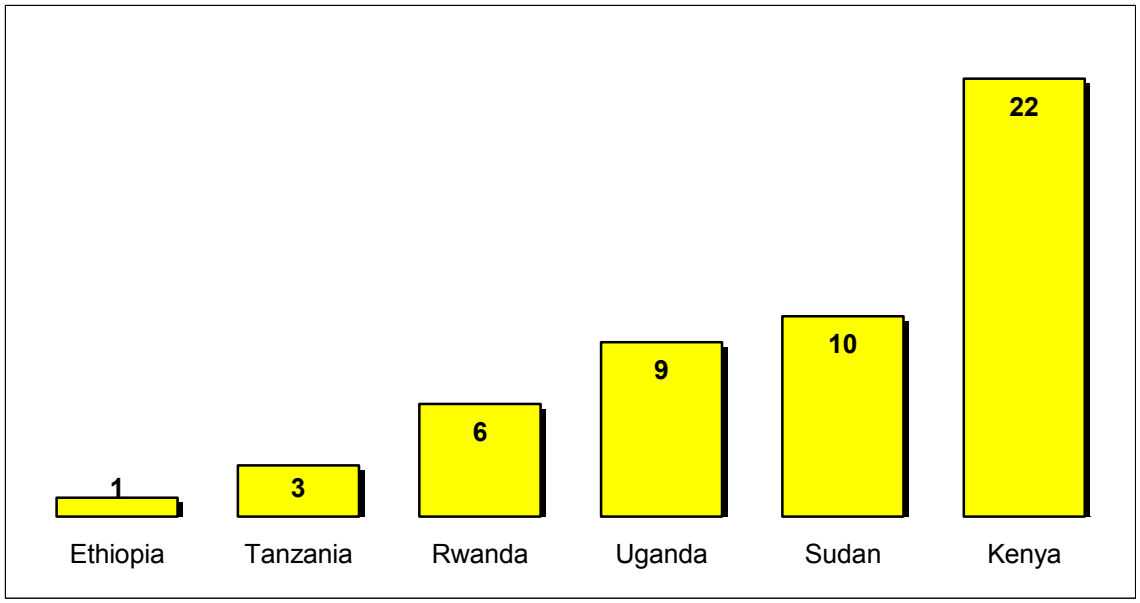
[14] "Full" here is used to mean a permanent, ongoing connection, as opposed to a store and forward type connection.
[15] Tanzania Internet Exchange Peers, available at http://tix.or.tz/peers.html (Accessed Aug. 13, 2007).
[16] Minges, M., Kelly, T., et al. The Internet in an African LDC: Uganda Case Study, International Telecommunication Union (ITU) (2001).
[17] Uganda Communications Commission (UCC), Communications Sector Comparative Figures, available at http://www.ucc.co.ug/marketInfo/marketstatistics.php.
[18] UIXP Participants and Key Contacts, UIXP, available at http://www.uixp.co.ug/contacts.htm.
[19] According to discussions with Celtel, Infocom has been sold to the Sameer Group of Kenya. The market share figure is from BMI.

Liberalization of Kenya's international Internet gateway market led to a six-fold increase of bandwidth between 2004-2006. Kenya heads the Initial Study Countries in both the quantity of international Internet bandwidth available and bits per person (see Figure 2-11). In Tanzania, TTCL reports having only 104 Mbps of international Internet connectivity or just three bits per person, some seven times less than in Kenya. Uganda had nine bits per person of international Internet bandwidth in 2006, just below Sudan but less than half of the figure for Kenya.

Figure 2-11: International Internet bandwidth (bits per person), 2006



Source: TMG, Inc.

Another market limitation is the underdeveloped state of broadband. The limited number of main lines, shortage of international connectivity, and inadequate inter-modal competition severely constrains broadband development.

Telkom Kenya launched ADSL in 2005 and the fastest speed currently available is 2 Mbps. There were some 350 subscribers in 2005. Other options for broadband connectivity include leased lines, VSAT and various wireless technologies, some of which are based on the IEE 802.16 (commonly referred to as WiMAX standard). Unlike neighbors Rwanda and Tanzania, third generation (3G) mobile has yet to be commercially launched in Kenya although Telkom Kenya has been trialing a CDMA 2000 1x EV-DO network.

Broadband access is limited in Tanzania. ADSL was launched in 2006. Other options for broadband connectivity include leased lines, VSAT, and various wireless technologies. Vodacom of Tanzania launched Africa's second High-Speed Downlink Packet Access (HSDPA) network in 2007. It allows laptops and desktop computers with data cards to access the Internet.

The Vodacom network offers speeds of 1.8 Mbps.[20] There were some 5,569 wireless data and broadband clients in Tanzania in December 2006.[21]

In Uganda, service providers have only recently launched broadband services through Asymmetric Digital Subscriber Lines (ADSL) and speeds are limited. There were some 1,500 subscribers at June 2007. Broadband via cable modem is not available due to the absence of cabled television networks. High-speed access via leased lines is available but extremely expensive. Wireless offerings are increasingly popular. MTN has launched a WiMAX network offering speeds of up to 1 Mbps.[22] To date, none of the mobile operators has launched a third generation network that could provide high-speed data access although trials have been carried out.

Table 2-2: Internet markets, 2006

	Ethiopia	Kenya	Rwanda	Sudan	Tanzania	Uganda
Year connected to Internet	1996	1995	1996	1997	1996	1995
Number of operational ISPs as of	1	16	4	10	17	12
Licensing and fees	Only cybercafes allowed	10,000 Ksh application fee (US$ 138) 100,000 Ksh annual operating fee (US$ 1,377) Cybercafes: 10,000 Ksh application fee, no annual operating fee	NA	3% of total capital expenses	"National applications service" application fee: US$ 50 Initial license fee: US$ 1,000 Annual fee: US$ 2,000	None (authorization). No fees if not facilities-based.
Provision of international connectivity by ISPs	NA (monopoly)	With appropriate licenses (*e.g.*, IGBO, VSAT, PDNO)	With license	With license	With international space segment applications services license Application fee: US$ 1,000 initial license fee: US$ 100,000, annual fee: 0.8% of gross annual	With facilities based public service provider (PSP) license Application fee: US$ 2,500; annual license fee is US$ 10,000 and annual levy is 1% of gross annual revenue)

[20] Otter, A., "Vodacom's HSDPA Plans for Tanzania," Tectonic (Mar. 2007), available at http://www.tectonic.co.za/view.php?id=1395.
[21] The Economic Survey 2006, The Developments in Different Sectors of the Economy – Transport and Communications, Tanzania Government (2006), available at http://www.tanzania.go.tz/economicsurvey1/2006/part4/transport.htm.
[22] MTN, MTN Broadband (2007), available at http://www.mtn.co.ug/mtninternet/broadbandfaq.htm.

	Ethiopia	Kenya	Rwanda	Sudan	Tanzania	Uganda
					revenue)	
Date of liberalization of international data gateway	Not applicable	2004	2006	2005	2005	Original holders of international gateways since granting of license; new operators since 2006
Internet exchange	No (only 1 ISP)	KIXP http://www.kixp.net/ 19 members	-	No	TIX http://tix.or.tz/ 12 members	UiXP http://www.uixp.co.ug/ 7 members
VoIP status	Illegal	Legal	Legal	Legal	Legal	Legal
Domain name	.et	.ke	.rw	.sd	.tz	.ug
Responsibility for domain name management	ETC	KENIC	National University of Rwanda / NIC-CONGO-INTERPOINT	Sudan Internet Society	TCRA / University of Dar es Salaam	Uganda Online

Source: TMG, Inc. adapted from various sources.

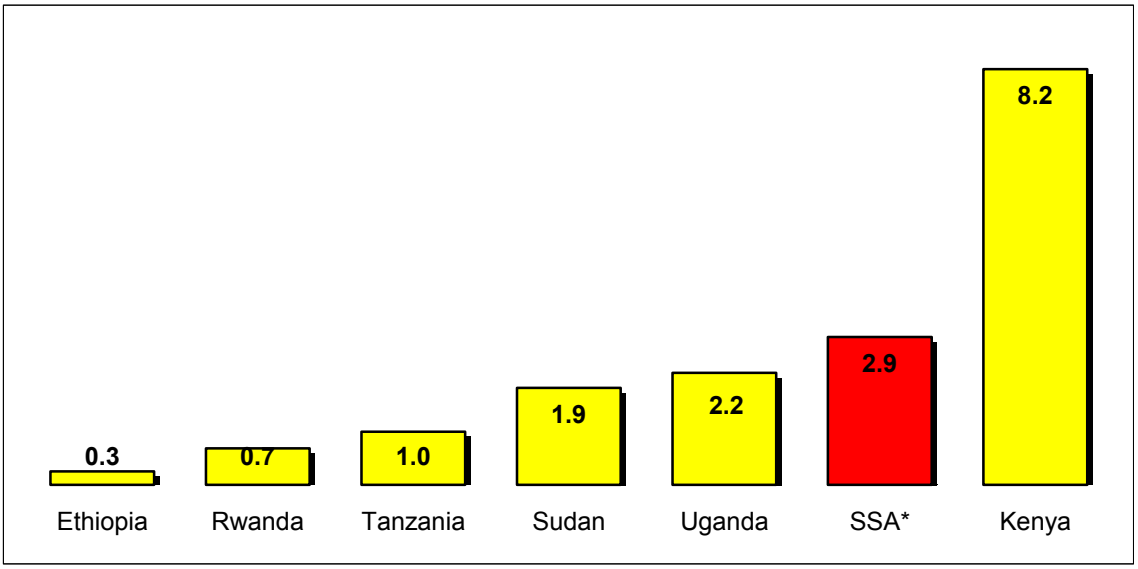
According to the Internet Study mentioned earlier, there were some 2.8 million Internet users in Kenya in 2006, representing 8.2 percent of the population. This is by far the highest penetration among the Initial Study Countries (see Figure 2-12). Kenya is also the only Study Country that exceeds the SSA average in terms of Internet users per 100 people.

There are no official statistics collected on the number of Internet subscribers or users in Tanzania. According to an April 2006 news report, Africa Online estimated that there were 330,000 Internet users in the country.[23] Therefore, a rough estimate would be some 400,000 Internet users at year end 2006 or just one percent of the population. Tanzania's estimated penetration is just above Rwanda and Ethiopia and only one third the SSA level.

There have been no official surveys on *individual* Internet use in Uganda. In a *household* survey carried out between May 2002 and April 2003, the Uganda Bureau of Statistics reported that 0.8 percent of households had email. Uganda Communications Commission's (UCC) estimate is that Internet penetration was 2.2 percent of the population in 2006. This is second best among the Initial Study Countries but below the 2005 SSA average.

[23] InfiNet, Africa Online Unveils Kenya's First Mobile Wireless Broadband Service (Apr. 25, 2006), available at http://www.infinet.co.ke/infinet/media.html.

Figure 2-12: Internet users (per 100 people), 2006



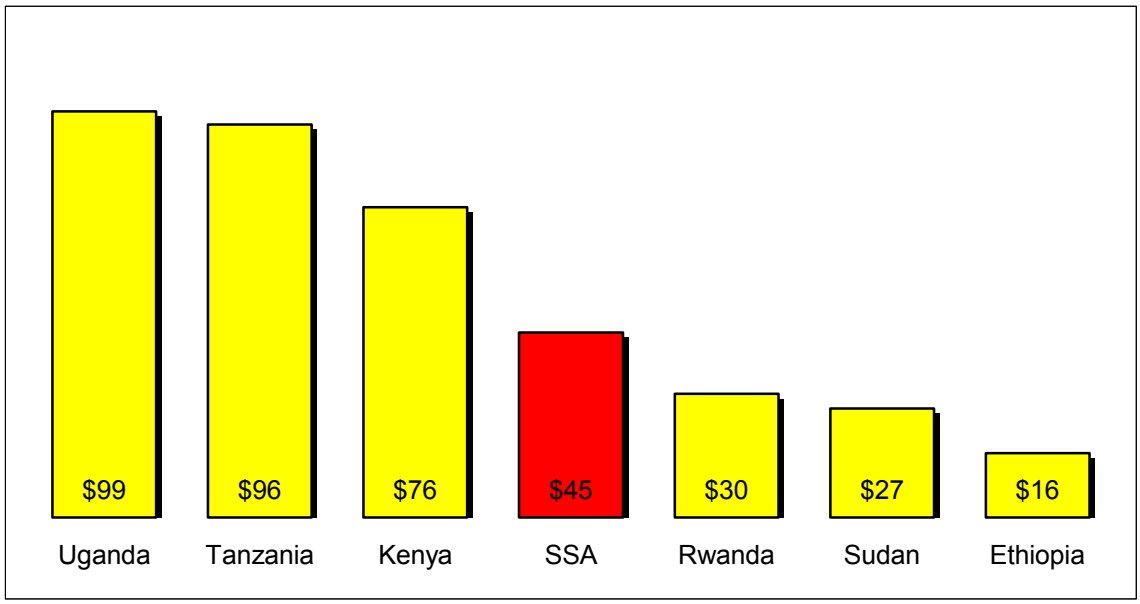
*Note: * = 2005.*
Source: TMG, Inc.

Internet access prices are high in the Case Study Countries. Despite relatively competitive ISP markets, Internet access prices are expensive because of the high price of international bandwidth. Given that the Case Study Countries currently do not have access to an undersea cable, they must rely on more expensive satellite communications for international connectivity. Also, dial-up is expensive because users often have to pay telephone usage charges in addition to the Internet access charge.

The price of dial-up services consists of the monthly ISP charge and telephone usage charges. In most instances, ISPs provide flat-rate prices (*i.e.*, unlimited access) for dial-up access. This is because users will be constrained in the amount of time they spend on dial-up access given that they must also pay telephone usage charges on a per minute basis.

Although Telkom Kenya offers a reduced usage charge for dial-up Internet access, prices are still relatively high. The monthly cost for 10 hours peak and 10 hours off-peak dial-up access in Kenya is about US$ 80. This is less than Rwanda, Tanzania and Uganda but more than in Ethiopia or Sudan. A monthly basket of 10 hours peak and 10 hours night use of dial-up Internet access costs over US$ 100 in Tanzania. In Uganda, MTN offers a flat rate for use with MTN fixed lines. However, even the MTN package is relatively expensive at Ush 90,000 (US$ 50) compared to the average Ugandan per capita annual income of just over US$ 300 in 2006. Uganda's dial-up Internet access prices based on the incumbent's rates are the highest among the Initial Study Countries (based on the incumbent's pricing for a twenty hour basket of peak and off-peak usage) and more than twice the SSA average.

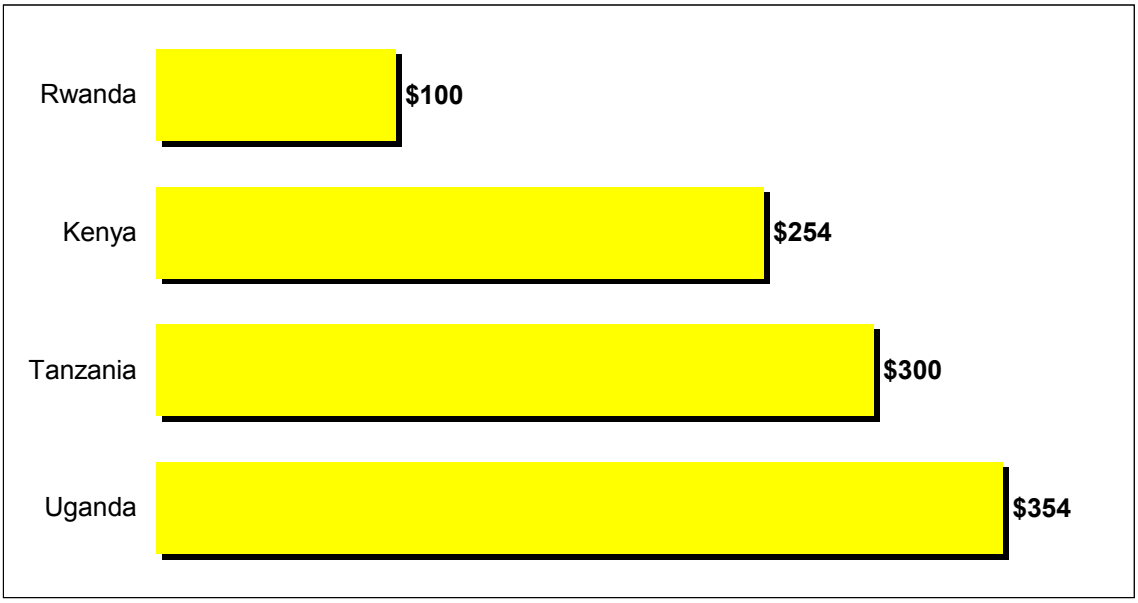
Figure 2-13: Price basket for Internet (US$ per month), 2005



Note: Basket comprises 10 hours of peak and 10 hours of off-peak usage per month and includes applicable telephone usage charges.
Source: TMG, Inc.

Given the high cost of dial-up, broadband connectivity could be an attractive option. However, broadband is also expensive. The monthly subscription fee for an ADSL, 256 kbps download package is US$ 238 in Kenya although this figure is still less than some of the other Initial Study Countries (see Figure 2-14). Wireless broadband is also steep; Africa Online's 256 kbps package costs US$ 319. In Tanzania, a 256 kbps ADSL package costs US$ 300 per month, among the highest charges in the Initial Study Countries, as well one of the highest rates in the world. A wireless option such as Africa Online's 256 kbps package is cheaper at US$ 185. There are also volume-based packages available for ADSL and Vodacom's 3G network. UTL's entry level ADSL packaged is priced at US$ 90 per month for 64 kbps, a practical alternative for users spending more than 20 hours a month on the Internet. However, 64 kbps is only slightly faster than dial-up access. UTL offers two other broadband ADSL plans at US$ 170 for 128 kbps and US$ 300 for 256 kbps. As shown in the figure below, the 256 kbps package (which is generally the minimum speed to be considered "true" broadband) is the most expensive in East Africa. Given the high cost of ADSL, several Ugandan ISPs provide high-speed wireless Internet access. For example, One2Net offers a 512 kbps wireless access for US$ 150 per month. The cost of the equipment and installation charges is significant at US$ 600 and US$ 150-200. MTN recently launched a WiMAX-based broadband service claiming speeds between 512 kbps – 1 Mbps. Pricing is volume based and costs US$ 62 for 200 MB, US$ 119 for 500 MB and US$ 214 for 1GB. However, volume based pricing is not ideal as it could quickly become expensive for intensive users.

Figure 2-14: ADSL prices in East Africa in US$, 256 kbps, October 2006, including VAT



Source: TMG, Inc. adapted from operator tariff data.

2.1.6 International backbone connectivity

The lack of affordable international backbone bandwidth is a major obstacle to the development of the Initial Study Countries' ICT sectors. This has been identified as a top ICT policy issue particularly in the Case Study Countries which rely solely on expensive satellite connectivity for international bandwidth. The cost differential between undersea fiber optic cable and satellite is significant. According to one report, a leased circuit between Africa and Europe costs US$ 130,000 per month using satellite compared to US$ 25,000 for submarine cable.[24] High-priced access to the Internet constrains development of an information society, limiting countries from participating in the global information economy. Market growth is restricted because many citizens cannot afford access. Lack of reliable, high-speed bandwidth to the Internet also diminishes opportunities for the development of ICT-enabled services since businesses engaged in that sector need real-time, inexpensive bandwidth. Communications costs are a major portion of these firms' costs and for some applications the delays associated with satellite transmission are unacceptable.

Four initiatives aim to bring affordable international backbone connectivity to East Africa through undersea fiber optic networks. This should ease the connectivity limitations that are faced by the countries in the region. One that has garnered significant support from operators, governments, and multilateral agencies is the *Eastern Africa Submarine Cable System* ("EASSy"). Operators from all Case Study Countries have signed the EASSy Memorandum of Understanding (MoU). Planned landing points include Dar es Salaam in Tanzania, Mombasa in Kenya, and Port Sudan in Sudan. Uganda would be linked to EASSy via terrestrial backhaul

[24] Okuttah, M., "Fibre Optic Cables to Cut EA Internet Costs," *Business Daily Africa* (2007), available at http://bdafrica.com/index.php?option=com_content&task=view&id=801&Itemid=3388.

connections. Despite various delays, primarily regarding the nature of public and private participation and operation of the fiber optic cable network, a supply contract was signed between the EASSy consortium and Alcatel-Lucent in March 2007.[25] The EASSy cable is scheduled for completion at the end of 2008. It will provide onward connections to existing fiber optic cable networks to provide global connectivity. The cost of the project has been estimated at US$ 235 million.[26]

The East African Marine System (TEAMS) is an initiative of the governments of Kenya and the United Arab Emirates to construct an undersea fiber optic cable linking Mombassa, Kenya and Fujairah in the United Arab Emirates (UAE). A MoU has been signed by the two governments and by the incumbent telecommunications operators in each country, namely Telkom Kenya and Etisalat. The estimated cost of the network is US$ 100 million and it is expected take 12 months to complete. In July 2007, the Kenyan government organized a meeting to brief other operators in East Africa about participating in the project.[27]

The *SEA Cable System* (SEACOM) plans to interconnect Kenya, Madagascar, Mozambique, South Africa, and Tanzania to undersea fiber optic with onward connections to India and Europe. A marine survey contract was awarded to Tyco Telecommunications in April 2007 and SEACOM is scheduled for operation in 2009.[28]

Reliance Communications of India announced the *FLAG Next Generation Network (NGN) System* in December 2006.[29] This global submarine cable aims to connect four regions of the world including Africa. The FLAG NGN System 2 is the Africa portion connecting Kenya, Madagascar, Mauritius, Mozambique, South Africa, and Tanzania. Reliance plans to invest US$ 1.5 billion in FLAG NGN with a scheduled completion date in 2009. Both Kenya and Sudan have also expressed interest in connection to the Reliance FALCON cable.[30]

In addition to the regional submarine cable projects, the Case Study Countries have their own national fiber optic backbone networks and initiatives. This is particularly important for land-locked African countries, like Uganda, which will need to ensure terrestrial connectivity to the planned submarine cables to access affordable and high-capacity international bandwidth.

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[25] Alcatel-Lucent Press Release, EASSy Awards Alcatel-Lucent Contract to Deploy 10,000 Km Submarine Network for Africa (Mar. 9, 2007), available at http://www.alcatel-lucent.com/wps/portal/!ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAu32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000164 [Accessed August 13, 2007].

[26] International Finance Corporation (IFC), EASSy Cable: Summary of Proposed Investment (2007), available at http://www.ifc.org/ifcext/spiwebsite1.nsf/2bc34f011b50ff6e85256a550073ff1c/cf6c1ba69ac0b1f1852572830075cc48?opendocument [Accessed August 13, 2007].

[27] See the "Private Public Partnership Opportunity: TEAMS Project," invitation available on the Communications Commission of Kenya web site at http://www.cck.go.ke/html/news.asp?newsid=221&area=new [Accessed August 13, 2007].

[28] Tyco Telecommunications Press Release, Tyco Telecommunications Awarded Contract to Complete 13,000 Km Sea Cable System (SEACOM) Marine Survey (Ap. 13, 2007), available at http://www.tycotelecom.com/AboutUs/content.asp?page=view&type=Press&id=296.

[29] Reliance Communications Press Release, Reliance Communications' FLAG Telecom Announces FLAG NGN (Dec. 28, 2006), available at http://www.rcom.co.in/webapp/Communications/jsp/media/press_release_detail.jsp?id=209.

[30] Global Insight, FLAG Telecom to Build Submarine Cable from Kenya to South Africa (2007), available at http://www.globalinsight.com/SDA/SDADetail8058.htm.

As part of the East Africa Backhaul Transmission Link, Telkom Kenya and Kenya Power and Lighting are building a fiber connection running across the country from Mombassa to Malaba on the Ugandan border.[31] Kenya Data Networks has also been developing fiber optic links. In addition, the government is financing the development of a national fiber optic backbone project to extend connectivity deeper into the country. A request for expression of interest from companies to build the network was issued in October 2006.[32]

The Tanzanian Ministry of Infrastructure Development is spearheading a project for a national ICT fiber-based backbone network that also aims to leverage on eventual Tanzanian international fiber connections to provide regional backhaul connectivity for neighboring countries.[33]

Uganda, which already has some 900 kilometers of national fiber optic transmission cable installed, plans to hook up to undersea fiber optic cable systems via terrestrial connections through Kenya. Note that Kenya has been proposed as a landing point for all of the proposed submarine fiber optic networks identified earlier. A fiber link from Mombassa, where an undersea cable will land in Kenya, through to Nairobi and onward to the Kenya-Uganda border town of Malaba is nearing completion.[34] Both MTN and the Uganda Electricity Transmission Company have fiber connections from Kampala to locations close to Malaba.

In addition, a MoU was signed between the government of Uganda and China for a US$ 120 million e-government project that includes a nationwide fiber optic backbone network.[35] That network is expected to distribute international connectivity to major towns and centers and will run parallel to fiber networks constructed by private providers.

The various fiber optic connectivity initiatives are a positive development considering the dearth of Internet bandwidth in East Africa. If they are implemented, then the region can go from one of the most bandwidth starved in the world to having an abundant supply. Some argue that the region cannot afford all of these projects and would be better off focusing resources on one project. Others argue the competition generated by different submarine cable systems in the region will help to keep costs down and minimize the exclusivity arrangements for fiber access that have plagued other regions. A key factor will be finding the right business model that balances government and private sector interests. Ideally, this should provide for equal access at reasonable prices to businesses, while ensuring sufficient revenue streams to build and sustain the undersea fiber optic networks.

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[31] Ministry of Information and Communications, Kenya ICT Strategy: Collaboration and Outsourcing for Economic Growth (2006), available at http://www.information.go.ke/docs/Kenya%20ICT%20Strategy.pdf [Accessed Sept. 13, 2007].

[32] Communications Commission of Kenya (CCK), Provision of a National Optic Fibre Backbone Infrastructure, available at http://www.cck.go.ke/html/tenders.asp?tenderid=86 and http://www.kdn.co.ke/default2.php?active_page_id=379&id=106 [Accessed Sept. 13, 2007].

[33] Ministry of Infrastructure Development, Request for Proposals for Feasibility Study for the Tanzania National ICT Backbone Network (2007).

[34] Wakabi, W., EASSy Breaks Fresh Ground, Fibre for Africa (June 2007), available at http://fibreforafrica.net/main.shtml?x=5078490.

[35] Asia Pacific Telecom Newsletter, Uganda to Receive a Grant of $120 Million from Huawei (Dec. 2006), available at http://www.igigroup.com/ftp/nlpdf/asia.pdf [Accessed Aug. 13, 2007].

Box 1: International Internet connectivity in peer countries

The lack of international Internet connectivity via undersea fiber optic cable is a serious impediment to the development of a competitive ICT-enabled services sector in the Initial Study Countries. The dramatic benefits that can be quickly obtained by resolving international connectivity problems are perhaps best demonstrated by Mauritius, which had depended solely on satellite connectivity until 2002 when it connected to the South Africa Far East Cable System (SAFE) undersea fiber optic network.[36] As a result, international Internet bandwidth increased from just 10 bits per person in 2001 to 123 by 2005.[37]

Nations that are making significant progress in providing ICT and Business Processing Outsourcing (BPO) services, all have bandwidth capacity significantly higher than the Initial Study Countries. South Africa has landing stations for three undersea cables, SAT-2, SAT-3, and SAFE.[38] International Internet bandwidth is estimated at over 2,000 Mbps or some 46 bits per inhabitant. Similarly, Ghana, which connected to the SAT-3 cable in 2002, has bandwidth estimated at over 200 Mbps in 2005.

India is home to numerous fiber optic cable systems with some 14,000 Mbps of bandwidth in 2006. Given the country's large population, the bits per person is 13, but the country's total bandwidth is one of the largest of any developing country.

Being an island nation, the Philippines is an ideal location for undersea fiber cables. The largest backbone provider is Philippine Long Distance Telephony (PLDT) which has connectivity on 16 undersea cables[39] and 2,000 Mbps of international connectivity[40] or some 23 bits per inhabitant.

2.1.7 Computer market

2.1.7.1 Services

Computer services encompass activities such as software development, customization, and support; packaged software distribution, website development and hosting; data entry and call centers. Unlike the telecommunications and Internet market segments, computer services are for the most part unregulated in the Initial Study Countries. As a result, scarce official information exists regarding the computer services market. Furthermore, available data are sometimes contradictory, unofficial or not precisely defined, inhibiting benchmarking with other countries.

Kenya's computer services market is the most evolved in East Africa. For example, apart from Uganda, Kenya was the only other Initial Study Country to have secure Internet servers in June 2005 with nine servers.[41] Kenya also has the largest number of Internet hosts and users in the region. Over 80 companies are members of the Computer Society of Kenya.

Kenya's relatively more advanced ICT sector compared to the other Initial Study Countries has made it an attractive location with multinationals such as Cisco, Google, HP, IBM, Oracle, and SAP making it their regional headquarters. Some of these companies have established training

[36] Wikipedia.org, SAFE (Cable System), http://en.wikipedia.org/wiki/SAFE_(cable_system) [Accessed Sept. 13, 2007].
[37] Gov.mu, ICT Indicators, http://www.gov.mu/portal/goc/cso/scanict/ict.pdf [Accessed Aug. 3, 2007].
[38] Telkom, Form 20-F (2007).
[39] PLDT, Form 20-F (2007).
[40] PLDT.com, The Philippines Gateway to the Internet, http://www.pldt.com.ph/prod-serv/business/i-gate.htm [Accessed Sept. 13, 2007].
[41] Survey.Netcraft.com, SSL Server Survey 2005, http://survey.netcraft.com/surveys/analysis/https/2005/Jun/CMatch/ [Accessed Sept. 13, 2007].

centers, helping to anchor industry development and make it sustainable.[42] But it has been difficult to keep skilled Kenyan ICT staff in the country. It is estimated that over 1,000 Kenyan ICT professionals are working in other African countries, remitting more than US$ 10 million annually.[43]

Several firms are providing ICT outsourcing services in Kenya. Call centers are seen as an attractive market niche, given the neutral Kenyan English accent and Kenya's location in roughly the same time zone as Europe. According to one estimate, the size of the Kenyan call center market is US$ 5 million with some 3,000 employees.[44] Partner Research Corporation, a Canadian company, has joined with a Kenyan ISP, Skyweb Technologies, to shift its call center from Canada to Nairobi.[45] It employs around 25 staff. Another example is KenCall, which provides services such as help desk support and was one of Kenya's first international call centers. KenCall launched operations in 2003. Located in the Sameer Export Processing Zone in Nairobi, KenCall now has nearly 300 employees and annual revenues of US$ 3.5 million.[46] Another company carrying out ICT outsourcing is PrecissPatrol, a Kenyan firm specializing in targeted Internet research.[47]

Among the Initial Study Countries for which data is available, Tanzania's had the second largest IT services market measured by revenue. One company in this market is AfriConnect Tanzania, primarily a provider of networking solutions with branches in Ghana and Zambia.[48] Another is Soft-Tech, an ICT consulting firm established in 1993 that offers services ranging from custom software development to IT training.[49] Soft-Tech has partnerships with multinationals such as Oracle and Unisys and its clients include the government of Tanzania and donor organizations.[50]

A budding computer and information services industry in Uganda surpassed sales of some US$ 30 million in 2005. According to one source, there were around 150 registered firms in the sector in 2002. [51] The development of export markets for ICT-enabled services is slowly progressing. A survey of almost 50 Ugandan ICT firms found that 17 were providing ICT

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[42] For example: Cisco has 20 Network Academies in Kenya. *See*, Cisco Press Release, People of Kibera to Get IT Training and Access to the Internet (June 20, 2007), http://newsroom.cisco.com/dlls/2007/prod_062007b.html [Accessed Sept. 13, 2007].
[43] Benefits of Liberalized CRS to Kenya.
[44] Nyambura-Mwaura, H., "Kenya Wants to Grab Piece of Outsourcing Pie," *Reuters* (Aug. 1, 2007), available at http://www.reuters.com/article/inDepthNews/idUSL2992583720070801?feedType=RSS&rpc=22&sp=true [Accessed August 13, 2007].
[45] Odera, G., "Untapped ICT Opportunities in Africa," *CCAfrica.ca* (April 2005), available at http://www.ccafrica.ca/events/ccaf/finance/Skyweb.PDF [Accessed Sept. 13, 2007].
[46] Friedman, Thomas L., "The African Connection," *The New York Times*, at 15 (Apr. 2007), available at http://freedemocracy.blogspot.com/2007/04/thomas-l-friedman-african-connection.html.
[47] United Nations Conference on Trade and Development (UNCTAD), E-Commerce and Development Report at 143 (2003), available at http://www.unctad.org/en/docs/ecdr2003_en.pdf. *See also*, http://www.baconsrebellion.com/Issues/09-09-02/World.htm.
[48] AfriConnect is on the web at http://www.africonnect.com/tanzania.htm.
[49] Soft-Tech is on the web at http://www.stcl.com.
[50] OTF Group, Improving Competitiveness and Increasing Economic Growth in Tanzania: The Role of Information and Communication Technologies, Washington, D.C. (2005), available at http://www.infodev.org/en/Publication.81.html.
[51] Uganda Diagnostic Trade Integration Study, Vol. 1 at 139 (June 2006), available at http://www.integratedframework.org/files/Uganda_DTIS_vol1.pdf .

export-oriented services such as call centers, software development, training, website design, data processing, and consultancy. One such firm is Cayman Consults, a Ugandan company that does bookkeeping and data processing for its clients, mainly North American accounting firms.[52]

2.1.7.2 Hardware

Some 75,000 computers were sold in Kenya in 2005 (see table below) making it the largest market in East Africa. The country is estimated to have the second highest computer penetration among the Initial Study Countries at one computer per 100 inhabitants.

There is no local manufacturing of computers, but according to a 2004 report, 30 percent of computers sold in Kenya are locally assembled.[53] A recent government-led project unites computer companies and Kenyan universities to assemble low-cost PCs.[54] The Kenyan computer market has been growing with the abolition of import duties on computers and later on parts.

In 2005, some 35,000 computers were sold in Tanzania. There are no import duties on computer or computer parts. There is no local manufacturing of computers, but some computers are assembled on an on-demand basis.[55]

Some 28,000 computers were sold in Uganda in 2005. By the end of 2005, penetration of computers in Uganda was estimated at 0.61 per 100 inhabitants, just below the average of 0.65 in the Initial Study Countries (see Table 2-3). There is no local manufacturing of computers; however, computer assembly has grown in Uganda due to the elimination of tariffs on parts and reportedly some are even exported to other Case Study Countries.[56]

Local manufacture and assembly of computers typically results in less expensive equipment compared to brand names. The lower prices of locally assembled computers can help to raise computer penetration in the country. However, many government agencies and firms are reluctant to purchase unbranded computers.

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[52] Abubaker, L., "Business Process Outsourcing – A New Name for an Old Business?," Executive Forum on National Export Strategies, Montreux, Switzerland (Oct. 2005).
[53] Krist, W., et al., "Implications for Kenya of Accession to the World Trade Organization's Information Technology Agreement," USAID East and Central Africa Global Trade Competitiveness Hub (Oct. 7, 2004), available at http://www.ecatradehub.com/reports/rp.2004.wto.ita.kenya01.asp [Accessed Sept. 13, 2007].
[54] Malakata, M., "Kenya Project Set to Produce Cheap PCs," *Infoworld* (Jan. 2007), available at http://www.infoworld.com/article/07/01/30/HNkenyacheappcs_1.html.
[55] Mwakalinga, H., et al., "Implications for Tanzania of Accession to the World Trade Organization's Information Technology Agreement," USAID East and Central Africa Global Trade Competitiveness Hub (Apr. 2006).
[56] Baguma, R., et al. Trade Implications for Uganda of Accession to the World Trade Organization's Information Technology Agreement, USAID East and Central Africa Global Trade Competitiveness Hub (Nov. 2004).

Table 2-3: Computer market, 2005

	Number of computers in use			Number of computers sold	Import value (US$ million)
	Total		Per 100 inhabitants		
Ethiopia	127,623		0.17	19,890	$31 *
Kenya	330,965		0.99	74,614	$48 **
Rwanda	25,000	†	0.28	NA	$6 *
Sudan	600,000	†	1.70	NA	$35
Tanzania	154,284		0.41	35,352	$37
Uganda	164,834		0.61	28,322	$35
Total	**1,402,706**		**0.65**	**NA**	**$193**

Note : NA = Not Available. † Estimated from imports over last five years.
** Data refer to 2003. ** Data refer to 2004. Data on "Import value" refer to "AUTOMATC. DATA ROC.EQUIP"(SITC Rev. 3, Code 752) defined as "Automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s."*
Source: BMI-T, 2006, UN Comtrade database.

2.1.8 ICT sector

Looking at the ICT sector as a whole provides insights into its impact on the economy. The share of the ICT sector in GDP provides a useful measure of its relative size. As a dynamic and cross-cutting sector, ICT also has important employment effects. This includes the generation of jobs within the ICT sector itself as well as downstream supporting job creation. Trade statistics offer a proxy for capital investment since most ICT equipment is imported.

Official statistics on the size of the ICT sector are not available for the Initial Study Countries. Instead, several proxy indicators have been selected to approximate the size of the ICT sector.

Value added in the communications sector in Kenya has risen from 1.4 percent of GDP in 2000 to 2.5 percent in 2005. There was a sharp rise in communications value added following the introduction of mobile competition. Revenue from telecommunications totaled around US$ 870 million in 2005, equivalent to 4.8 percent of Kenyan GDP. This is the highest sector revenue as a percent of GDP among the Initial Study Countries. Employment in the ICT sector has been estimated at over 30,000[57] of which two thirds are employed by Telkom Kenya and the two mobile operators. The downstream impact of the ICT sector on employment is significant with an estimated 90,000 jobs generated by the mobile sector.[58]

Official statistics on the size of the ICT sector in Tanzania are lacking. Data on value added in the communications sector is also not available separately in national publications. Instead, transport and communications are combined in national accounts data. According to those statistics, growth in the transport and communications sector has been flat relative to the entire economy. Revenue from telecommunications totaled around US$ 500 million in 2005, equivalent to 4.1 percent of Tanzania's GDP.

[57] ICT Sector Working Group Report, Information Communication Technology Sector (2007).
[58] GSM Association, Taxation and the Growth of Mobile in East Africa (2007).

The growth in the contribution of communications in Uganda has been exceptional. The communications sector contributed 4.2 percent of GDP in 2005, up from just one percent in 2000. Uganda's telecommunications revenues were US$ 294 million in 2005, amounting to 3.4 percent of GDP, a little less than the Study Country average. The employment impact of telecommunications is significant. Direct employment was a little over 6,000 people in 2006. This is estimated to have generated downstream employment for over 340,000 people, almost three times the amount in 2002.[59]

Data from a secondary source has been used to estimate the size of information technology markets that cover telecommunications and computer equipment sales, packaged and customized software sales, and computer services such as consulting, website development, and systems integration.[60] The overall ICT sector contributes between 4.2-5.9 percent in the Case Study Countries.

Table 2-4: Revenues attributed to Telecommunications and Information Technology, 2005

	Telecom revenues 2005			IT market revenues (US$ million) 2005					ICT revenues (Telecom & IT) 2005	
	US$ million	Change 04/05	% GDP	Software	Hardware	Services	Total	Change 04/05	US$ million	% GDP
Ethiopia	$185	33%	1.6%	$13	$31	$24	$ 68	14.8%	$ 253	2.3%
Kenya	$872	13%	4.8%	$33	$89	$65	$187	20.7%	$ 1,059	5.9%
Rwanda	$58	4%	2.7%	NA					NA	NA
Sudan	$1,188	64%	4.3%	NA					NA	NA
Tanzania	$501	40%	4.1%	$12	$43	$41	$ 96	11.9%	$ 597	4.9%
Uganda	$294	24%	3.4%	$9	$37	$23	$ 68	24.6%	$ 362	4.2%
Total	**$3,098**	**35%**	**3.9%**	NA	NA	NA	NA	NA	NA	NA

Note: NA = Not Available.
Source: TMG, Inc. and BMT-T, 2006.

The countries studied are by far net importers of telecommunications equipment. Nevertheless, in contrast to the other countries which reported negligible exports, Uganda had telecommunications equipment exports of US$ 6 million in 2004. Both Kenya and Uganda have witnessed significant growth in telecommunications equipment imports, whereas in Tanzania they have been stagnant.

Table 2-5: Telecommunications equipment trade, million US$

	Exports (US$ million)					Imports (US$ million)				
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
Ethiopia	0	0	0	NA	NA	45	47	80	NA	NA
Kenya	1	7	3	1	1	115	129	85	150	203
Rwanda	NA	0	1	NA	NA	19	7	11	NA	NA
Sudan	NA	1	NA	NA	NA	NA	NA	125	NA	NA
Tanzania	0	0	1	1	NA	86	49	61	60	NA

[59] Masambu, P.F., A Review of the Postal and Telecommunications Sector: June 2006-June 2007, Uganda Communications Commission (UCC) (Aug. 15, 2007), available at http://www.ucc.co.ug/reviewofCommunicationSector.pdf.
[60] BMI-TechKnowledge, Communications Technologies Handbook (2006), available at http://www.bmi-t.co.za/bmi/Content/eFlashes/HbkComms/HbkComms%202006.htm [Accessed July 24, 2007].

	Exports (US$ million)					Imports (US$ million)				
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
Uganda	2	2	1	6	NA	60	40	49	79	NA
Total	**NA**	**10**	**NA**	**NA**	**NA**	**NA**	**NA**	**411**	**NA**	**NA**

Note: Corresponds to SITC division 76). NA = Not Available.
Source: WTO statistics database.

ICT-enabled service exports for the countries have been estimated by the United Nations Conference for Trade and Development ("UNCTAD"). As shown below in Table 2-6, total overall exports for the Initial Study Countries were flat, at around US$ 300 million per year for 2000-2002. Uganda has been the exception, with such exports rising US$ 42 million in 2003; it has the second highest ICT-enabled services exports after Ethiopia. However, given the evolving methodology for measuring ICT-enabled services exports, it is not certain that existing data accurately measure trade flows. For example, the data contain "Other Business Services" exports which cover a range of activities such as accounting and insurance that are *assumed* to have a high-level of ICT input but which may not necessarily be the case. Exports of pure computer and information services fluctuate widely among the countries, a result of the novelty of this area and the small number of companies. Uganda registered US$ four million of computer and information services exports in 2003, largest among the Initial Study Countries.

Table 2-6: Exports of ICT-enabled services by country (million US$)

	2000	2001	2002	2003
Ethiopia	$104	$104	$128	$176
Kenya	$33	$54	$34	$38
Rwanda	$3	$4	$4	NA
Sudan	$3	$4	$6	$4
Tanzania	$142	$137	$110	NA
Uganda	$8	$14	$15	$57
Total	**$293**	**$317**	**$297**	**NA**

Note: NA = Not Available.
Source: UNCTAD, Information Economy Report 2006.

Table 2-7: Exports of computer and information services, (US$)

	2000	2001	2002	2003
Ethiopia	$404,999	$2,047,760	$620,917	$313,538
Kenya	$370,421	$334,151	$681,150	$1,712
Rwanda	NA	NA	NA	NA
Sudan	NA	NA	$460,000	NA
Tanzania	$500,001	$543,667	$707,037	$204,584
Uganda	NA	NA	$648,359	$4,244,640

Note: NA = Not Available.
Source: UNCTAD, Information Economy Report 2006.

2.2 Policy, legal, and regulatory framework

A country's legal and regulatory framework impacts its ICT-competitiveness. A comprehensive and transparent legal regime offers confidence to operators and users of ICT services.

Streamlined and forward thinking regulations with unrestricted market entry and reasonable licensing fees encourage investment in the sector.

The three Case Study Countries have adopted national policies to further liberalize their telecommunications markets and enhance their telecommunications frameworks. Generally, these policies address issues related to convergence, e-commerce, and e-government and how broaden ICT access and encourage ICT investment.

Kenya

Several policy documents have been guiding development of ICT sector policy in Kenya. In 1997, the Telecommunications and Postal Sector Policy Statement, issued by the Ministry of Information, Transport and Communications, formed the basis for the introduction of competition in several sub-sectors and for the enactment of the 1998 Act. The 2001 Telecommunications and Postal Sector Policy Guidelines, issued by the National Communications Secretariat, set out the strategy for further liberalization after 2004 when Telkom Kenya's exclusivity ended.[61]

The Government of Kenya determined that the 2001 ICT policy was inadequate to address issues of convergence, electronic commerce, and e-government. So, it adopted the 2006 National ICT Policy,[62] replacing the Telecommunications and Postal Sector Guidelines of December 2001. The 2006 National ICT Policy is based on internationally accepted standards and best practices, particularly the model adopted by the COMESA Council of Ministers in March 2003.

Tanzania

Tanzania has issued two key policy documents related to ICT: the National Telecommunications Policy of 1997 and the more recent National Information and Communications Technologies Policy of 2003, which is focused on addressing the aspect of convergence and how to best take advantage of the benefits of ICT.

National Telecommunications Policy of 1997 outlined long-term objectives from 1997-2020 to accelerate development of an information and communications network to provide access to telecommunications services for all aspects of the economy and all segments of the population.

The more recent National Information and Communications Technologies Policy of 2003 sought to improve harmonization of initiatives, and avoid duplication of efforts and random adoption of different systems and standards using a broad-based national strategy. The 2003 Policy deploys a broad-based national strategy to address Tanzania's developmental agenda, the Tanzania Development Vision 2025.

Uganda

Uganda issued the National Information and Communication Technology Policy in October 2003 Policy.[63] The policy focuses on three main areas:

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[61] Published in a special issue of the Kenya Gazette on December 3, 2001.
[62] Ministry of Information and Communications, Kenya ICT Strategy: Collaboration and Outsourcing for Economic Growth (2006).
[63] National Information and Communication Technology Policy, Uganda (2002), available at www.ilo.org/public/english/employment/skills/hrdr/init/uga_1.htm.

- Information as a resource for development;
- Mechanisms for accessing information; and
- ICT as an industry, including e-business, software development, and manufacturing.

Specifically relating to creation of an ICT enabling legal framework, the National Information and Communication Technology Policy for Uganda provides a series of strategies, including:

- Solicit and collect stakeholder views and inputs on establishment of an enabling framework;
- Review existing laws, taking into account other suitable or relevant laws elsewhere, and design a new legal framework that promotes and supports ICT policy objectives, while taking cognizance of major crosscutting issues like privacy, security, intellectual property rights and copyrights, without unduly restricting public access to information; and
- Translation into law of international treaties such as the World Intellectual Property Organization (WIPO) agreements, ITU resolutions, United Nations Commission on International Trade Law (UNCITRAL) on commerce, etc. to provide regulatory certainty to investors.

Following the adoption of the 2003 Policy for Uganda, the UCC issued a series of regulations for the telecommunications sector, designed to create the necessary framework for the sector. The lack of legislation in other areas such as e-commerce may, however, inhibit ICT development in Uganda.

2.2.1 Telecommunications law and regulations

Kenya, Tanzania, and Uganda have already passed legislation that liberalizes their telecommunications markets, and establishes the regulation of the sector. All these countries have telecommunications frameworks that cover all aspects of telecommunications, including licensing, interconnection, spectrum, and universal service. Their legal frameworks separate policy and regulatory functions from the operational functions and they all have independent regulatory authorities. Tanzania has created a convergent regulator, and Kenya is considering its adoption under the review of its existing regulatory framework.

Tanzania and Uganda have recently streamlined telecommunications licenses and simplified them into a few generic categories that are supportive of convergence and technology neutrality. Kenya has proposed a unified technology neutral licensing framework; however, it has not been adopted yet. A snapshot of the licensing frameworks among the Case Study Countries is provided in the table at the end of this section.

A comparison of the compliance of the regulatory framework in the Case Study Countries with WTO commitments, specifically those deriving from the GATS relating to telecommunications services, is provided in Chapter Four.

Kenya

In Kenya, telecommunications issues are primarily considered under the Kenya Communications Act (No. 2) of 1998 (1998 Act) and the Kenya Communications Regulations 2001. The 1998 Act provides the framework for regulating the communications sector in Kenya and authorizes

the Minister, in consultation with the CCK, to make regulations and provide for operational details regarding telecommunications services. The CCK is also responsible for postal affairs.

The 1998 Act established the institutional framework necessary for the liberalization of Kenya's telecommunications market. First, the Act provided the basis for the establishment of the CCK as the regulatory authority, and the National Communications Secretariat, a separate entity from the Ministry of Information and Communications, which serves as the policy advisory arm of the government on all matters pertaining to the info-communications sector.

In addition, the 1998 Act separated policy and regulatory functions from operational functions, and separated postal and telecommunications operations. This included transferring the functions, powers, and liabilities of the Kenya Postal and Telecommunications Corporation (KPTC), as well as the establishment of the CCK, the Communications Appeals Tribunal,[64] Telkom Kenya, and the Postal Corporation of Kenya.[65]

Certain aspects of the 1998 Act are being reviewed with the aim of including relevant changes in the Kenya Communications Amendment Bill, further described below. The objective is to evaluate the 1998 Act with respect to the current and planned info-communications market structure, such as changing the CCK to a converged regulator and to introduce a universal service fund**.**

Tanzania

Two key Acts were adopted in Tanzania in 1993 with the aim of restructuring the telecommunications sector: the Tanzania Telecommunications Incorporation Act of 1993, which established Tanzania Telecommunications Corporation Limited (TTCL) as a wholly state-owned operator, and the Tanzania Communications Act of 1993 (1993 Act), which established the Tanzania Communications Commission (TCC), to regulate the telecommunications and postal sectors. Broadcasting remained under the responsibility of the Tanzania Broadcasting Corporation (TBC). Under the terms of the 1993 Act, the TCC was mandated to exercise licensing and regulatory functions with respect to telecommunications and postal systems and services, including administering radio frequency spectrum. The Act also specifically defined the role of the Minister to include determining government policies for the telecommunications and postal sectors; and to coordinate the telecommunications and postal sector industries.

Pursuant to the Tanzania Communications Regulatory Authority Act No. 12 of 2003 (2003 Act), TCC and TBC merged into a new entity—the Tanzania Communications Regulatory Authority (TCRA) which became operational on November 1, 2003. In addition, TCRA has authority over competition issues.

The Act also has mechanisms for consultation programs to better carry out its functions (Section 22) and a Content Committee to regulate the content transmitted by any traditional or electronic broadcasting service and advise the relevant Minister. The Act also contains provisions governing the investigation of complaints to TCRA and dispute resolution practices.

Uganda

[64] The role of the Communications Appeals Tribunal is to adjudicate in matters between the CCK and dissatisfied operators, or between operators themselves.
[65] The Postal Corporation of Kenya was established under the Postal Corporation of Kenya Act, No. 3 (1998) to provide postal and financial services.

The basic telecommunications law of Uganda is the Uganda Communications Act of 1997.[66] The Act is a comprehensive law that establishes a framework for licensing communications services and radio spectrum, and a set of principles to foster fair competition in the market. In addition, the Act provides for the creation of the UCC and sets forth its functions, powers, and structure.

The Act provides for a flexible regulatory environment, delegating to the UCC the authority to issue regulations on issues such as interconnection, licensing, radio spectrum use, and universal service among others. This flexibility has allowed the UCC to issue a series of regulations covering the most relevant aspects of telecommunications sector regulation.

[66] The Uganda Communications Act (1997), available at www.ucc.co.ug/ucaCap106LawsOfUganda.pdf .

Table 2-8: Telecommunication license structure, October 2007

Kenya						Tanzania						Uganda				
		Fees			#			Fees			#		Fees			#
		Initial	Application	Annual				Initial	Application	Annual			Initial	Application	Annual	
Facility based public fixed telecom providers	International	$223,831	$ 149	0.5%	1	**Network Facility (NF)**	International	$200,000	$ 10,000	0.8%	4	**Public Infrastructure Provider**	$100,000	$ 2,500	$10,000 + 1%	3+3
	Regional	$223,831	$ 149	0.5%	2		National	$400,000	$ 5,000	0.8%	6					
	Long distance	$223,831	$ 149	0.5%	1		Regional	$ 15,400	$ 1,000	0.8%						
	Local loop	$2,984	$ 149	0.5%	19		District	$ 1,000	$ 50	0.8%						
Land mobile radio-communications services	Mobile operators	Bid Price	$ 149	0.5%	2	**Network Service (NS)**	International	$300,000	$ 10,000	0.8%	4	**Public Service Provider (PSP) - Voice and Data**	$ -	$ 2,500	$10,000 + 1%	11
	Paging	$ -	$ 149	149	13		National	$600,000	$ 5,000	0.8%	6					
Fixed and mobile satellite services	Gateway services	$223,831	$ 149	0.50%	3		Regional	$ 23,100	$ 2,000	0.8%						
	Commercial VSAT	$223,831	$ 149	0.5% + $179 per VSAT	6		District	$ 1,000	$ 100	0.8%						
	International Voice & Data	NA	NA	NA	2		Closed user group	$ 50,000	$ 1,000	$1,000 per VSAT						
Facility-based comm. network & services	Public Data Com Network Operators	$ 22,383	$ 149	0.50%	20	**Application Service (AS)**	International	$100,000	$ 1,000	0.80%	12	**Public Service Provider (PSP) - Capacity Resale**	$ -	$ 2,500	$3,000 + 1%	
Internet facilities and services	ISP	$ -	$ 149	$ 1,492	51		National	$ 1,000	$ 50	$ 2,000	31					
	Internet Backbone	$223,831	$ 149	0.5%	8		Regional	$ 50	$ 20	$ 100	4					
	Internet Exchange Point	$ -	$ 149	$ 1,492	2		District	$ 20	$ 10	$ 50						
Value Added Services (VAS)	Premium rate	$ -	$ 149	$ 1,492	26		Community	$ 20	$ 10	$ 5	36					
	Audio-text	$ -	$ 149	$ 1,492	2	**Content Services (CS)**						**General Authorization**	$ -	$ -	$ -	
	Store & forward	$ -	$ 149	$ 1,492	2											
	Credit Card validation	$ -	$ 149	$ 1,492	1											
	Call Center	$ -	$ 149	$ 1,492	3											
	Other	$ -	$ 149	$ 1,492	3											
Resale services	Resale	$ -	$ 149	$ 1,492	3											
	Payphone	$ -	$ 15	$ -	2											
	Cybercafe	$ -	$ 15	-	81											

2.2.2 Specialized ICT laws

The lack of specialized ICT laws relating to transactions carried out over electronic networks is a serious impediment to the development of e-commerce and ICT-enabled services. Specifically, non-existent or inadequate data protection and privacy laws can have significant repercussions in terms of attracting ICT-enabled business, particularly from Europe. For example, the European Union (EU) has directives in place that prohibit transfers of data between the EU member countries and countries lacking adequate data protection rules and enforcement. Therefore, the Case Study Countries stand to lose out on being potential exporters of data processing services due to the lack of appropriate data protection laws.

Neither Kenya, Tanzania nor Uganda has passed ICT legislation that provides adequate safeguards to create an environment of trust, security, and accountability for e-business transactions to take place. However, two of these countries, Kenya and Uganda, have proposed legislation to provide a trust and security environment for e-commerce. Tanzania is reviewing the sector-specific laws to determine necessary modifications to foster e-commerce.

Kenya

Kenya does not have laws related to the recognition of the legitimacy of electronic transactions and digital signatures, protecting privacy and treating computer misuse such as hacking as crimes.[67] This was to be addressed in the Kenya Communication Amendment (KCA) Bill, which contains provisions legalizing electronic transactions and recognizing digital signatures. However, attempts to bring the Bill before Parliament have been delayed. The cause for the delay is reportedly because electronic commerce and computer-related aspects are to be incorporated into a separate Bill. The KCA Bill will then be focused on regulatory aspects of the ICT sector. Both Bills are expected to be submitted to Parliament in 2008.

Tanzania

There is no e-commerce law in Tanzania, and the existing legal framework does not provide adequate safeguards to create an environment of trust, security, and accountability for e-business transactions to take place. Consequently, financial institutions are not able to establish e-transactions processing systems. The Government of Tanzania has noted this deficiency and the Tanzanian Law Reform Commission has been reviewing sector-specific laws and how they relate to ICT and e-commerce in order to determine the necessary modifications or new laws that would be needed.[68]

Uganda

There is a lack of specialized ICT laws covering areas such as data privacy and protection, recognition of electronic transactions and signatures in Uganda. However, pursuant to the National Information and Communication Technology Policy, the Ugandan Investment Authority has forwarded the UNCITRAL model e-commerce law to the Law Reform Commission for adoption into the Ugandan legal framework.

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[67] "Kenya's Cyber Law Being Developed," *The East Standard* (Aug. 5, 2007), available at http://www.eastandard.net/archives/index.php?mnu=details&id=1143972407&catid=331.

[68] Miller, J., Kartano, K., Ntiro, S., ICT Investment Opportunities in East Africa, Country Specific Market Analysis: Tanzania (2004).

2.3 Business environment

2.3.1 Taxes

Businesses and consumers are subject to a variety of different taxes in the Case Study Countries. Taxes considered in this section include import duties on ICT equipment, VAT on ICT products and services and excise taxes on ICT services. The variety of taxes and, in some cases, the high rates imposed, are an impediment to the development of ICT infrastructure and services, reducing country competitiveness.

Kenya, Tanzania, and Uganda (along with Burundi and Rwanda) form the East African Community Customs Union, which has agreed to synchronize tariffs. The common tariffs for selected ICT products are shown below. The East African Community Customs Union tariffs are generally higher than those applied by other African trade groupings.

The Case Study Countries are not a party to the WTO Information Technology Agreement (ITA). Kenya and Tanzania have no WTO tariff bindings on relevant ICT products (*i.e.*, it has no obligation to limit the amount of tariffs). Nevertheless, Kenya's and Tanzania's import duties on ICT equipment are lower than what it has proscribed in its WTO commitments or those in the East Africa Community Customs Union. The Kenyan government has eliminated duties on a number of ICT products including computers, mobile phones and most recently, import duties were removed on computer parts. Telecommunications equipment, however, is subject to import duties of 10-25 percent. Tanzania has eliminated duties on a number of ICT products including computers and parts and mobile phones, but telecommunications equipment, is subject to import duties of 35 percent.

In terms of WTO commitments, Uganda has no obligation on ICT equipment except with respect to wireline telephone equipment, where it has agreed to limit tariffs to 50 percent of the product value, plus an additional 20 percent for "other duties and charges." In practice, like Kenya and Tanzania, Uganda's import duties are lower than what it has proscribed in its WTO commitments or those proposed by the East African Community Customs Union, and in most cases they are equal to zero.

Table 2-9: Tariffs for ICT equipment imports of

Product	East Africa Community Customs Union	Kenya	Tanzania	Uganda
Data processing machines (HS 8471)	0%	0%	0%	0%
Wireline telephone equipment (HS 8517.69 & 8517.70)	10%	10-25%	35%	10%
Telephones for cellular networks (HS 8517.12)	0%	0%	0%	0%
Electronic integrated circuits (HS 8542)	10%	0%	0%	0%

Note: The codes refer to the Harmonized Schedule (HS) tariff numbers used by the East African Community Customs Union (EACCU)
Source: Adapted from EACCU.

VAT ranges from 10-20 percent in the Initial Study Countries and the VAT rate is relatively high at 16 percent in Kenya, 20 percent in Tanzania and 18 percent in Uganda.

One tax fairly unique to the region is the imposition of excise tax by some of the Initial Study Countries on telecommunications services, specifically mobile airtime. Kenya has an excise tax on mobile airtime of 10 percent, Tanzania's rate is 7 percent and Uganda has an excise tax on mobile airtime of 12 percent. Unlike any of the other Initial Study Countries, Uganda also imposes a five percent excise tax on fixed line services, which took effect in July 2006.

When combined with the VAT, the excise tax drastically raises the cost of mobile use. According to a GSM Association report, the Case Study Countries had among the highest percentages of tax within the total cost of mobile ownership in Africa.[69] The GSM Association report and a recent study by the UCC [70] have found that reducing or eliminating the excise tax would not only increase mobile penetration but also result in greater tax receipts to governments due to higher use of mobile phones and the multiplier effects throughout the economy.

Table 2-10: VAT and excise tax, 2006

	Ethiopia	Kenya	Rwanda	Sudan	Tanzania	Uganda
VAT	15%	16%	18%	10%	20%	18%
Excise tax on telecom services	0%	10% on mobile airtime	10% on mobile airtime	0%	7% on mobile airtime	12% on mobile airtime 5% on fixed line

Source: TMG, Inc. adapted from various sources.

2.3.2 Electricity

Unreliable or nonexistent electricity is a major roadblock to the development of ICT, which is reliant on electricity to power equipment and recharge devices such as laptops and mobile phones. Moreover, the shortage of electricity adds to the cost of doing business. Given the scarcity, existing energy costs are high and firms that need reliable sources of energy must often invest in alternatives such as generators that are also expensive to run on regular basis. In addition, revenue streams are diminished as consumers may be unable to use ICT services since they are constrained in powering or recharging electronic devices.

According to a survey of enterprises in the region, electricity was consistently rated as a top obstacle to operating and growing their business, which, in turn, poses a major obstacle to providing ICT services and trade (see Table 2-11).[71]

[69] The total cost of mobile ownership has been defined as one third the handset cost, one third connection charges and the annual cost of usage. See: GSM Association, Taxation and the Growth of Mobile in East Africa (2007).
[70] Uganda Communications Commission (UCC), Review of Sector Taxation Policies and Determining the Elasticity of Penetration and Price of the Various Telecommunications Services in Uganda, available at http://www.ucc.co.ug/taxReport.pdf.
[71] Except where noted, figures in this section were drawn from The World Bank Group, Enterprise Surveys, available at http://www.enterprisesurveys.org.

Table 2-11: Responses to firm surveys regarding electricity service

	Electricity a "Major" or "Severe" Obstacle	Days to Obtain an Electrical Connection	Owns or Shares a Generator	Electricity from Generator
Ethiopia (2002)	42%	116	17%	2%
Kenya (2003)	47%	51	71%	15%
Rwanda (2006)	32%	18	58%	30%
Tanzania (2006)	72%	44	46%	37%
Uganda (2006)	63%	33	29%	31%

Source: The World Bank Group Enterprise Surveys (data not available for Sudan).

In Kenya, 47 percent of surveyed firms reported that electricity was a major or severe obstacle. Firms had to wait 51 days on average to obtain an electrical connection. More than 70 percent of firms in Kenya had access to a generator, which they reported using, on average, for about 15 percent of their electricity needs. The lack of reliable electricity service increases costs for operators. For instance, according to one mobile operator in Kenya, energy from the electricity grid is about KES 10,000 (US$ 141) per month. If a generator is necessary, the cost is closer to KES 120,000 (US$ 1,691), more than a tenfold difference.

The level of electrification in Kenyan households is relatively high compared to surrounding countries (see Figure 2-15). Around half of all urban households in Kenya had electricity in 2003, but poor availability in rural areas (only five percent) brought the national average down to 16 percent.[72] Moreover, electricity in Kenya is expensive compared to other African countries.[73]

Tanzania is rated as the location where electricity is the biggest obstacle among the Initial Study Countries. Some 72 percent of firms considered electricity to be a major or severe obstacle in Tanzania compared to the SSA average of 48 percent.

Electrification in Tanzania is ten percent in cities and towns and just one percent in rural areas.[74] The majority of Tanzania's electricity is generated from two dams. After suffering a drought, the government introduced rationing in early 2006, such that electricity is only available at night in some areas. The government has placed a ban on the production of electricity from charcoal for environmental reasons and solar energy has been found to be impractical. Tanzania has yet to develop other sources of electricity on a wide scale. There are plans to extend the grid and to import electricity from Uganda and Zambia in order to alleviate electrical shortages.

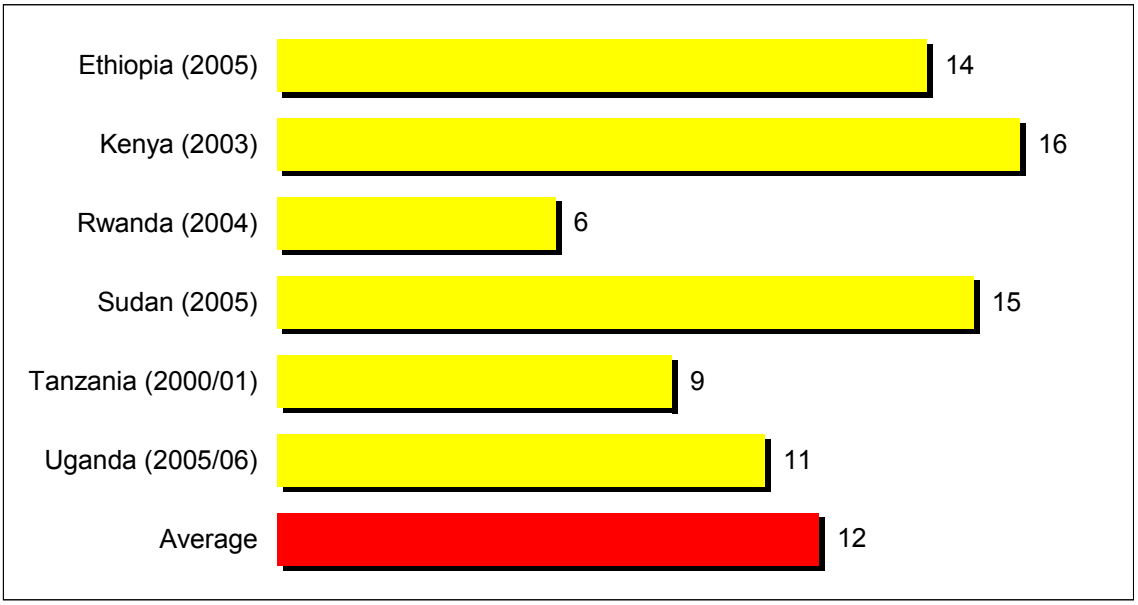
Electricity was considered a major or severe obstacle by 63 percent of firms in Uganda where businesses had to wait an average 33 days to get connected to the electrical grid in 2006. Given its proximity to major water sources such as the Nile River and Lake Victoria, Uganda relies greatly on hydropower for energy needs. Dropping water levels in Lake Victoria and extended

[72] Central Bureau of Statistics, Ministry of Health, et al., Kenya Demographic and Health Survey 2003, CBS, MOH, and ORC Macro (2004.)
[73] In its 2005 Annual Report, the Export Processing Zones Authority cites figures of US$ 0.10-0.15 per kilowatt hour for Kenya versus US$ 0.015-0.04 in South Africa, US$ 0.02 in Zambia and US$ 0.023 in Malawi.
[74] Ministry of Planning, Economy and Empowerment, National Strategy for Growth and Reduction of Poverty - Status Report 2006: Progress Towards the Goals for Growth, Social Well-being, and Governance in Tanzania (2006).

periods of drought have caused frequent blackouts.[75] Furthermore, many areas suffer from aging, ill-maintained, and unreliable electrical grids.

Only 11 percent of the population of Uganda had access to electricity in 2006, most of them in urban areas.[76] There is hope that the Bujagali dam project will alleviate shortages. Bujagali "is the largest single private sector investment in East Africa, the biggest independent power project in SSA, as well as the largest single project ever funded by the International Finance Corporation in the world."[77]

Figure 2-15: Percentage of households with electricity



Note: Data for Sudan have been estimated based on the number of consumers of the National Electricity Corporation divided by the estimated number of households.
Source: Adapted from Ethiopia Demographic and Health Survey 2005, Kenya Demographic and Health Survey 2003, Tanzanian Household Budget Survey 2000/01, Uganda National Household Survey 2005/06, World Bank.

2.3.3 Doing business

The ease of doing business has an impact on companies' decisions to invest and start up. This is particularly relevant in the ICT field, characterized by dynamic market entry and smaller companies entering new market niches such as Internet provision, cyber cafes, software development and customization, and web hosting. Burdensome government procedures can make operating a business a complex and costly endeavor, discouraging those without business experience which is typical of many new ICT firms. Starting a business typically involves securing and registering the enterprise name, filing forms with various government entities, and

[75] *See, e.g.,* Wines, M., "Toiling in the Dark: Africa's Power Crisis," *International Herald Tribune* (July 28, 2007),, available at http://www.iht.com/articles/2007/07/28/africa/29power.php.
[76] Tom Sanya, *Energising Uganda: An Alternative Perspective on Uganda's Energy Crisis*, UGPulse.com (May 31, 2007), available at http://www.ugpulse.com/articles/daily/Business.asp?id=625.
[77] World Bank Press Release, Uganda's President: the Agha Khan, Cut Ribbon on Bujagali Dam Project (Aug. 21, 2007), available at http://go.worldbank.org/C1FKZBLE20.

obtaining licenses and permits for operation. Firms also need to hire employees, obtain loans, and pay taxes and the procedures for these can be cumbersome.

The World Bank has examined a number of business procedures and ranked countries according to how easy the process is.[78] The ten factors examined in compiling the aggregate scores are the time and expense involved with or the effectiveness of: starting a business; licensing; employing workers; registering property; obtaining credit; protecting investors; enforcing contracts; and closing a business. Kenya ranks top among the Initial Study Countries, outperforming the other countries in dealing with licenses, obtaining credit and protecting investors (see Table 2/12). It does relatively less well in the processes involved to start a business and pay taxes. It takes on average 13 procedures and 54 days to start a business in Kenya and the tax burden is high where on average almost 75 percent of a firm's profits go to various taxes and government charges. Importing to and exporting from Kenya continues to be problematic due, in part, to government regulations that require a myriad of lists, receipts, licenses and certificates. Kenya requires on average 11 documents for export and 9 for import with the process requiring 25 and 45 days respectively. In contrast, only three documents are required for exporting from Tanzania.

Tanzania did not rank highly—142 out of 175 countries on its aggregate "Doing Business" ranking and 21 out of 45 SSA countries. Tanzania's individual ranks varied widely. For example, it got relatively good marks for ease of trade (67) and enforcement of contracts (65). The score for protecting investors (99) is better than its overall score. Its poor marks on licensing (172), property registration (157), and employing workers (143) deteriorated its aggregate rank.

Uganda ranks third among the Initial Study Countries. Its score for the ease of employing workers is outstanding, ranking it eighth in the world. Uganda is also tied with Kenya as having the best ranking among the Initial Study Countries in terms of protecting investors. It does less well regarding the process involved in actually starting a business. For example, it takes on average 17 procedures and 30 days to start a business in Uganda. Furthermore, it can take a long time to process trade documents in Uganda, where 12 documents are required for export and 19 for import, including 5 separate documents for customs alone. Uganda's average export and import time is nearly twice that of Tanzania—42 days to export and 67 days to import. Of course this must be put into the context of Uganda's land-locked situation.

Table 2-12: Doing Business rankings, 2007

Economy	Overall Ease of Doing Business Rank	Starting a Business	Dealing with Licenses	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
Kenya	83	111	24	68	115	33	60	127	145	67	128
Ethiopia	97	95	59	79	146	83	118	31	149	82	55
Uganda	107	107	110	8	166	159	60	43	160	71	44
Tanzania	142	127	172	143	157	117	99	113	67	65	105

[78] The methodology and data are available on the Doing Business website at http://www.doingbusiness.org/

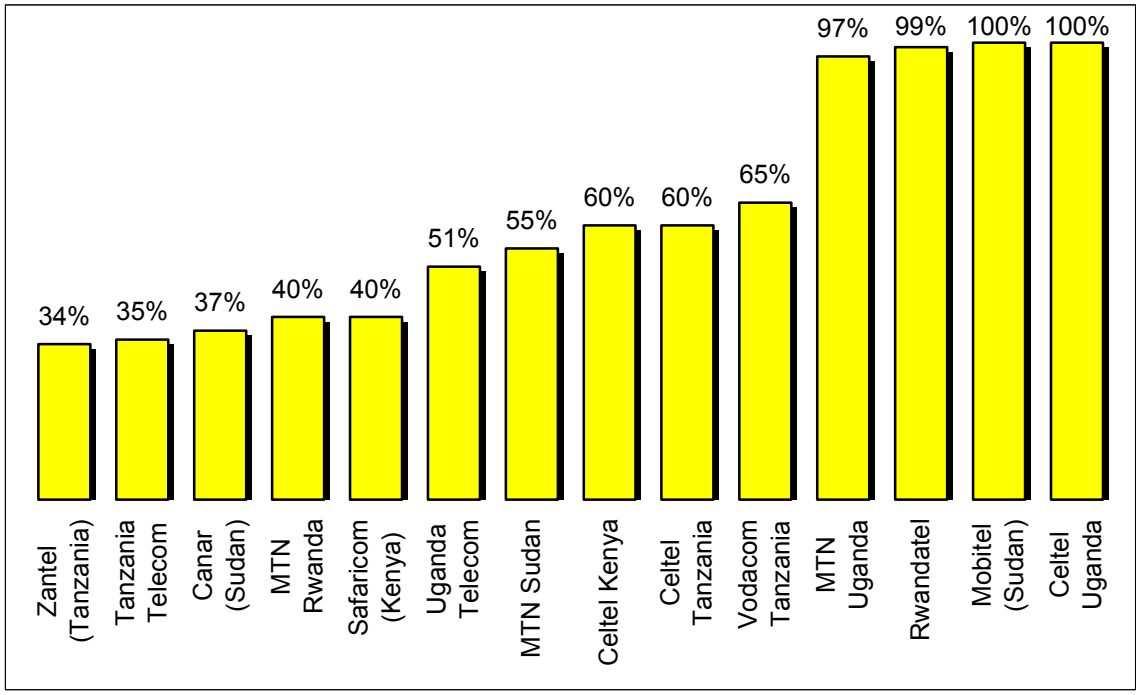
Economy	Overall Ease of Doing Business Rank	Starting a Business	Dealing with Licenses	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
Sudan	154	82	92	164	29	143	142	93	165	158	151
Rwanda	158	58	133	106	134	159	162	83	175	69	151

Note: Data show the rank of the country in each of the categories compared to 175 countries.
Source: World Bank, Doing Business 2007.

2.3.4 Foreign investment

Foreign investment is critical to the development of ICT industries. Evidence from the telecommunications sector shows that strategic investors not only inject capital, but also injects management skills and transfer of technological know-how. The Case Study Countries in particular have benefited from foreign investment in the telecommunications sector with impressive results in access and coverage, particularly in mobile communications. Though the amount of investment necessary for the development of other ICT markets, particularly ICT-enabled services, is less than that required for telecommunications infrastructure, these new markets are highly dependent on foreign investment for both expertise and overseas linkages.

Figure 2-16: Foreign investment in main telecom operators, 2006



Source: TMG, Inc.

Kenya has made progress regarding foreign investment. To encourage easy repatriation of capital, dividends, and after-tax profits to foreign investors, the government enacted the Foreign

Investments Protection Act, while licensing and exchange controls have been abolished.[79] The Act guarantees against expropriation of private property by the government. If expropriation does take place, it will be for the public good and prompt compensation will be provided.

In addition, Kenya recently decreased foreign ownership restrictions for telecommunications service providers, increasing the cap in foreign investment from 70 to 80 percent. The cap is lower if the company is listed in the Nairobi Stock Exchange.[80] In contrast, several of the Initial Study Countries allow full foreign ownership (see Figure 2-16). The limit on foreign ownership — which applies to only a few industries in Kenya including telecommunications — has affected bids for major telecommunications licenses with local partners unable to come up with their share of the investment. In addition, the limit may impede investment in the sector since some investors may want full ownership.

In January 2005, the government adopted the Investment Promotion Act to assist local and foreign investors in obtaining any necessary licenses and providing other assistance and incentives.[81] Kenya also offers several incentives such as Export Processing Zones (EPZs) to encourage export-oriented activities. The EPZs scheme can have a high impact for ICT-related investments. The EPZs provides for duty and VAT exemption on imported machinery and companies in the EPZs benefit from a ten-year corporate income, and withholding tax holiday, exemption from stamp duties and a 100 percent investment allowance (applicable over 20 years). There are currently 43 EPZs in Kenya, employing 39,000 staff and EPZs exports exceeded KES 20 billion in 2005.[82] About 85 percent of EPZ companies are owned by foreign investors. There is one ICT-enabled service company located in an EPZ. KenCall provides call center support for overseas clients primarily in North America and Europe. An incubator project has recently been launched by the EPZ Authority that targets small and medium enterprises in several key sectors including ICTs. The government is hoping to attract more ICT firms to the EPZs and is currently reviewing options and incentives. One idea is to create a specialized multimedia park that would cater specifically to ICT firms.

Tanzania has reduced barriers to foreign investment, including unconditional transfer of profits and lack of expropriation of any foreign investments in over 20 years. There are no limits on foreign ownership for most sectors. However, in the case of the ICT sector, there are some restrictions. According to the Communications (Licensing) Regulations, 2005, telecommunications licenses require at least 35 percent local ownership. It appears that these limits can be waived as Millicom Tanzania, a mobile operator, is 100 percent foreign owned.

Efforts have been made to court foreign investment. In January 2005, the government adopted the Investment Promotion Act to assist local and foreign investors in obtaining necessary licenses and providing other assistance and incentives.[83] The Tanzania Investment Centre (TIC)

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[79] Foreign Investments Protection Act, Kenya (1964), available at http://www.kenyalaw.org/eKLR/index.php.
[80] Schedule to the Kenya Communications Act of 1998, *Kenya Gazette* (July 27, 2007). However, a single foreign investor may not own excess of 25 percent in any firm listed on the Nairobi Stock Exchange and aggregate foreign investment of a listed firm is capped at 75%. See http://www.kestrelcapital.com/overviewnse.html
[81] Published on Jan. 3, 2005 in Kenya Gazette, Supplement No. 87 (passed by Parliament and approved by the President in December 2004).
[82] World Trade Organization (WTO), Trade Policy Review, Report by the Secretariat: East African Community, Revision, WT/TPR/S/171/Rev.1 Annex 1 – Kenya (Jan. 2007).
[83] Published on Jan. 3, 2005 in Tanzania Gazette, Supplement No. 87 (passed by Parliament and approved by President in December 2004).

was created pursuant to the Tanzanian Investment Act of 1997 "to coordinate, encourage, promote, and facilitate investment in Tanzania and to advise the government on investment related matters."[84] Infrastructure including telecommunications is identified as one of the sectors to be targeted by the TIC. The idea is for the TIC to serve as a one-stop shop for potential investors, and liaise within the government as well as between investors and the government. Its duties include assisting investors with incorporation and registration process; obtaining necessary licenses, work permits, visas, approvals, facilities or services; and resolving any administrative barriers. The TIC is also charged with issuing "Grant Certificates of Incentives" and investment guarantees for all investments, including foreign investments over US$ 300,000. Its mission also includes the dissemination of information on investment opportunities, benefits or incentives.

Tanzania has also passed legislation to create Export Processing Zones and Special Economic Zones (SEZ). There are plans to create an International Center of Technology (ICT) Park in an SEZ.

Uganda has made significant reforms to reduce barriers to and, actively encourage, foreign investment. It lifted nearly all restrictions on foreign investment in 1991 when it enacted the Uganda Investment Code. The Uganda Investment Authority (UIA) summarizes the current situation as follows:

> The Code allows foreign investors to invest in all fields except those, which compromise national security and ownership of land. Aside from . . . [restrictions on land ownership] . . . Uganda imposes no limitations whatsoever, on foreign investors. 100% foreign ownership of investments in the country is allowed. Foreign investors are also free to bring in and take their capital out of Uganda with no restrictions.[85]

The WTO cites these reforms, coupled with incentives such as tax holidays and protection against expropriation of assets and privatizations as "creating new opportunities for both local and foreign investors."[86]

Foreign investors in Uganda may still be subject to certain performance obligations, pursuant to Section 13 of the Investment Code, including local employment and technology transfer requirements. In practice, however, these obligations have not been imposed since the mid-1990s.

Uganda offers some incentives to foreigners investing in the country such as accelerated depreciation schedules and no restrictions on the movement of foreign exchange.[87] The UIA provides assistance in obtaining licenses, helping foreigners seeking partners for joint ventures, and ensuring protection for intellectual property.

2.3.5 Governance

Governance issues such as political stability and corruption affect the risk perception of a country and hence can impact ICT investment. The World Bank Institute has created six

[84] TIC website at www.tic.co.tz .
[85] The Uganda Investment Authority website at www.ugandainvest.com/guide.htm .
[86] World Trade Organization (WTO) Press Release, Continuing Reforms Seen as Crucial for Rebuilding the Economy (July 28, 1995), available at http://www.wto.org/English/tratop_e/tpr_e/tp12_e.htm [Accessed Sept. 13, 2007].
[87] Uganda Invest Incentive Regime website at http://www.ugandainvest.com/incentives.htm.

indicators for measuring governance.[88] The results for the Initial Study Countries in 2006 are shown in the Table 2-13.

Kenya ranks fourth overall in the governance indicators among the Initial Study Countries and below the SSA average. It is above the SSA average in voice and accountability, government effectiveness and regulatory quality but judged to be below average in political stability, rule of law and control of corruption. Steps are being taken to improve governance including strengthening the investigation and prosecution of corruption and increasing resources for the legal system.[89]

Tanzania ranks first overall among the Initial Study Countries and its score is above the SSSA average. It ranks first among the Initial Study Countries in political stability, government effectiveness, and rule of law and second in voice and accountability and control of corruption. The area where there is scope for improvement is regulatory quality where it ranks third among the Initial Study Countries.

Uganda does relatively well, ranking third in the overall average among the Initial Study Countries and just above the SSA average. It does well on the regulatory quality indicator, but is judged by the methodology to have relatively low political stability.

Table 2-13: Governance indicators, 2006 (Scale 1-100 with 100 being the highest)

	Ethiopia	Kenya	Rwanda	Sudan	Tanzania	Uganda	Sub-Saharan Africa
Voice and Accountability	16.8	43.8	14.4	3.8	40.4	30.3	32.7
Political Stability	5.3	15.4	27.4	2.4	40.4	13.5	35.6
Government Effectiveness	31.3	28.0	39.8	11.8	43.6	34.6	27.2
Regulatory Quality	21.0	44.9	25.4	12.2	38.0	46.8	27.4
Rule of Law	30.0	15.7	34.3	6.7	42.9	39.0	28.8
Control of Corruption	36.9	16.0	55.8	9.7	43.2	26.2	30.3
Average	**23.6**	**27.3**	**32.9**	**7.8**	**41.4**	**31.7**	**30.3**

Source: World Bank Institute, Worldwide Governance Indicators

The Mo Ibrahim Foundation has also compiled a governance index specifically for Africa.[90] Tanzania also ranked first overall among the Initial Study Countries and 14th overall in the Ibrahim Index of African Governance (see Table 2-14). It ranks first among the Initial Study Countries in Safety and Security and Rule of Law, Transparency and Corruption; second in Participation and Human Rights; and third in Sustainable Economic Opportunity and Human Development. On the other hand, Kenya ranks above Uganda on this index illustrating differing perceptions about how governance should be quantified.

Table 2-14: Ibrahim Index of African Governance, 2007

Country	Ranking	Overall Score	Safety and Security	Rule of Law, Transparency and Corruption	Participation and Human rights	Sustainable Economic Opportunity	Human Development
Ethiopia	27	53.2	75.4	48.7	33	57.4	51.6

[88] World Bank, Worldwide Governance Indicators: 1996-2005 (2007), available at http://web.worldbank.org/WBSITE/EXTERNAL/WBI/EXTWBIGOVANTCOR/0,,contentMDK:20771165~menuPK:1866365~pagePK:64168445~piPK:64168309~theSitePK:1740530,00.html (Released Sept. 2006).
[89] Kimunya A., Minister for Finance, Budget Speech for the Fiscal Year 2007/2008 (June 14, 2007).
[90] Mo Ibrahim Foundation, The Ibrahim Index of African Governance, available at http://www.moibrahimfoundation.org/the-index.asp.

Kenya	15	59.3	62.9	57.9	47.9	64.1	63.8
Rwanda	18	57.5	76.2	47.6	47.3	69.7	46.9
Sudan	45	40	31.1	31.4	41.3	38.3	57.8
Tanzania	14	60.7	83.3	58.4	48.6	61	52.1
Uganda	25	55.4	70.5	55.7	50	50.7	50.3

Source: Mo Ibrahim Foundation.

2.4 Human factors

An educated population is vital for the development of an information society. The use of computers and the Internet requires at the least a minimal level of literacy and the ability to retrieve and process information. Advanced educational attainment is a prerequisite for developing skills to manage ICT hardware and develop ICT software and services. Language ability is important in order to participate in ICT-enabled service industries such as customer contact centers. Knowledge of widely spoken global languages is also important for understanding ICT systems given that much documentation is not widely translated. Finally, having attractive labor costs is one of the most critical factors in the competitive ICT-enabled off shoring business.

The Case Study Countries have significant potential in trainable ICT human resources given their youthful populations. In Kenya, 43 percent of the population was under the age of 15 in 2005 while the corresponding figure for Tanzania was 44 percent and 49 percent in Uganda.[91] Thus, a larger number of the population is in the ICT adaptive age range, an indication of the future opportunities in this market.

2.4.1 Overall literacy and education

Indicative factors of an educated population include literacy rates and school enrollment. Kenya fares well in comparison to other Case Study Countries. According to 2005 United Nations Development Programme (UNDP) data, 74 percent of Kenyan adults are literate, the highest rate in the region.[92] Some 76 percent of eligible children were enrolled in primary school, and nearly all first graders were estimated to reach fifth grade, outcomes of the introduction of free primary education. Kenya's 40 percent secondary school enrollment ratio is highest among the Initial Study Countries. This should increase with the removal of tuition fees from January 2008. Kenya ranks first overall among the Initial Study Countries in the UNDP Education index, which is a weighted average of literacy and overall school enrollment.

According to UNDP data, some 69 percent of Tanzanian adults are literate, the second highest rate in the region. Primary school enrollment is 86 percent of eligible children, a result of the

[91] United Nations, World Population Prospects 1950-2050: The 2006 Revision (2007), available at http://hdrstats.undp.org/indicators/44.html.

[92] Updated 2006 data from the Kenya National Bureau of Statistics show that 79% of those aged over 15 years consider themselves literate. A survey based on a more challenging definition of literacy found that 61.5 percent of adults were literate in 2006. *See*, Kilele, A.K.M., Adult Literacy in Kenya (2007).

introduction of free primary education.[93] However, secondary school enrollment is low. Tanzania ranks third overall among the Initial Study Countries in the UNDP Education index.

Some 67 percent of Ugandan adults are literate and 84 percent of eligible children are enrolled in primary school, a figure that has steadily risen since the introduction of universal primary education in 1997. Uganda's 15 percent secondary school enrollment ratio is below Kenya's, but should improve with the phased introduction of universal secondary education. Uganda ranks second overall among the Initial Study Countries in the UNDP Education index.

Roughly half of Uganda's population is under the age of 15 so steps to increase and improve educational opportunities could have a big impact. There are bottlenecks, however. Although primary school enrollment increased rapidly following the introduction of free tuition, it has stalled recently. Transition rates to higher grades are also a problem. The cost of secondary education has been cited as the biggest barrier to higher enrollment. This should be alleviated with the introduction of universal secondary education. However, free secondary education is being progressively phased in and will take some time to have an impact. In addition, there are serious constraints in terms of sufficient schools and teachers for handling a large influx of new students.

Table 2-15: Literacy and education

	Adult literacy rate (% ages 15+) (2005)	Combined gross enrollment ratio for primary, secondary and tertiary schools (%) (2005)	UNDP Education index†	Net primary enrollment ratio (2005)	Net secondary enrollment ratio (2005)
Ethiopia	36	42	0.38	46	25
Kenya	74	61	0.69	76	40
Rwanda	65	51	0.60	73	4
Sudan	61	37	0.53	43	NA
Tanzania	69	50	0.63	86	5
Uganda	67	63	0.66	84	15
SSA	**60**	**51**	**0.57**	**NA**	**NA**

Note: NA = Not Available. Rwanda: Net secondary school enrollment data from 2005 Demographic Health Survey. Secondary school enrollment refers to net attendance ratio. Sudan: UNDP literacy data for Sudan differ from national statistics which report 49.9% for 2000. Tanzania: Secondary school enrollment from the 2000/01 Household Budget Survey. Data refer to mainland Tanzania. Uganda: Primary school net enrollment ratio from the National Household Survey 2005/06. † Based on weighted average of literacy and combined gross school enrollment ratio.
Source: UNDP and those identified in Note above.

In addition to literacy and enrollment, there is a need to get students exposed to ICTs at an early age in order to instill digital literacy and serve as a platform for more advanced training later. Kenya's *National ICT Strategy for Education and Training* was released in 2006 to guide incorporation of ICT in the curriculum, expand infrastructure in schools and train teachers.[94] One of the goals of this initiative is to install computer networks in 80 percent of secondary schools and to raise computer availability from one for every 150 students to one for a maximum of 50 students. In addition, the Kenya ICT Trust Fund was established in 2004 as a public-private partnership with the goal of getting ICTs into schools. The Fund has negotiated

[93] Doney, M., and Wroe, M., "Keeping Our Promises: Delivering Education for All," Department for International Development (Apr. 2006), available at http://www.unescobkk.org/fileadmin/user_upload/efa/EFA_News/EFA_News2006/DFID_EFA.pdf.
[94] Ministry of Education, National ICT Strategy for Education and Training (2006).

favorable Internet connectivity rates with ISPs, arranged for the donation of educational software, trained some 800 teachers, and distributed over 350 computers in schools in 2006.

Tanzania issued an ICT Policy for basic education in 2007 to guide incorporation of ICT in the primary and secondary curriculum, expand infrastructure in schools and train teachers.[95] All 32 teachers' colleges in Tanzania have computers and Internet access. The policy calls for leveraging on this to provide ICT training to future teachers at the colleges. The policy also calls for creating secondary "eSchools" with 400 targeted within two years, 2,000 within five years, and the remainder by 2015. Several ICT for education projects have been initiated. The Tanzania Computer Literacy for Secondary Schools Trust Fund has helped to acquire and install computers in about 20 schools.[96] More than 1,000 refurbished computers have been installed in secondary schools.

In Uganda, an ICT Policy for Schools has been prepared and is waiting for Cabinet approval. Roughly one quarter of primary and secondary schools have a telephone and around 10 percent have the capability to access the Internet. The Ministry of Education is working with UTL to obtain subsidized communications prices for educational institutions. There are also several grass roots initiatives for installing ICTs in schools such as the NEPAD e-school[97] as well as various initiatives for training, the procurement of discounted educational software and integration of ICT in the curriculum.[98] However, most of these initiatives are on a small scale.

2.4.2 Skilled labor force

In addition to the importance of the population having a basic level of education, it is also vital to have a workforce with more advanced skills if the ICT economy is to grow and be sustainable.

Kenya has a well-developed tertiary education sector with over 150,000 students. There are seven public universities and 24 private universities with 91,541 students enrolled in 2005. In addition there are over 50 post-secondary or so-called Technical, Industrial, Vocational and Entrepreneurship Training (TIVET) institutions with an enrollment of 68,379 in 2005. Nevertheless, the gross enrollment ratio for post-secondary education has been estimated at only three percent, due in part to the poor transition from primary to secondary and then secondary on to tertiary education.

Most of the institutions offer some type of ICT degree as well as basic ICT courses. However, one study finds that ICT workforce skills are not as strong as they should be due to a lack of ICT infrastructure in schools, a limited number of graduate-level ICT degree programs and insufficient participation in industry forums and conferences.[99] The lack of depth at the higher end of ICT skills could result in shortages as the ICT-enabled industry develops in Kenya.

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[95] Minister for Education and Vocational Training, Information & Communication Technology (ICT) Policy for Basic Education (July 2007).
[96] Tilya, F., ICT in Education in Tanzania: Lessons and Experiences from IICD-Supported Projects (May 2007), available at http://www.iicd.org/files/Tanzania_ICT%20in%20education.pdf.
[97] "First Nepad e-school to Launch in Uganda," *ITWeb* (June 1, 2005), available at http://www.itweb.co.za/sections/business/2005/0506011101.asp?A=MNT&O=M.
[98] "ICT Connectivity in Schools in Uganda," available at http://www.iconnect-online.org/Articles/iconnectarticles.2005-05-30.6804494476 [Accessed Sept. 12, 2007].
[99] Kenya Education Network, E-Readiness Survey of Higher Education Institutions in Kenya (2007).

In addition to the formal degree granting tertiary education sector, a number of private companies offer specialized ICT hardware and software training. For example, Cisco has 20 network academies in Kenya, and a number of training houses offer education in Microsoft, Oracle and other products.

Courses for workers with degrees who may not have had much ICT exposure is also important. ICT-oriented firms generally provide in-house training for workers. The Kenyan government has been offering ICT training to employees. Kenya's African Advanced Level Telecommunications Institute (Afrlati) offers programs for personnel and recent university graduates in various aspects of ICT.[100] Kenya is also seeking to attract foreign investment in the ICT training area. To this end, it is important to establish tight links between educational institutions and ICT companies to ensure that training meets companies' requirements.

Tanzania had 45 higher education institutions with 48,236 students during the 2004/05 school year. One of the largest is the University of Dar es Salaam, which is involved in a number of ICT activities.[101] It offers degree programs in ICT fields and also administers Tanzania's domain name. In addition, UDSM carried out a feasibility study for the government on an ICT park to be located in a Special Economic Zone (SEZ).

Only 3.4 percent of Ugandan's over the age of 15 have post secondary education. However this is improving with the number of tertiary students increasing each year. The country has around 160 post secondary and university institutions with 124,000 students. Some 78,000 are studying in universities with the remainder in technical and vocational schools. The gross enrollment ratio is four percent given the big transition drop off throughout primary and secondary education. Approximately one quarter of tertiary students are enrolled in science and technology programs, a fact that increases prospects for employment in the ICT sector. There are over 100 certificate and diploma programs offered in IT by accredited tertiary institutions and 29 bachelors degree programs. Kampala's Makerere University, one of the oldest and most respected universities in Africa, has a significant ICT program (See Box 2).

[100] African Advanced Level Telecommunications Institute website at http://www.afralti.org/intro.html.
[101] University of Dar es Salaam, "ICT at The University of Dar es Salaam (udsm)," available at http://www.udsm.ac.tz/ict_udsm/ict_mlimani.html [Accessed Nov. 1, 2007].

Box 2: Makerere University

In operation for 85 years, Uganda's Makerere University is one of the oldest in Africa. Named for its location on one of the hills surrounding Kampala, Uganda's capital, Makerere started as a technical school. In 1949, it became affiliated with the University College of London and in 1963 it assumed university status. As of July 2007, Makerere University had 33,488 registered students (31,862 undergraduates and 1,626 postgraduates). Some 5,000 students graduate from the university annually. There are 2,128 international students, from over 10 countries in and outside Africa, making up 6.4% of the student body. A number of Africa's leaders studied at Makerere including former Ugandan President Milton Obote, former Tanzanian Presidents Julius Nyerere and Benjamin Mkapa and current Kenyan President Mwai Kibaki.

The Faculty of Computing and Information Technology is the nucleus for ICT at the university. It offers bachelors, masters and doctorate degrees as well as diploma programs and short courses and has forged links with ICT companies offering formal training such as the Cisco Networking Academy. The Faculty's Workforce Development Program aims to offer students internship opportunities in Uganda's ICT sector.[102] There are over 8,000 students at the Faculty of which around half are in diploma and degree programs.

2.4.3 English language skills

Some of the Initial Study Countries have emphasized their location within an attractive time zone and English language skills as positive factors for developing an ICT-enabled industry, particularly call centers. Although English is an official language in most of the countries in East and Southern Africa, it is not the primary language spoken by the majority of the population in any of them. Therefore, the depth of English language skills is difficult to ascertain. Scores from the Test of English as a Foreign Language (TOEFL) can be used as one indicator of English language skills.[103]

Uganda is the Initial Study Country where English is the sole official language.[104] As shown in the figure below, it ranks first in mean TOEFL score among the six Initial Study Countries. Uganda ranks fifth overall in Africa after Mauritius, South Africa, Zimbabwe, and Botswana. Another perspective on Uganda's English language proficiency comes from a survey carried out by the National Examinations Board. It rated a third of Uganda's primary "6" students as proficient in English, up from 13 percent in 1999.[105]

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[102] Workforce Development Program website at http://wdp.cit.ac.ug.

[103] "From an ICT services perspective…certain skills are a necessary conditions to compete in the services outsourcing business…Language skills are also often mentioned as important in choosing locations…TOEFL test scores are often taken as an indicator of skills…" See Organisation for Economic Co-operation and Development OECD), Ask the Economists: Grappling with the World's New IT Giants, available at http://www.oecd.org/document/1/0,3343,en_2649_201185_37668033_1_1_1_1,00.html [Accessed Aug. 20, 2007]. The TOEFL exam is administered by the Educational Testing Service. Between July 2005 and June 2006 over half a million people around the world took the test which is designed to measure English proficiency. See Educational Testing Service, 2007 TOEFL Test and Score Data Summary (2007).

[104] "The main reason why English is still the official language in post independent Uganda is the need to have quick and efficient access to modern science, technology and information, all of which can only be accessed in English." See Mpuga, D., Speech, "The Official Language Issue: A Look at the Uganda Experience," African Language Research Project Summer Conference (July 1-3, 2003), available at http://www.umes.edu/english/newalp/pdf/douglasmpuga.pdf.

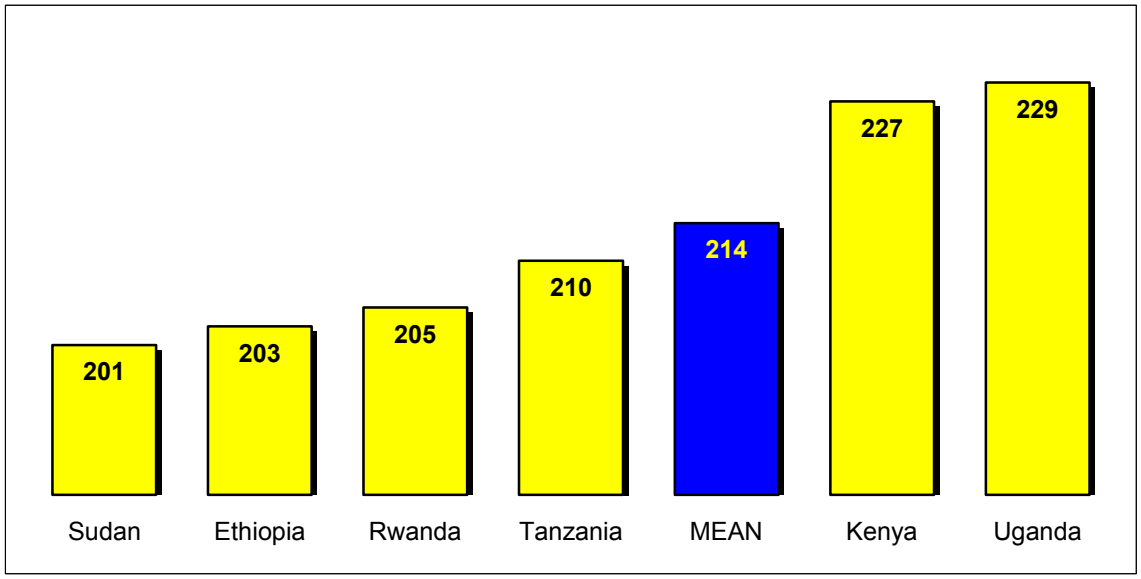
[105] The average student age was 13.5 years old. See Uganda National Examinations Board, "The Achievements of Primary School Pupils in Uganda in English Literacy and Numeracy (Draft)" (2006).

In Kenya, English is the official language while Kiswahili is the national language. Kenya has the second highest mean TOEFL scores among the Initial Study Countries.

Although English is an official language in Tanzania, it is not the primary language spoken by the majority of the population. According to Census 2002 results, around 11 percent of the population aged ten years and over is literate in English.[106] Tanzania's TOEFL scores are third among the Initial Study Countries. In addition to English, Tanzania also has Swahili as an official language, which has been adopted as a working language of the African Union.[107]

All of the Initial Study Countries have lower TOEFL scores than popular customer contact call center locations such as India, the Philippines, and South Africa. Based on the scores, it would appear that presently only Kenya and Uganda might have the depth of requisite English language skills to compete in the competitive global call center market.

Figure 2-17: TOEFL total score mean, July 2005-June 2006



Note: TOEFL=Test of English as a Foreign Language. The mean scores are based on the Computer Based Test module. The mean is based on the average of the 574,192 examinees who took the test.
Source: ETS.

2.4.4 Labor costs

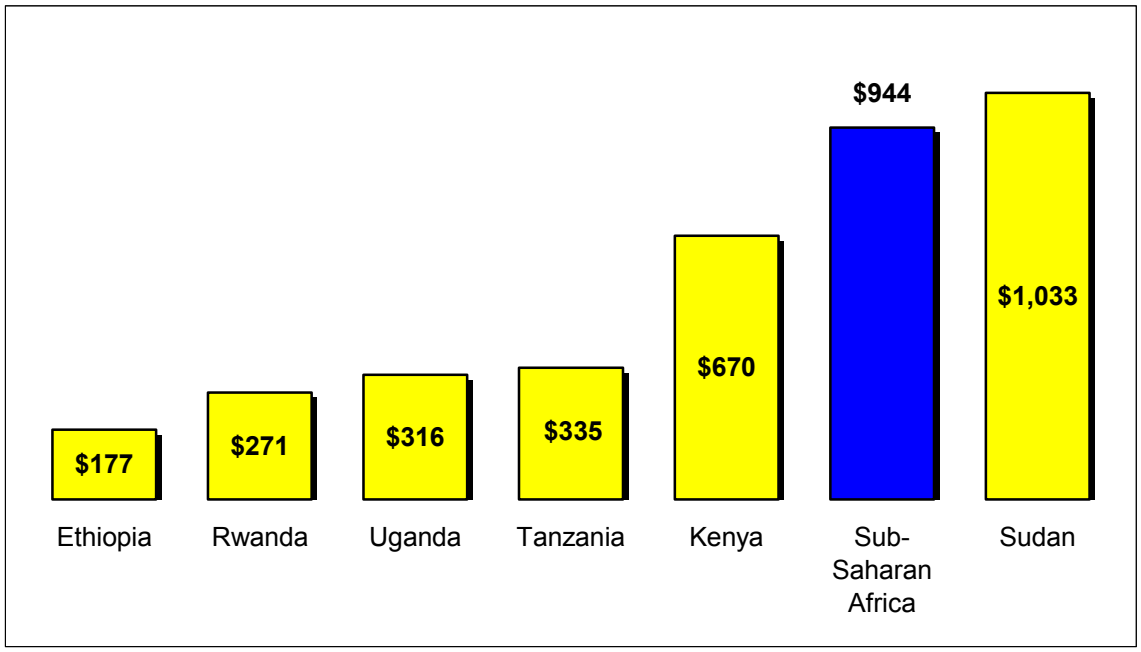
Given that the Initial Study Countries all fall within the World Bank's low income economic classification, one of their key advantages in the development of ICT-enabled services should be low labor costs. Comparative information on labor costs, particularly in those job categories relevant to ICT-enabled services, is lacking. The International Labor Organization does not have wage data in its database for the Initial Study Countries and most do not carry out regular labor force surveys. Uganda is one of the few Initial Study Countries that has carried out a recent survey with labor force information. Anecdotal evidence in Uganda seems to support its cost advantages. For example, Uganda notes that it could compete in the e-translation area since the

[106] National Bureau of Statistics, 2002 Population and Housing Census Analytical Report (2006).
[107] For more on Swahili and ICTs see Menda, A., "ICT in Education: Content Issues as Kiswahili Reigns," *iConnect Online* (2005) [Accessed Nov. 1, 2007] at http://www.ftpiicd.org/iconnect/ICT4D_Education/ICTEducation_Tanzania.pdf.

cost of a translator in Uganda is US$ 12,000 per year compared to US$ 40,000 in the United States.[108] In Kenya, the latest labor force survey dates from 1999. However, Kenya provides anecdotal evidence regarding its cost advantages for call centers: "At an average salary of KES 15,000 per month for a secondary school leaver, Kenyan wages would be comparable to those of India, making Kenya one of the most attractive call center destinations in the world."[109]

In the absence of information on actual labor costs, GDP per capita is used as a proxy. The Case Study Countries all have a lower per capita income than the SSA average. The low incomes suggest a significant cost advantage over other ICT-enabled services locations. However, other factors such as taxes and employment regulations, can drive up wage costs so this comparison should be taken as a rough indication in the absence of more detailed information.

Figure 2-18: GDP per capita, 2006, US$



Source: IMF.

[108] Uganda Investment Authority, A Business Profile for e-Translation in Uganda, available at http://www.ugandainvest.com/etransla.pdf.
[109] Ministry of Information and Communications, Kenya ICT Strategy: Collaboration and Outsourcing for Economic Growth (2006).

3. Trade and ICT

This chapter examines the link between ICT and the economy. It highlights the positive impact ICT has on economic growth and its growing importance for trade. The rise of ICT-enabled services is also explored and the potential for Case Study Countries in this area is contrasted with other countries.

3.1 ICT contribution to economic growth

In order to evaluate the importance of ICT trade for the economy, it is useful to reaffirm the central role played by information and communications technology generally in economic development. A recent report, which collated the findings in over 200 studies of the effect of ICT on economic growth, demonstrates that:

> "…investment in information technology and telecommunications hardware, software applications and services turns out to be a powerful driver of growth…having an impact on productivity three to five times that of non-IT capital (*e.g.*, buildings, machines)."[110]

While the report finds that the impact of ICT on productivity has been largest in developed nations, it has an impact "in some developing nations, and its impact is likely to grow as they get wealthier and as their economies become more IT-intensive." The study cites examples such as China, India, Malaysia, and Thailand, to demonstrate the critical role in economic growth played by ICT. It also cites other evidence such as a study of 42 developing nations that demonstrated a positive correlation between cellular telephone adoption and economic growth.[111]

A 2006 report from UNCTAD examined the impact of ICT on economic growth in 135 developing countries.[112] It found that a one percent increase in a country's ICT infrastructure results in a 0.3 percent increase in per capita income. A 2005 study found that mobile phones had a significant impact on economic growth. Using data for the period 1996-2003, it found that each ten mobile subscribers per 100 people in developing countries generate GDP per capita growth of 0.59 percent.[113]

The economic impact of ICT is also borne out from evidence in the Case Study Countries themselves. In Kenya, the communications sector grew 21 percent a year between 2000 and 2005 compared to just seven percent growth in the overall economy.[114] In Uganda, the communications sector grew 46 percent a year between 2000 and 2005 compared to just 11

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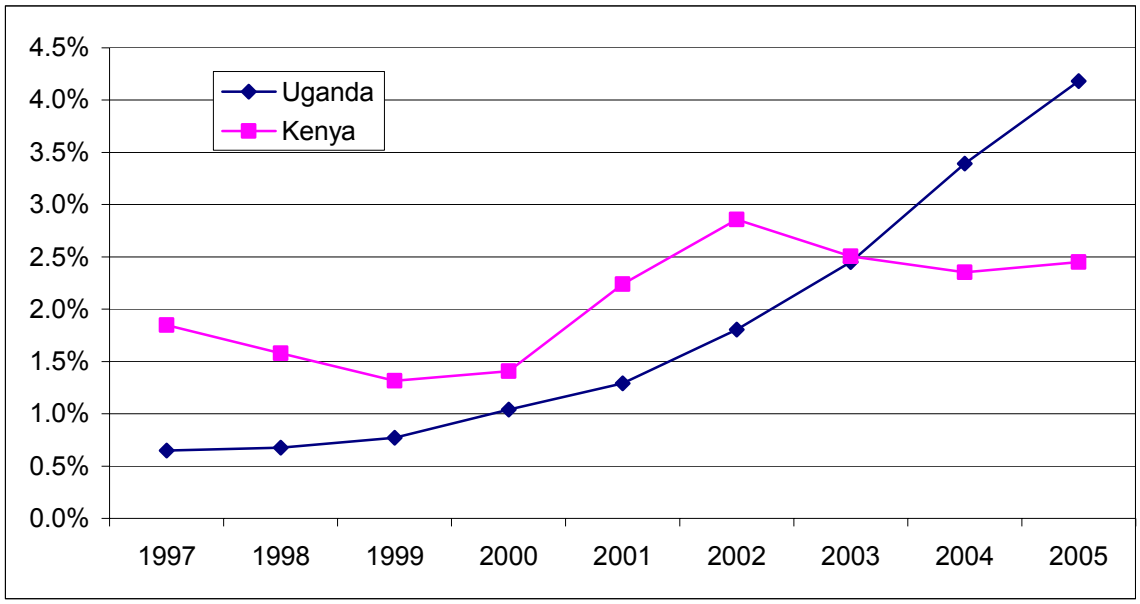
[110] Atkinson, R., & McKay, A., "Digital Prosperity: Understanding the Economic Benefits of the Information Technology Revolution," *The Information Technology & Innovation Foundation* at 3 (March 2007), available at http://www.itif.org/files/digital_prosperity.pdf ("*Digital Prosperity*"). "Digital Prosperity" abbreviates "information and communications technology" as "IT," rather than ICT as is done in this report.
[111] *Id*. at 18, citing Jacobsen.
[112] United Nations Conference on Trade and Development (UNCTAD), E-Commerce and Development Report at 143 (2003).
[113] "Africa: The Impact of Mobile Phones. Moving the Debate Forward," *The Vodafone Policy Paper Series*, No. 2 (Mar. 2005).
[114] Data from the Kenya National Bureau of Statistics.

percent growth in the overall economy.[115] As a result, the contribution of the communication sector to GDP rose from 1.4 percent to 2.5 in Kenya and 1.0 percent to 4.2 percent in Uganda.

Figure 3-1: Contribution of communications sector to GDP, Kenya and Uganda



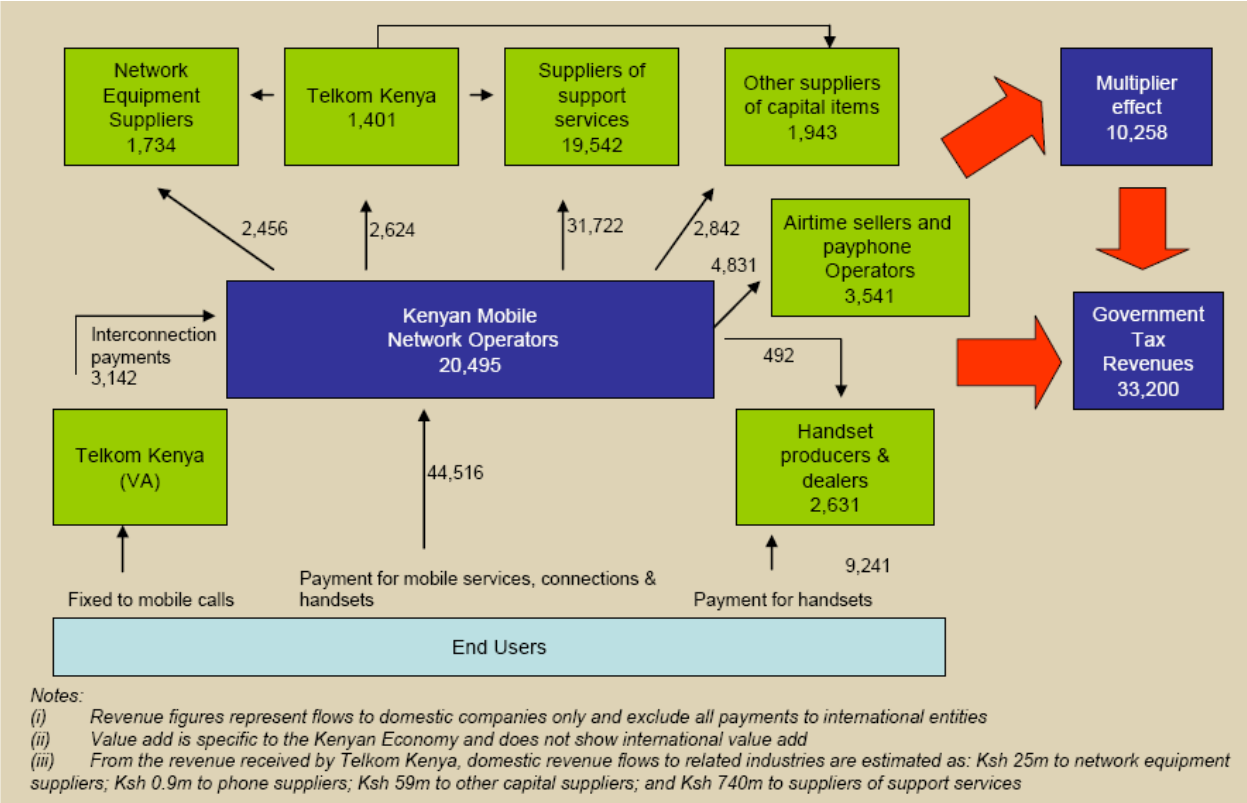
Note: Data not available for Tanzania.
Source: Adapted from Kenya National Bureau of Statistics and Uganda Bureau of Statistics.

The wider benefits of the ICT sector are illustrated from a study on the region's mobile sector.[116] In addition to the direct services output of the sector, mobile services generate income and employment for equipment and services suppliers, prepaid vendors and handset distributors. The study found that the total economic contribution of mobile communications in the Case Study Countries, including its multiplier impacts, rose considerably between 2003 and 2006. In Kenya, the increase was 150 percent and the mobile sector stood at over five percent of GDP in 2006. In Tanzania, the increase was 280 percent and the mobile service sector stood at 4.6 percent of GDP in 2006. In Uganda, the increase was over 200 percent and the mobile service sector stood at 4.6 percent of GDP in 2006.

The impact of the mobile sector on employment has also been impressive. In Kenya, the 1,800 direct employees in the mobile sector generate downstream employment of around 160,000 jobs. In Tanzania, the 1,300 direct employees in the mobile sector generate downstream employment of some 150,000 jobs. The 1,000 direct employees in the Ugandan mobile sector generate downstream employment of over 90,000 jobs.

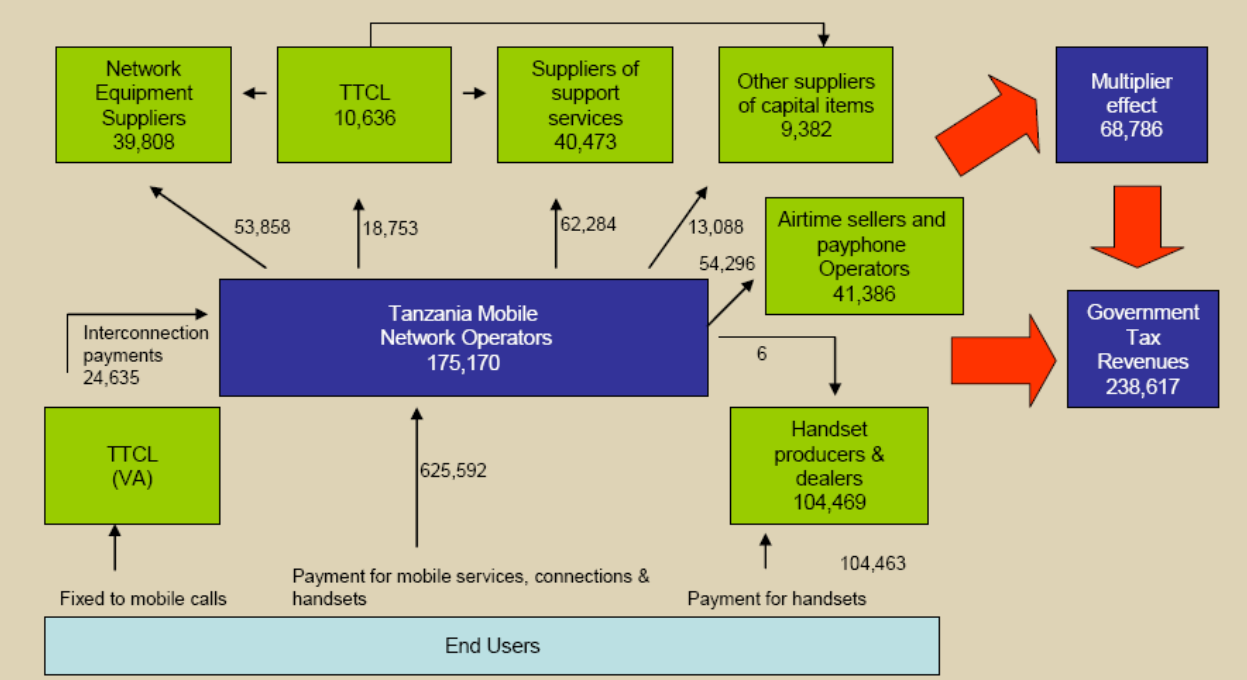
[115] In current prices. See Bank of Uganda, Quarterly Economic Report (2006).
[116] GSM Association, Taxation and the Growth of Mobile in East Africa (2007).

Figure 3-2: Mobile communications value chain in Kenya, 2006, KES millions



Source: GSM Association (2007).

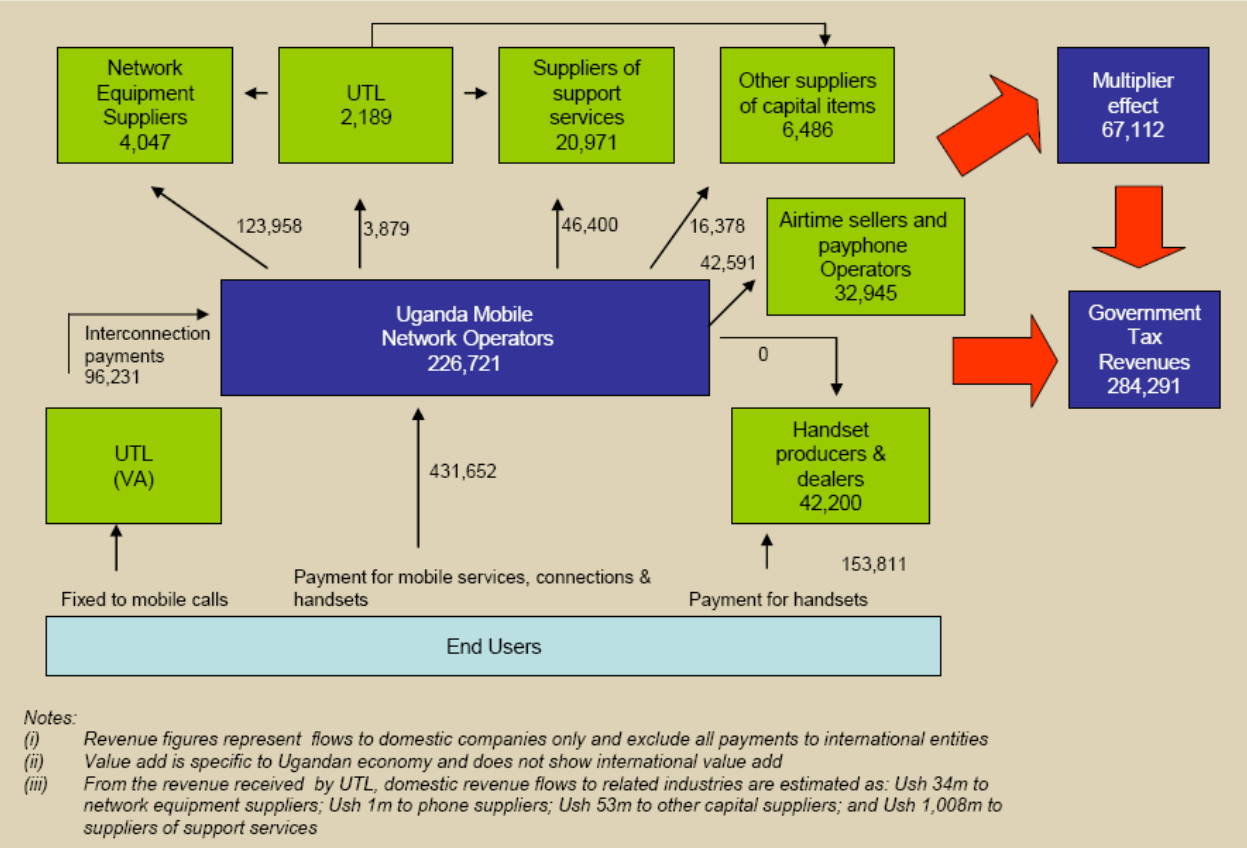
Figure 3-3: Mobile communications value chain in Tanzania, 2006, TZS millions



Notes:
(i) Revenue figures represent flows to domestic companies only and exclude all payments to international entities
(ii) Value add is specific to Tanzanian economy and does not show international value add
(iii) From the revenue received by TTCL, domestic revenue flows to related industries are estimated as: Tsh 167m to network equipment suppliers; Tsh 4m to phone suppliers; Tsh 259m to other capital suppliers; and Tsh 4914m to suppliers of support services

Source: GSM Association (2007).

Figure 3-4: Mobile communications value chain in Uganda, 2006, UGX millions



Source: GSM Association (2007).

3.2 Impact of trade in services on economic growth

Services provide one of the best opportunities for economic growth in developing countries. Services represent a dominant share of the global economy, accounting for more than 60 percent of economic activity in many developing countries and more than 70 percent in developed countries.[117] In Kenya, services contributed 54.8 percent of GDP in 2006, up from 50.7 percent in 2000.[118]

According to the WTO, between 2002 and 2005, Africa as a group increased its commercial services exports 44 percent, from US$ 10.2 billion to US$ 14.7 billion.[119] Growth of commercial services exports has been impressive in Kenya, rising over 400 percent between 2002 and 2005 from US$ 38 million to US$ 207 million. Growth has also been sharp in Uganda where commercial services exports grew from US$ 13 million in 2002 to US$ 100 million in 2005 while in Tanzania they grew from US$ 108 million to US$ 155 million during the same period.

[117] Making the Most of Doha Opportunity: Benefits from Service Liberalization, Coalition of Services Industries (2006).
[118] World Bank, World Development Indicators Database (April 2007).
[119] World Trade Organisation (WTO), Statistics Database.

Services are also labor intensive. According to CSI, world-wide employment in the services sector increased from 34 percent to 39 percent between 1995 and 2005. In contrast, agricultural employment declined, while employment in manufacturing was static.

There is definite evidence that liberalization of services markets contributes to economic growth. One study concludes that countries with liberalized financial and telecommunications services sectors grew, on average, about one percentage point faster than other countries.[120] If those markets are fully open to competition, the average growth rate is 1.5 percent above that of other countries. Furthermore, services liberalization has a greater impact than goods liberalization.

In addition, services liberalization contributes to efficiency in traditional goods exports by lowering costs. Transportation, financing, and communications services form a significant percentage of trade costs. The liberalization of shipping and other transport services, the greater availability of bank credit and lower communications prices reduce the associated costs of importing or exporting a product.[121] For example, a study of the potential effect of services liberalization in Tunisia demonstrates that "potential efficiency gains would be large, on the order of four to five percent of initial consumption, while output in all merchandise sectors would rise."[122]

3.3 ICT-enabled services

The benefits of a liberalized and growing ICT sector could potentially be immense. As noted, ICT investment raises productivity, resulting in overall gains to the economy. Furthermore, ICT leads to efficiency gains in conventional trade by enabling importers and exporters to exchange goods more effectively. But perhaps the most promising area for the Initial Study Countries is the use of ICT to enable participation in the BPO market.

ICT has caused revolutionary changes to business models, allowing inputs for various processes to be outsourced from around the world. Examples vary in scope and sophistication and include data entry for tax schedules, insurance claims, mail order catalogs and other forms and documents; call centers to interact with customers; transcription services for medical information; developing and customizing software; and animating computer games. The quest for lower costs and 24 x 7 availability is driving companies in developed countries to look abroad to carry out these activities. This provides significant opportunities for developing country enterprises to participate in the global ICT economy.

Though definitions and estimates about the size of BPO offshoring differ, the available information suggests a large and growing market. Some analysts consider all services exports except travel, transportation and government to be dependent on ICT. Under that broad definition — which covers sectors such as insurance, finance, consulting, market research as well as computer and information services — global ICT-enabled services exports were US$ 1,061

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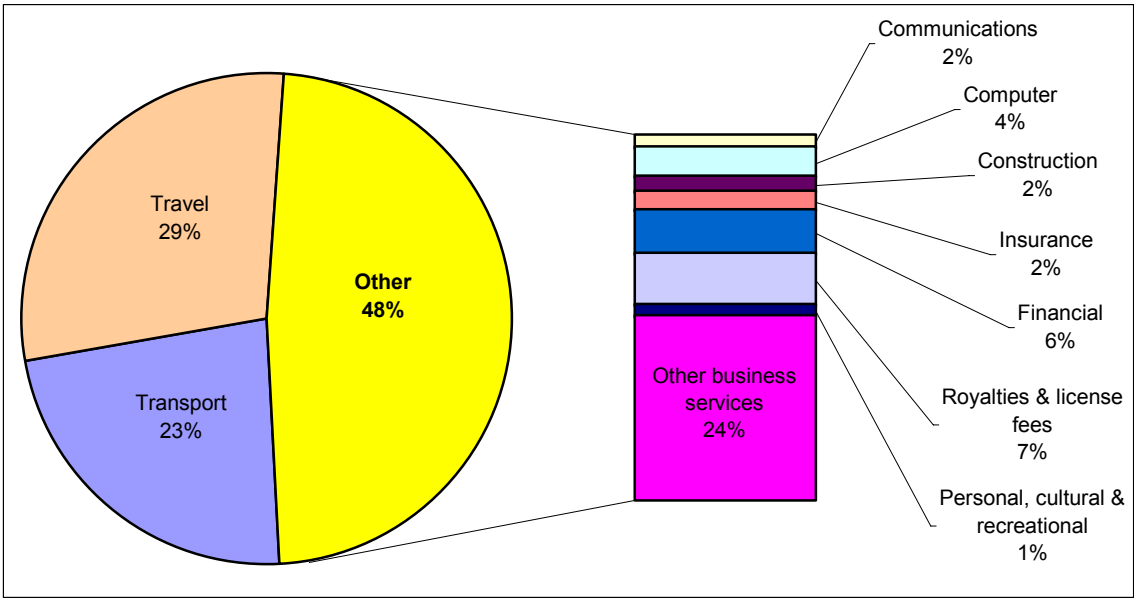
[120] Nielson, J. & Teglioni, D., "Services Trade Liberalization: Identifying Opportunities and Gains," *OECD Trade Policy Working Paper*, No. 1, OECD TD/TC/WP at 22 (Feb. 6, 2004), citing Mattoo, A., Rathindran, R., and Subramanian, A., "Measuring Services Trade Liberalization and its Impact on Economic Growth: An Illustration," 21 *Journal of International Economic Law* 64 (2006).
[121] Nielson Nielson, J. & Teglioni, D., "Services Trade Liberalization: Identifying Opportunities and Gains," *OECD Trade Policy Working Paper*, No. 1, OECD TD/TC/WP at 16 (Feb. 6, 2004).
[122] *Id*. at 22, citing Hoekman at 16.

billion in 2004.[123] Another view is the value of services that have outsourcing potential or the "global addressable market," which has been estimated at US$ 300 billion in 2005.[124] The actual size of the BPO outsourcing market has been pegged at US$ 29 billion in 2005 with developing countries accounted for around one third of the amount.[125] One forecast projects it to grow to US$ 110 billion by 2010.[126]

Figure 3-5: Trade in commercial services, 2004



Source: WTO.

Opportunities for export of ICT services by developing countries are supported by various examples. India is the best known where software exports have grown from less than US$ one billion in 1995 to over US$ 22 billion in 2006, accounting for more than half of that country's services trade.[127] Costa Rica is another example, where software services exports surged from US$ 16,000 in 1997 to US$ 60 million in 2000.[128] In the Philippines, revenues from call centers doubled between 2004 and 2006 to US$ 2.7 billion.

[123] World Trade Organization (WTO), International Trade Statistics (2006).
[124] Sañez, O., Driving Breakthrough Growth in BPO/IT-Services, Presentation at BPA/P General Membership Assembly, Philipines (Feb. 26, 2007); Reserve Bank of India, Annual Report (2006), available at http://www.bpap.org/bpap/bpapresearch.asp.
[125] This estimate has been derived from Sañez (2007), data from NASSCOM on the global market share of the Indian BPO sector and a McKinsey report on the BPO revenues of developing countries.
[126] Sañez, O., Driving Breakthrough Growth in BPO/IT-Services, Presentation at BPA/P General Membership Assembly, Philipines (Feb. 26, 2007), available at http://www.bpap.org/bpap/bpapresearch.asp.
[127] Reserve Bank of India, Annual Report (2006).
[128] Zhongzhou, L., Speech, The Impact of ICT and e-Business on Developing Country Trade and Growth, Presented at the OECD-APEC Global Forum: Policy Frameworks for the Digital Economy in Honolulu, Hawaii (Jan. 15, 2003), available at http://www.oecd.org/dataoecd/20/9/2492709.pdf.

African countries are also beginning to tap into ICT services exports. South Africa has emerged as an attractive call center destination[129] while Mauritius is leveraging its ties with India to grow its BPO industry.[130] Proof of the increasing importance of ICT services in Africa is that experts are focusing on ICT as a driver of economic growth in African countries. For instance, a study of Ghana's economic prospects focuses on the potential of "IT-enabled services" in improving business competitiveness and increasing economic growth in Ghana.[131]

Globalization and the potential for ICT-enabled services offer a significant opportunity for the Case Study Countries to diversify their exports. For example, the World Bank recently concluded that Kenya cannot continue to rely on commodity exports that result in "continued poor trade-growth rates and thus, continued global marginalization."[132] The same is true in Tanzania and Uganda where the economies are very reliant on agriculture. There is also high dependence on a few items for foreign exchange earnings and the trade balance is in deficit. The development of an ICT-enabled export services sector can help diversify the economy, generate foreign exchange, and provide employment for secondary and tertiary school graduates.

Cognizant of the need to diversify their economies, the Case Study Countries have pursued various policies and strategies to promote ICT-enabled services. The Kenyan government has adopted BPO as one of six key economic sectors in its *Vision 2030* development plan. Its goal is to become one of the top three BPO locations in Africa. Targets include 7,500 jobs and an economic contribution from BPO of KES 10 billion (around US$ 140 million) by 2012. The government has also recently created an ICT Board that has the mandate to promote Kenya as a BPO location.

Tanzania's National Information and Communications Technologies Policy was created within the framework of the country's overall economic development strategy, Vision 2025, which identifies the ICT sector as a primary target for development. The policy has ten areas of focus one of which is ICT industry. Within that focus area, the policy states:

> "The Government will foster the growth and technological sophistication of the ICT industry in order to support the extensive and innovative application of ICT and the export of competitive ICT products and services."[133]

Uganda's ICT policy is embodied in the National Information and Communication Technology Policy—2002—Uganda.[134] The policy focuses on three main areas: information as a resource

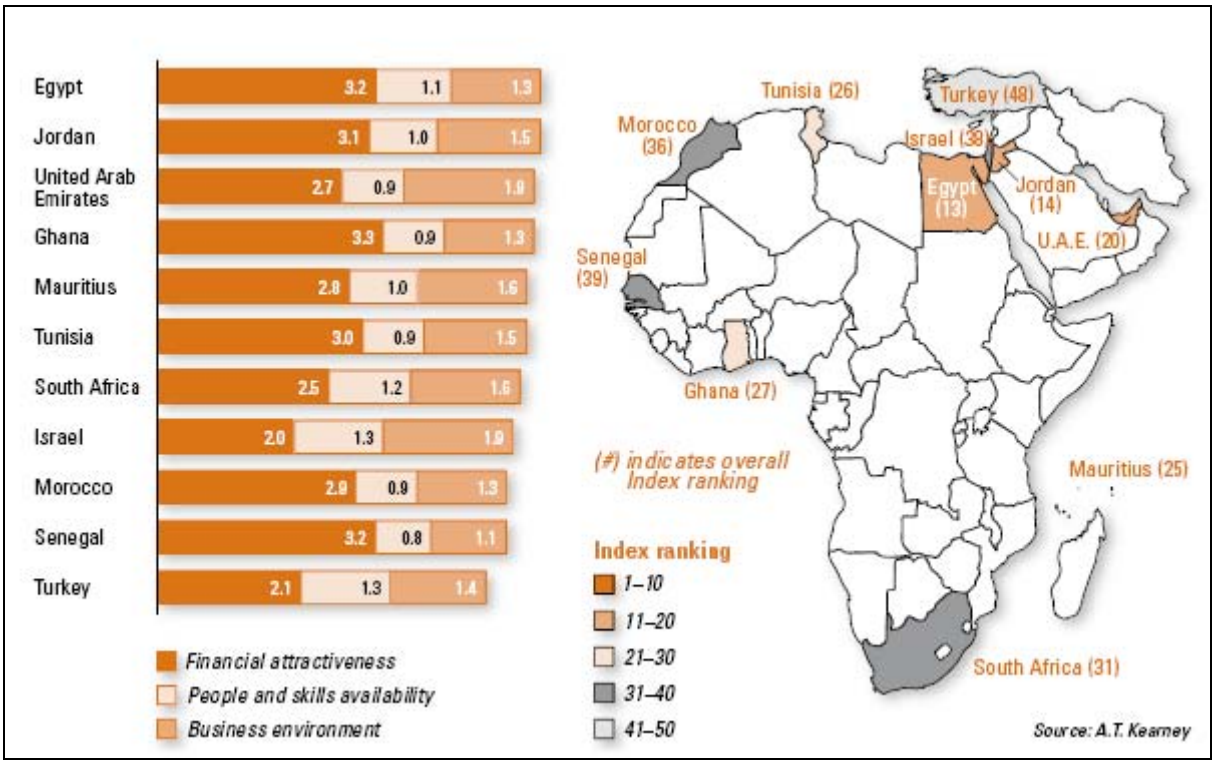
[129] South African Contact Centre Industry Leads the World, SouthAfrica.co.za, http://www.southafrica.co.za/the_good_news_72_7.html [Accessed on Sept. 13, 2007].
[130] HTMT Sets Up BPO Facility in Mauritius, Sify.com, http://sify.com/finance/fullstory.php?id=13937379 [Accessed on Sept. 13, 2007].
[131] Hewitt Associates, "Improving Business Competitiveness and Increasing Economic Growth in Ghana: The Role of Information and Communications Technologies and IT-Enabled Services," *Infodev/World Bank* (2006), available at www.infodev.org/en/Publications.170.html (*see, infoDev Ghana Report*).
[132] World Bank, Publ'n No. 37688-KE, Kenya: Unleashing the Potential for Trade and Growth at 11 (2007).
[133] Ministry of Communications and Transport, National Information and Communications Technologies Policy (2003).
[134] National Information and Communication Technology Policy 2002, Uganda, available at www.ilo.org/public/english/employment/skills/hrdr/init/uga_1.htm.

for development; mechanisms for accessing information; and ICT as an industry, including e-business, software development, and manufacturing. Fourteen objectives are identified of which the third is "Promotion of Building appropriate Infrastructure Strategies." Within that objective, there are eleven activities including "Facilitate the establishment of Internet-ready Industrial Parks to engage in Data Capture and Data Processing export work."

There are a number of BPO activities underway within Uganda. The Ministry of ICT has established a task force to study Uganda's BPO potential. A presidential sub-committee, comprised of private and public sector members, has been established to provide input into Uganda's BPO policy. An IT Park, built with assistance of the Commonwealth Business Council, is close to completion.

Case Study Countries are not the only developing nations hoping to tap into ICT-enabled services. One outsourcing study ranks 50 countries according to BPO location attractiveness.[135] However, none of the Initial Study Countries were included in this study (see Figure 3-6). This means that the Initial Study Countries are not on the ICT-enabled services "radar screen" making it difficult to analyze how they rate as outsourcing locations compared to others.

Figure 3-6: BPO offshore locations in Middle East and Africa



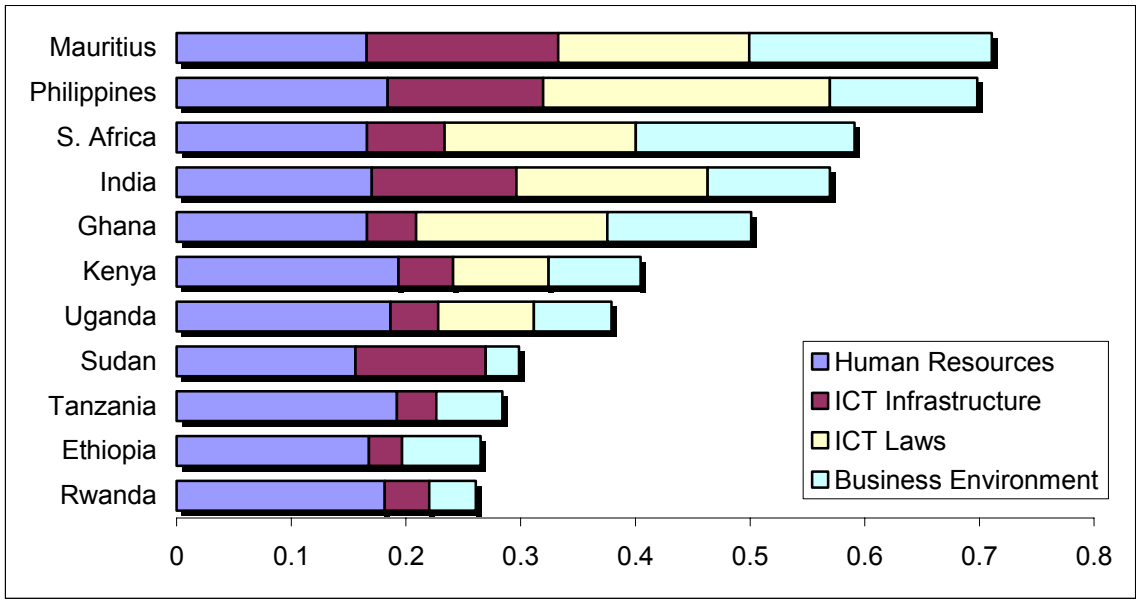
Source: A.T. Kearney.

In order to overcome the lack of comparative information, a matrix has been designed for this report to grade countries on various factors that determine the attractiveness of a country as an outsourcing destination (human resources, ICT infrastructure, ICT laws, and business

[135] A.T. Kearney Global Services, Location Index, Offshoring for Long-Term Advantage (2007), available at http://www.atkearney.com/shared_res/pdf/GSLI_2007.pdf.

environment). The methodology is described in Annex I. The Initial Study Countries are contrasted with leading African (Ghana, Mauritius and South Africa) and other developing country BPO locations (India and the Philippines) to evaluate their attractiveness. Detailed results are provided in Annex I while overall results are shown below.

Figure 3-7: Attractiveness as a BPO destination, 2006



Source: TMG, Inc.

None of the Initial Study Countries ranks ahead of the more established African or other developing country BPO locations. Kenya ranks first in relation to the other Initial Study Countries. It has the highest score in Human Resources among all countries studied. Per capita income is relatively low suggesting that labor costs should be less than in other nations. Kenya also fares well in English language skills as well as literacy and school enrollment. In terms of ICT Infrastructure, Kenya does poorly with low levels of international Internet connectivity and telephone lines and high broadband prices. In the Business Environment, Kenya needs to improve its governance perception, which drags down its overall score in this category. In the area of ICT Laws, Kenya has only adopted one of the three global commitments that comprise this category.

Tanzania's overall rank is low in relation to the other Initial Study Countries. Tanzania, along with Kenya, ranks first in Human Resources among all countries studied. Tanzania has a relatively low per capita income suggesting that labor costs should be less than in other nations. In terms of ICT Infrastructure, Tanzania does poorly with low levels of international Internet connectivity and telephone lines and high broadband prices. In the Business Environment, Tanzania does poorly in the World Bank's "Doing Business" score as well as its rate of electrification. In the area of ICT Laws, Tanzania has not adopted any of the three global commitments that comprise this category.

Uganda ranks low in relation to leading BPO countries but relatively high in relation to the other Initial Study Countries. Uganda ranks third in the Human Resources category among all countries studied. It has a relatively low per capita income meaning that labor costs should be less than in other nations. Uganda also fares well in English skills as well as literacy and school enrollment. In terms of ICT infrastructure, Uganda does poorly with low levels of international Internet connectivity and telephone lines and high broadband prices. In the Business Environment area, Uganda needs to improve its governance perception. In the area of e-laws, Uganda has only adopted one of the three of the commitments that comprise this category.

3.4 Benefits of WTO Commitments in ICT

Unilateral market opening of services sectors, as noted above, contributes to economic growth. The question, however, is what benefit would the Initial Study Countries receive from binding services liberalization in the WTO. There is limited evidence that GATS commitments, in and of themselves, have an effect on economic growth. Part of the reason for the lack of quantitative evidence, however, is the paucity of GATS commitments which resulted from the initial commitments.[136] It is also difficult to disentangle WTO commitments from parallel domestic reform in a quantitative analysis since they tend to mirror each other in effect. Benefits from WTO commitments such as increased investor confidence and impacts on national liberalization developments are also hard to quantify.

One study, however, has demonstrated that a positive relationship between adherence to the WTO Reference Paper and price reductions in the mobile and local fixed line services subsectors. This study compared a "world" sample with a group of African countries in terms of market access and domestic regulation.[137] It concluded that "a common regulatory framework…as measured by adhesion to the Reference Paper, in the world sample leads to highly significant price reductions in the mobile and local fixed line segments for both price indicators." In contrast, there were insignificant price results for the African countries, which "were to be expected in view of the fact that only six of them have adopted the Reference Paper."

Another study found "a strong and positive correlation between positive changes in sector performance and sector reform supported by WTO commitments."[138] It examined fixed and mobile telephone penetration and telecommunications sector revenues as a percentage of GDP, comparing countries that had made WTO basic telecommunications commitments and those that had not. With regard to Africa, the study found that countries that had made commitments had subsequently higher growth in sector revenues than countries that had not made commitments. It

[136] Adlung, R., and Roy, M., "Turning Hills into Mountains? Current Commitment under the General Agreement on Trade in Services and Prospects for Change," 39 *Journal of World Trade* 6 (2005).
[137] Keck, A., and Djiofack-Zebaze, C., "Telecommunications Services in Africa: The Impact of Multilateral Commitments and Unilateral Reform on Sector Performance and Economic Growth," *WTO Working Paper*, No. ERSD-2006-10 at 20 (2006). The "world" sample contains the 69 WTO members who incorporated the Reference Paper into their GATS Schedule of Specific Commitments.
[138] Bressie, K., Kende, M., et al., "Telecommunications Trade Liberalisation and the WTO," 7 *The Journal of Policy, Regulation and Strategy for Telecommunications* 3, 22 (2005), available at http://www.emeraldinsight.com/10.1108/14636690510587199.

also found that African countries that had made commitments had a higher fixed and mobile penetration by 2002 than those that had not.

There are a number of reasons why the Initial Study Countries would benefit from undertaking "full" WTO commitments in the context of the Doha round of WTO negotiations in the computer and telecommunications sectors. While it is not possible to quantify these benefits, it is possible to enumerate them and weigh them against potential costs.

3.4.1 Transparency and predictability

Including commitments for services in a GATS schedule adds to government transparency and predictability. As a result of GATS obligations, a WTO Member must publish all laws relevant to those sectors and provide review of administrative decisions affecting those sectors. In addition, under the GATS Annex on Telecommunications, service suppliers must have access to and use of the public switched network on reasonable and non-discriminatory terms and conditions.

These obligations benefit domestic services suppliers, as well as services suppliers of other WTO Members since whatever mechanisms are adopted to implement these obligations will generally be available to all. Although WTO commitments only impact obligations with regard to foreign companies, it is highly unlikely, for example, that a WTO Member would establish a review mechanism for administrative decisions only for use by foreign nationals. Or that it would mandate access to and use of the public switched network only for foreign services suppliers.

Although domestic services suppliers do not have access to WTO dispute settlement, they get the benefit of enhanced transparency and predictability. As a result, all services suppliers in the WTO Member will be able to examine the laws and regulations applicable to their services. They will be able to seek review of administrative decisions and they will all have the right of access to and use of the public switched network on transparent, non-discriminatory, and reasonable terms and conditions.

3.4.2 Support for domestic reform efforts

Undertaking binding commitments in the GATS adds credibility to domestic reform efforts. In many cases, there are entrenched economic or political interests that would prefer to maintain the status quo, blocking reforms needed to spur economic growth. Making binding international commitments can support the effort to reach consensus on reforms and spur adoption. It puts pressure on domestic players to take the process of domestic privatization, deregulation, and introduction of competitive regulation seriously.[139]

Incorporation of the Reference Paper as an additional commitment in the GATS Schedule of Specific Commitments is a good example of using multilateral obligations to support domestic reform. The fact that the Reference Paper obligations are binding help propel the domestic reform agenda needed to fully implement the opening to competition. For example, Barbados faced domestic opposition in efforts to liberalize its telecommunication sector. Citing its WTO

[139] Jansen, M., "Services Trade Liberalization at the Regional Level: Does Southern and Eastern Africa Stand to Gain from EPA Negotiations?," *WTO Working Paper*, No. ERDS-2006-06 (2006).

membership and commitment to international trade, Barbados adapted the Reference Paper into domestic legislation.[140]

Maintaining reforms is also easier once they are reflected in a binding international agreement. In many cases, attempts to reverse reform can be successfully avoided by pointing to the need to maintain WTO consistency of domestic laws and regulations.

In addition, the process of considering multilateral trade obligations provides an opportunity for government ministries to coordinate policies and consider points of view and interests that they may not have been aware of previously. These ministries may never have contemplated the "wider economic implications of what they do in their areas of competence" and to do so "free of direct political interference."[141]

3.4.3 More attractive environment for foreign investment

Investors are generally risk-adverse and seek a secure, stable environment before committing time and capital. The existence of GATS commitments is effectively a promise from a WTO Member that its foreign investment regime will not change to the detriment of investors. It "locks in" gains by prohibiting a WTO Member from increasing foreign ownership restrictions or adding new limitations on foreign services suppliers.

A GATS commitment is also a promise that a foreign investor can repatriate its profits. Article XI of the GATS prohibits a WTO Member from applying restrictions on international transfers and payments for current transactions, except in limited circumstances. Finally, GATS commitments are protected by impartial, binding dispute settlement. While the existence of GATS commitments cannot solve issues such as labor constraints or problems with electricity, a foreign investor will appreciate the legal certainty provided by GATS commitments.

GATS commitments in computer and telecommunications services would encourage foreign investment in these sectors, something that all of the Initial Study Countries need. For example, the International Finance Corporation (IFC) notes that obtaining financing to start up or to expand a business is "the biggest problem for entrepreneurs" in East Africa.[142] There are limited venture capital and private equity markets, and banks often require full collateral.

3.4.4 Market opening for Initial Study Country exports

There are various examples of how the export interests of Uganda could benefit from multilateral trade commitments.

One area of interest to Uganda is negotiations on trade-facilitation, aimed at reducing non-tariff barriers to exports. These include streamlining and harmonizing port information requirements,

[140] Schmid, L., "Barbados: Telecommunications Liberalization," *Managing the Challenges of WTO Participation Barbados*, Cambridge University Press (2005), available at http://www.wto.org/English/res_e/booksp_e/casestudies_e/case4_e.htm#fnt5.
[141] Adlung, R., "The Contribution of Services Liberalization to Poverty Reduction: What Role for the GATS?," *WTO Working Paper*, No. ERSD-2007-01 (2007).
[142] International Finance Corporation, ICT Regional Report at 9.

employing a "single window" for customs clearance and duty collection, reducing the number of documents needed to import goods and mandating advanced customs rulings.[143]

On the services side, Uganda will have significant export interests as it continues to develop its ICT sectors. As noted, services exports are forecast to stimulate greater economic growth than traditional goods exports. However, services exports have been constrained by restrictive trade barriers, thereby explaining their relatively low overall proportion of global trade. For example, the Indian National Association of Software and Service Companies (NASSCOM) has been urging the WTO to include ICT-enabled services under a WTO agreement to counter non-tariff barriers in developed countries. NASSCOM states "We are already seeing a number of non-tariff barriers to Indian software and BPO services exports to the U.S. and Europe" citing for example United States restrictions preventing government contractors from outsourcing work abroad.[144] As Uganda is keen to develop ICT-enabled services exports, it needs to ensure that overseas markets reduce or eliminate barriers. By working within the multilateral trade framework, it can ally with like-minded countries to lobby for reform.

[143] World Trade Organisation (WTO), Trade Facilitation, available at http://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm.

[144] IDG News Service, India Presses WTO on Trade in Services (July 19, 2004), available at http://www.infoworld.com/article/04/07/19/HNindiapresseswto_1.html.

4. WTO and ICT Commitments

This chapter first provides an overview of WTO agreements relevant to ICTs, then analyzes Case Study Countries' commitments and explains how they might be improved.

4.1 WTO ICT- related agreements

Two overall and several subsidiary WTO agreements are relevant to ICT products and services. The General Agreement on Trade in Services (GATS) governs trade in all kinds of services, including telecommunications and computer services. The Information Technology Agreement (ITA), in tandem with the General Agreement on Tariffs and Trade (GATT), relate to ICT products.

4.1.1 GATS

The GATS consists of three components related to ICT services: a framework agreement setting general rules applicable to all services, the Annex on Telecommunications, and schedules of commitments made by Members regarding the openness of specific services sectors. Among the key requirements in the GATS and the Annex on Telecommunications are non-discrimination, transparency, domestic regulation, and competition safeguards.

As such, Members are required to provide equally favorable treatment to service providers from all other Members, regardless of whether a Member has made reciprocal market access commitments in the services being supplied. While the preceding obligation applies to all WTO Members, each Member may make commitments regarding specific services by including those services in its Schedule of Specific Commitments. Each member chooses what sectors in which to make commitments and the scope of permitted market access and national treatment for foreign service suppliers. Members make commitments based on the manner in which service is delivered (the "mode of supply"): cross-border supply, consumption abroad, commercial presence or the presence of natural persons.

Table 4-1: Description of Modes of Supply

WTO GATS Classification	Description	Example
Mode 1 Cross-border supply	Defined to cover services flows from the territory of one Member into the territory of another Member	A UK consumer making a telephone call to Tanzania
Mode 2 Consumption abroad	Refers to situations where a service consumer moves into another Member's territory to obtain a service	A Kenyan mobile user roaming into Uganda
Mode 3 Commercial presence	A service supplier of one Member establishes a commercial presence in another Member's territory to provide a service	An Irish company opens an office in Kenya to provide data processing for its European operations
Mode 4 Presence of natural persons	Consists of persons of one Member entering the territory of another Member to supply a service	A Ugandan IT consultant temporarily employed by a company in the US

Source: TMG, Inc. adapted from WTO.

The Schedule of Specific Commitments lists market access obligations, as well as any limitations that the Member wishes to make on number of suppliers, the participation of foreign capital, or the form of investment, and also lists the national treatment obligations. If a Member includes market access and national treatment commitments, it would be subject to further specific obligations regarding market access, non-discrimination, transparency, and domestic regulation.

In terms of ICT, the two key sectors for which a Member may make a commitment are telecommunications services and computer services.

4.1.1.1 Telecommunications Services

Telecommunications services include basic services (real-time transmission of customer supplied information without change in form or content) and enhanced or value-added services (computer-enhanced transmissions over the PSTN). WTO Members have generally agreed that a listed basic telecommunications service covers local, domestic and international long distance, any wire-based or wireless technology, facilities-based or resale-based supply and public or non-public services, unless otherwise stated.

Commitments in telecommunications services were first made during the Uruguay Round (1986-1994), mostly in value-added services. In extended negotiations thereafter (1994-1997), Members negotiated on basic telecommunications services. In February 1997, at the close of the three-year negotiations, the commitments of 69 governments were annexed to the Fourth Protocol of the GATS as the Basic Telecommunications Agreement (BTA). As part of their Schedules, certain WTO Members made "additional" commitments by agreeing, either in whole or in part, to the "Telecommunications Reference Paper." The Reference Paper provides for six regulatory principles: i) competitive safeguards; ii) interconnection; iii) universal service; iv) public availability of licensing criteria; v) independent regulators; and vi) allocation and use of scarce resources.[145] Subsequent to the conclusion of the negotiations, both Kenya and Uganda made specific commitments on basic telecommunications services in 1999 and signed on to the Reference Paper. Tanzania has not made any telecommunications commitments.

The GATS also contains an Annex on Telecommunications that is a general obligation undertaken by all WTO Members. It recognizes that access to and use of public telecommunications networks are essential to the effective provision of services covered under GATS and requires WTO Members to allow suppliers of scheduled services to use the "public telecommunications transport network and services" on reasonable and non-discriminatory terms.[146] This obligation extends to any kind of service sector for which a schedule has been made accepting specific market access and national treatment (*e.g.*, value-added services, banking services, legal services, and computer services) regardless of whether the particular country has liberalized its basic telecommunications sector. As a result, the Annex on Telecommunications does not deal with market access to basic telecommunications (as this is dealt with in each Member's schedule) and does not specifically require liberalization of telecommunications services; rather it deals with the ability of service suppliers to access such services.[147]

4.1.1.2 Computer and Related Services

Computer services relate to the processing, storing, and communicating of information. Under the service classification system adopted by the WTO,[148] computer and related services (CRS)

[145] GATS Fourth Protocol, the Reference Paper is available at http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm.
[146] Article 5(a) of the Annex on Telecommunications.
[147] Article 2cl(x) of the Annex on Telecommunications.
[148] The classification system, adopted by the WTO in 1991, derives from the United Nations Provisional Central Product Classification, a product of the U.N. statistical division.

are listed as a sub-sector of Business Services. The CRS sector consists of five sub-categories with the following United Nations Central Product Classification (CPC) codes: a) consultancy services related to the installation of computer hardware (CPC 841), b) software implementation services (CPC 842), c) data processing services (CPC 843), d) data base services (CPC 844), and e) other (CPC 845 and 849).

Unlike the BTA, CRS has not been dealt with separately within the WTO. As of 2005, there were 69 initial offers representing 93 WTO Members and 28 revised offers representing 52 WTO Members.[149] None of the Case Study Countries has made any CRS commitments.

4.1.2 Information Technology Agreement (ITA)

Unlike other WTO agreements, the ITA only applies to WTO Members that agree to be bound. When it came into force in 1997, there were 29 signatories; 70 WTO Members now have joined the ITA. The ITA addresses tariffs on goods considered essential to the ICT sector, including computers, telecommunications equipment, semiconductors, semiconductor manufacturing equipment, software, and scientific instruments and other products. The ITA includes three basic principles: i) all products listed in the Ministerial Declaration creating the ITA must be covered, ii) all listed products must be reduced to a zero tariff level, and iii) all other duties and charges must be bound at zero. While there are no exceptions to product coverage, developing countries that have joined the ITA have often phased out their tariffs over an extended period, rather than immediately. The zero tariff level on ITA products has reduced costs to both manufacturers and consumers in WTO Member States, and has increased competitiveness across several manufacturing and services sectors.

Though the ITA covers numerous products in the broad categories mentioned above, this study focuses on four representative types of products in reviewing the tariffs and other duties and charges of the Initial Study Countries: digital processing machines, wireline telephone equipment, portable receivers for calling (*i.e.*, cellular phones), and electronic integrated circuits and micro assemblies. Reducing tariffs to zero on the ITA products reduces costs to manufacturers and consumers (both individual and business) in the WTO Member and increases economic competitiveness across a broad range of manufacturing and services sectors.

Kenya, Tanzania and Uganda are not signatories to the ITA and have not undertaken any WTO commitments for any of the products in these categories. Their consolidated goods schedule has no bound duties for ICT products, so the amount of duty can be modified at any time.

4.2 Case Study Countries' laws and regulations in relation to WTO commitments

For purposes of this study, the analysis is based on a "full" set of WTO commitments in computer services and basic and value-added telecommunications services. In brief, a full set of commitments as defined in this section includes subscribing to GATS commitments on market access, national treatment and the Reference Paper, and the ITA. More specifically, a full set of commitments includes:

- Market access for all subsectors within the computer and telecommunications services sectors;

[149] Chan, T, Speech, State of Offers in Computer and Related Services (CRS), Presented at the Computer and Related Services Seminar in Geneva (Sept. 28, 2005).

- Market access for all modes of supply, except mode 4, movement of natural persons;[150]
- National treatment for all subsectors within the computer and telecommunications services sectors;
- National treatment for all modes of supply, except mode 4, movement of natural persons;
- Incorporation of the Reference Paper as additional commitments with respect to basic telecommunications services; and
- Adherence to the ITA.

Some of the entries in schedules also include certain measures that do not prevent a foreign service supplier from providing services in the WTO Member's territory, but rather impose conditions on the way they may be supplied. These include, for example, requirements for establishment of a local corporation in order to provide services through a commercial presence (mode 3), registration requirements for foreign service suppliers, and limitations on the number of foreign nationals who can be employed. These are nonetheless examples of measures that the GATS articles defining market access and national treatment require a Member to inscribe in its schedule as "limitations" if it wishes to maintain them.

In addition to commitments in schedules, general obligations of the GATS framework articles apply to all WTO Members (including Kenya, Tanzania, and Uganda). Some of these include obligations applying to all services, whether or not they have scheduled commitments for telecommunications and computer services. As such, the Case Study Countries must comply with the general obligations related to Most Favored Nation (MFN), transparency, and the Annex on Telecommunications further discussed below. Other of the general obligations, for example, certain licensing disciplines, do not apply until commitments are taken in a sector. Both Kenya and Uganda have made telecommunications commitments that call into play these latter obligations and disciplines.

Kenya commits to open its market for public voice telephony in 2003 and to license one terrestrial mobile services supplier in addition to Telkom Kenya. According to Kenya's schedule, foreign investment in telecommunications services providers, other than terrestrial mobile services, is capped at 30 percent. Kenya also commits in its schedule to the Reference Paper. It has not made any commitments related to computer services or signed on to the ITA.

[150] This study focuses on the two major modes of supplying telecommunications services—cross-border and commercial presence. Consumption abroad is considered by many WTO Members to be closely inter-related to cross-border supply. Presence of natural persons concerns issues such as work permits and duration of stay for foreigners supplying a service or employed by a foreign service supplier and is typically dealt with in the horizontal section, rather than sector-specific section of the schedule.

Table 4-2: Summary of Kenya's specific commitments in communications services by mode of supply

COMMUNICATIONS SERVICES	Mode of Supply		
	Cross-border supply (1)	Consumption abroad (2)	Commercial presence (3)
Telecommunication services	Market access/National treatment		
For public use			
(a) Voice telephone service (b) Telex services (c) Telegraph services (d) Facsimile services (e) Private leased circuit services	L/NL	L/NL	L/N
For public use			
(b) Packet-switched data transmission services (c) Circuit-switched data transmission services	NL/NL	NL/NL	L/NL
For non-public use			
Services supplied to closed users group (a) Voice telephone services (b) Packet-switched data transmission services (c) Circuit-switched data transmission services (d) Telex services (e) Telegraph services (f) Facsimile services	L/NL	L/NL	L/NL
Value added services	NL/NL	NL/NL	L/NL
(h) Electronic mail (i) Voice mail (j) On-line information and database retrieval (k) Electronic data interchange (l) Enhanced/value-added facsimile services, including store and forward, store and retrieve (m) Code and protocol conversion (n) On-line information and /or data processing (including transaction processing)			
Other			
Internet and internet access services	NL/NL	NL/NL	L/NL
Satellite based	L/NL	L/NL	L/NL
Mobile services Cellular/mobile telephone Mobile data services Personal communications services Paging			
Terrestrial based	L/NL	L/NL	L/NL
Mobile services Cellular/mobile telephone			

COMMUNICATIONS SERVICES	Mode of Supply		
	Cross-border supply (1)	Consumption abroad (2)	Commercial presence (3)
Mobile data services Personal communications services Paging Fixed satellite services (for public use)	L/NL	L/NL	L/NL

NL: *No limitations, i.e., Kenya agreed to place no constraints on the item in question.*
L: *Limitations listed.*
U: *Unbound, i.e., Kenya made no engagements with respect to the item in question.*
Utf: *Unbound due to lack of technical feasibility.*
Source: *WTO documents GATS/SC/47, 15 April 1994;/Suppl.1, 26 February 1998; and /Suppl.2, 18 November 1999.*

Uganda's commitments on telecommunications provide, among other things, for a duopoly in fixed public voice and data services and a maximum of three mobile service providers. Uganda also commits in its schedule to the Reference Paper. However, Uganda has not made any commitments on computer services and is not a signatory to the ITA.

Table 4-3: Summary of Uganda's specific commitments in communications services by mode of supply

COMMUNICATIONS SERVICES	Mode of supply		
	Cross-border supply (1)	Consumption abroad (2)	Commercial presence (3)
Telecommunication services	Market access/National treatment		
Facilities based public-switched voice telecommunication services on fixed network infrastructure			
(a)Basic voice services, including over value-added networks such as Internet (b) Private voice network services to third parties	L/NL	NL/NL	L/NL
Private voice & data for closed user groups (group of people with stable common and long-term economic interest)	L/NL	NL/NL	L/NL
Other			
- Mobile cellular voice and data	L/NL	NL/NL	L/NL
- Data services TCP/IP (Internet)	L/NL	NL/NL	L/NL
- Paging services	L/NL	NL/NL	L/NL
- Private mobile radio & trunked mobile radio	L/NL	NL/NL	L/NL
- Global mobile personal communications by satellite operations	NL/NL	NL/NL	L/NL

NL: *No limitations, i.e., Uganda agreed to place no constraints on the item in question.*
L: *No limitations with exceptions.*

The three countries differentiate between domestic and foreign investors in terms of registration requirements and requirements to obtain certain investment incentives. In addition, Kenya and Tanzania both have foreign ownership limitations for telecommunications services and Tanzania and Uganda have limitations on foreigners owning land. With regard to market access, the three

countries have modernized their telecommunications licensing framework and introduced technology neutrality. However, Kenya appears to have certain market entry requirements for "major licenses" (*i.e.*, licenses involving construction of networks and provision of services requiring access to scarce resource such as numbering and spectrum) since they are subject to an invitation to bid and in Tanzania the grant of individual licenses is subject to the discretion of the regulator. The table 4-4 below sets forth the Case Study Countries' situation with regards to national treatment and market access.

Table 4-4: Case Study Countries and GATS non-discrimination and market access obligations

GATS Article II (1) Most-Favored Nation **GATS Article II (1) National treatment**	**Kenya**	**Tanzania**	**Uganda**
Laws contradict the nondiscrimination or most favored nation (MFN) principle regarding the provision of telecommunications or computer services either through commercial presence or cross-border mode of supply.	No	No	No
Different requirements for domestic and foreign investors	Yes To benefit from incentives offered under the Investment Promotion Act the following requirements are only imposed on foreign investors: • must obtain a certificate from the Kenya Investment Authority ("KIA"), domestic investors do not require a certificate they only need to register and show a US$ 70,000 investment to qualify for the incentives. • demonstrate a threshold investment of US$ 100,000. • investment must be deemed by KIA as beneficial in terms of employment creation for Kenyans, acquisition of new skills and technology; and	Yes While all companies must be registered with the Business Registration and Licensing Agency (BRELA) of the Ministry of Industry and Trade, national companies pay about US$ 190 for registration, while foreign companies pay US $800. To obtain investment incentives under the Investment Act, domestic investors require a minimum capital requirement of US$100,000, while foreign investors have a minimum capital requirement of US$300,000. Similar discrimination applies with regard to investment in Zanzibar. In addition, the Licensing Regulation establishes that applicants for licenses have a physical address within	Yes Domestic companies must register with the Office of the Registrar General. Procedures have substantially less information that must be submitted than foreign companies. The registration fee for foreign investors is US$ 470, as opposed to U Sh 2,000 (approximately US $1) for domestic companies. Although there is no legal requirement in terms of a minimum investment, in practice a discriminatory threshold of US $100,000 has been applied to foreign investors against a US$ 50,000 threshold for local investors seeking incentives and applying for a Uganda Investment Authority (UIA) license. Foreign investors may be subject to a number of performance obligations not imposed on national counterparts as a condition for granting an investment license (*e.g.*, foreign exchange earnings, staff training

GATS Article II (1) Most-Favored Nation GATS Article II (1) National treatment	Kenya	Tanzania	Uganda
	contribution to tax or other government revenues. • new foreign investors with foreign staff must submit plans for the gradual phasing out of non-Kenyan employees.	Tanzania. Licensees must also take all reasonable steps to train Tanzanian nationals to main positions at all levels in the licensee's administrative and technical organization structure.	and local employment, technology transfer, contribution to socio-economic development). In practice, however, no such performance evaluation has been carried out since the mid 1990s.
Foreign ownership restriction	Foreign ownership limitations apply to both sectors. The Kenyan government allows up to 75% foreign ownership of firms listed on the Nairobi Stock Exchange (NSE). If a foreign investor wants more than a 75% interest, it must seek approval from the Capital Market Authority, which will consider the request in cases where the shares reserved for local investors are not yet fully subscribed. Foreign ownership of equity in telecommunications companies is restricted to 80% under Kenyan law.	There appear to be no limits on market access for computer services. But for telecommunications services, the Tanzania (Communications) Licensing Regulations 2005 imposes a cap of 65% foreign ownership for telecommunications licensees and 49% foreign ownership for content service providers.	Uganda imposes no limitations on foreign ownership except with regard to land ownership and if it will compromise national security.

GATS Article II (1) Most-Favored Nation GATS Article II (1) National treatment	Kenya	Tanzania	Uganda
	Foreigners cannot hold a freehold land title anywhere in the country, but can be granted leasehold titles – normally 99 years in towns.		The 1998 Land Act prohibits foreign investors from owning land, but allows them to lease for up to 99 years. However, non-discrimination applies to purchase and ownership of specific land titles for commercial, industrial, agricultural, and residential purposes. This may be: (a) land purchased by the UIA and allocated as leasehold or freehold tenure; (b) land belonging to ministries and town councils under freehold (for Ugandans only) and leasehold; or (c) government-held land.
GATS Article XVI – Market Access **Note by the Chairman for Scheduling Basic Telecommunications Market Access–All services can be provided through any means of technology and on a facilities basis or through resale**	Telecommunications services can be provided on a facilities or resale basis and licenses are granted on a technology neutral basis. Kenya's laws and regulations do appear to impose limits on the number of telecommunications providers requiring major licenses. These licenses can only be obtained through an invitation to bid by the regulator.	Telecommunications services can be provided on a facilities or resale basis and licenses are granted on a technology neutral basis. Tanzania appears to limit the number of telecommunications providers that may obtain individual licenses. Such licenses are issued conditionally through a competitive process initiated by the regulator. No limits exist for other telecommunications licenses or licenses for computer services.	The new licensing regime is technologically neutral and allows provision of service on a facilities-basis and through resale. No legal limitations exist on the type of services provided by the operators. Uganda's licensing regime contains no limitations on the number of licenses that can be issued.

Source: TMG, Inc.

4.2.1 GATS General Obligations

4.2.1.1 Most-favored Nation Treatment (MFN)

GATS Article II relates to MFN and requires Members not to discriminate among services or service suppliers of other Members. As WTO Members, the Case Study Countries must comply with this obligation as it is a general obligation that applies to all services whether or not the Member has scheduled commitments for that sector. Generally, the Case Study Countries do not

appear to have any laws contradicting the MFN principle regarding the provision of telecommunications or computer services

4.2.1.2 Transparency

The GATS, under Article III and the Annex on Telecommunications, contains general obligations related to transparency that are applicable to all Members for all services, regardless of whether or not they have scheduled commitments.

Article III of the GATS requires a Member to make "publicly available" all relevant laws, rules, regulations and administrative guidance concerning services. Publicly available means that the information is available in a widely-distributed publication or on a web-site or can be obtained or inspected at specified locations.

The GATS Annex on Telecommunications imposes additional requirements with respect to transparency in telecommunications services. It requires that conditions affecting access to and use of the public switched network are publicly available. This includes tariffs and conditions of service, technical interfaces, standards bodies, conditions for attachment of terminal equipment to the public switched network and all licensing criteria.

The Table 4-5 below outlines the Case Study Countries' situation with regards to transparency. The Case Study Countries make their laws and regulations available online and/or through the country's official Gazette, and tariffs must be published or made publicly available. However, none of the countries appear to require suppliers to make publicly available the specifications of technical interfaces with such networks and services or the conditions applying to attachment of terminal or other equipment. However, the three countries do have a standards setting authority and specify that in the law or regulations. Moreover, licensing requirements are generally publicly available.

Table 4-5: Case Study Countries and GATS transparency obligations

Transparency	Kenya	Tanzania	Uganda
GATS Article III (1) - All laws, regulations, and international agreements pertaining to telecommunications services are publicly available	Yes, on CCK website and the Government of Kenya publishes an official gazette on a weekly basis containing all laws and regulations.	Yes, on TCRA website and the Government of Tanzania publishes its laws and regulations in its official gazettes, the Gazette of the United Republic of Tanzania and a Zanzibar Gazette.	Yes, on UCC website and the Government of Uganda publishes an official gazette containing laws and regulations.
GATS Telecom Annex ¶ 4 **Relevant information on conditions affecting access to and use of public telecommunications transport networks and services is publicly available, including:**			
• **Tariff and other conditions of service are made publicly available**	Kenyan regulations require all telecommunications providers to publish	Tanzania's tariff regulations require that Communications Service Providers shall, upon	Uganda's Licensing Regulations require every licensee to make its tariffs publicly available.

Transparency	Kenya	Tanzania	Uganda
	tariffs, and to meet all reasonable requests for access to their networks.	approval by TCRA, ensure that tariffs are published in the public media within a reasonable period before becoming effective.	
• **Specifications of technical interfaces with such networks and services**	No provisions were found requiring this information be made publicly available	No provisions were found requiring this information be made publicly available	No provisions were found requiring this information be made publicly available
• **Information on bodies responsible for the preparation and adoption of standards affecting such access and use**	CCK is in charge of establishing equipment standards and type approval.	TCRA is in charge of establishing equipment standards and type approval.	UCC is responsible for establishing standards for telecommunications equipment and ensuring compliance with those standards.
• **Conditions applying to attachment of terminal or other equipment**	No provisions were found requiring this information be made publicly available.	No provisions were found requiring this information be made publicly available.	No provisions were found requiring this information be made publicly available.
• **Notifications, registration or licensing requirements, if any.**	Licensing requirements are publicly available	Licensing requirements are publicly available.	Licensing requirements are publicly available.

Source: TMG, Inc.

4.2.1.3 Domestic Regulation

Article VI covers domestic regulation, including government measures that are not dealt with in scheduled of commitments. It begins with a "good government" provision requiring that, in sectors where commitments are undertaken, all measures should be implemented in a reasonable, objective, and impartial manner. Also, some licensing disciplines are included that would be triggered automatically once commitments are taken in a sector. Another provision of Article VI of the GATS requires every WTO Member to maintain judicial, arbitral or administrative tribunals (or similar legal entities) and procedures for prompt review of administrative decisions. The review mechanisms are required for services generally, whether or not there are commitments in a particular sector. Article VI goes on to require that procedures for review must be objective and impartial. Article VI, however, does not mandate the specific form of review or any particular kinds of procedures. Finally, Article VI mandates a work program to elaborate further disciplines on licensing, technical standards, and qualification requirements. The results of the work program are not yet in place, but rather are under discussion in the Doha Round of WTO trade negotiations.

The table 4-6 below outlines the Case Study Countries' situation with regards to domestic regulation.

Table 4-6: Case Study Countries and GATS domestic regulation obligations

GATS Article VI – Domestic Regulation	Kenya	Tanzania	Uganda
(1) For all services, required to institute mechanisms to provide prompt, objective, and impartial review of, and where justified, remedies for administrative decisions	No laws were found in Kenya providing for a general right to request review all regulatory decisions, or any specific reference to implementation of domestic regulation for the computer services sector. Telecommunications: The 2001 Regulations provide for appropriate review of CCK decisions. The 1998 Act establishes an Appeals Tribunal within the CCK. Under the 2001 Regulations, for example, the Tribunal can hear appeals from any person aggrieved by a CCK decision on matters such as licensing, interconnection, and license revocation.	No laws were found in Tanzania providing for a general right to request review all regulatory decisions, or any specific reference to implementation of domestic regulation for the computer services sector. Telecommunications: The 1993 Act and the 2003 Act provide for appeal of regulatory decisions by TCRA, either to TCRA for reconsideration, to a court of competent jurisdiction, or in certain instances, to the Fair Competition Tribunal. In addition, the 2003 Act and the Consumer Protection Regulations specifically provide for appeal to the Fair Competition Tribunal of TCRA decisions.	No laws were found in Uganda providing for requests to review of regulatory decisions in general, or any specific reference to implementation of domestic regulation for the computer services sector. Telecommunications: The 1997 Act provides for the establishment of the Uganda Communications Tribunal to review regulatory decisions, but the Tribunal has not been established. Any person aggrieved by a Tribunal decision may appeal to the Court of Appeal within 30 days of the date of decision or order appeal. In addition, Article 9 of the Radio Regulations allows interested parties to file objections to license applications at any time prior to the grant of a license by the UCC.
(2) Where authorization is required for the supply of a service on which a specific commitment has been made (*e.g.*, telecommunications or computer services), regulations must provide that the applicant will be informed of the decision within a reasonable time and upon request will be informed of the status of application.	Telecommunications: No provision exists in the law or regulation stating that decisions regarding license applications will be decided within a reasonable timeframe or that information will be provided regarding the status of the application.	Telecommunications: No provision exists in the law or regulation stating that decisions regarding license applications will be decided within a reasonable timeframe or that information will be provided regarding the status of the application. On the website, the TCRA does publish a timeline of the licensing process.[151]	Telecommunications: No provision exists in the law or regulation stating that decisions regarding license applications will be decided within a reasonable timeframe or that information will be provided regarding the status of the application. On the website, the UCC states that the timeline for approving an application will generally be a month after all the necessary documents have been submitted and provided payment has been made

[151] Tanzania Communications Regulatory Authority, Converged Licensing Processes, available at http://www.tcra.go.tz/licensing/pdf_documents/licensing%20processes.pdf.

GATS Article VI – Domestic Regulation	Kenya	Tanzania	Uganda
			on time.

Source: TMG, Inc.

4.2.1.4 Competitive Safeguards and Access Requirements

4.2.1.4.1 Competitive Safeguards

Safeguards on behavior of monopoly or exclusive suppliers are required by GATS Article VIII. This Article is relevant if the WTO Member legally maintains a monopoly such as a sole telecommunications operator for some or all services.

The first element of these provisions is that the WTO Member must ensure that the provider observes the MFN obligation with respect to the provision of its monopoly services in its dealing with foreign service suppliers. If the WTO Member mandates one or more exclusive service suppliers, the WTO Member must ensure that they also observe the MFN obligation. For example, if a WTO Member has granted an exclusive service license for voice telephony, the provider cannot discriminate in its provision of services to a data processing center owned by a Japanese company and one owned by an Indian company.

The second element is that the WTO Member must ensure that the monopoly supplier does not abuse its monopoly position when competing with other service suppliers. For example, if the monopoly provides domestic data services, which are subject to competition from other providers, then it cannot use its profits from its monopoly operations to subsidize its domestic data services.

The Case Study Countries no longer have a monopoly situation in the telecommunications sector. It is worth noting, however, that the three countries do have telecommunications specific regulations addressing competition matters and Kenya and Tanzania also have general competition laws, and Uganda has a draft competition law that it is seeking to enact.

4.2.1.4.2 Access to and use of the Public Switched Telecommunications Network (PSTN)

The GATS Annex on Telecommunications requires a Member to ensure that all suppliers of PSTN networks and services to provide access to and use of their networks and services to all other service suppliers for which the WTO Member has granted market access, on reasonable and non-discriminatory terms and conditions. This provision has been interpreted by a WTO dispute settlement panel to include access at reasonable prices.

The Annex on Telecommunications also imposes specific requirements on access to and use of the PSTN. Other operators and service suppliers must be able to:

- purchase or lease and attach terminal or other equipment which interfaces with the network and which is necessary to supply a supplier's services;
- interconnect private leased or owned circuits with public telecommunications transport networks and services or with circuits leased or owned by another service supplier; and

- use operating protocols of the service supplier's choice in the supply of any service, other than as necessary to ensure the availability of telecommunications transport networks and services to the public generally.

While many of the obligations contained in the Annex on Telecommunications only apply to foreign suppliers of services covered by a WTO Member's specific commitments, in practice, it is not practical to issue regulations covering only some of a Member's service suppliers. Therefore, most WTO Members have adopted provisions regarding access to and use of the PSTN that are applicable to all service suppliers.

The table 4-7 demonstrates how the Case Study Countries each address the requirements set forth in the Annex on Telecommunications. Requirements related to access to network and services are included in law and/or regulations of each of the Case Study Countries.

Table 4-7: Annex on Telecommunications

GATS Telecom Annex ¶5	Kenya	Tanzania	Uganda
All services suppliers (including telecom service suppliers) must have access to and use of network and services on reasonable and non-discriminatory terms and conditions **If a WTO Member makes market access commitments on any service sector, the service suppliers in those sectors must have access to and use of the public network, including leased lines, on reasonable and non-discriminatory terms and conditions.**	Kenya's 2001 Regulations provide that all licensees shall provide uniform, non-preferential service on a first-come, first-served basis to all within a certain area who request service. However, it is not a violation of this provision for a licensee to consider the person's ability to pay for a service; or to make other rational classifications among subscribers. Nonetheless, all persons within a given class shall be provided with service on a non-preferential, first-come, first-served basis. There are no specific provisions requiring public telecommunications service providers to make leased lines available on reasonable and non-discriminatory conditions.	Tanzania's Access Regulations provide that a licensee must facilitate access to network facilities but it does not require that access be on reasonable and non-discriminatory terms and conditions. The Access Regulations state that a licensee may refuse unreasonable requests for access to its network facilities, with a request for access to network facilities being deemed unreasonable if it is not economically or technically feasible, and may result in the facilities provider being unduly prejudiced. There are no specific provisions requiring public telecommunications service providers to make leased lines available on reasonable and non-discriminatory conditions.	Uganda's 1997 Act specifically prohibits "denial of access or service to a customer except for delinquency of payment of dues or for any other just cause." In addition, it requires non-discriminatory provision of service to all customers with respect to the same type and quality of service. There are no specific provisions relating to availability of leased lines on a reasonable and non-discriminatory basis.

Source: TMG, Inc.

4.2.2 Telecommunications Reference Paper

In addition to the specific obligations listed above, Kenya and Uganda have the following obligations with respect to basic telecommunications services given that they adopted the Reference Paper as an additional commitment with respect to those services. In addition, Tanzania would have these obligations if it signed on to the Reference Paper. The tables below highlight the Case Study Countries' consistency with the Reference Paper principles under their laws and regulations.

4.2.2.1 Competitive Safeguards

Pursuant to Section 1 of the Reference Paper, a WTO Member must implement measures to prevent anti-competitive practices by a "major supplier."[152] The Reference Paper provides some examples of anti-competitive practices – cross-subsidization, improper use of information, failure to make available information about the network – but this list is not exclusive of the types of behavior that would be anti-competitive and should be prohibited. Other measures, such as price-fixing or joint or collusive behavior, are also covered by the Reference Paper.[153]

As noted below, the Case Study Countries have one or more laws and regulations that contain measures preventing anticompetitive practices. Uganda, for example, has provisions related to competitive safeguards under the 1997 Act, the Fair Competition Regulations, and the Licensing Regulations. Similarly, in Tanzania competition issues are addressed in the Fair Competition Act, the Tariff Regulations, and the Licensing Regulations. In Kenya, such matters are addressed in the 2001 Regulations.

Table 4-8: Competitive safeguards

Competitive Safeguards	Kenya	Tanzania	Uganda
There must be measures in place to prevent major suppliers from engaging in anti-competitive conduct. This includes prohibition on price-fixing, cartels, collusion, anti-competitive cross-subsidization, improper use of customer information, etc.	The 2001 Regulations defines acts of unfair competition and contains provisions relating to non-preferential service provision, procedures relating to complaints of unfair competition, as well as dispute resolution procedures.	The Fair Competition Act defines rules for competition in the economy, and established the Fair Competition Tribunal as an independent body to resolve complaints of unfair trade and business practices. In addition, the Tariff Regulations provide that dominant providers shall not prevent market entry or distort competition by	The 1997 Act contains provisions relating to fair competition and equality of treatment. In addition, the Fair Competition Regulations, which apply to all basic telecommunications providers provide that rules of fair competition shall to the extent practicable, be based on the principles of competition law and practice relating to the prohibition of anti-competitive agreements, decisions or concerted practices; abuse of a

[152] A "major supplier" is defined in the Reference Paper as a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of: (a) control over essential facilities; or (b) use of its position in the market. Essential facilities mean facilities of a public telecommunications transport network or service that (a) are exclusively or predominantly provided by a single or limited number of suppliers; and (b)cannot feasibly be economically or technically substituted in order to provide a service.

[153] World Trade Organization (WTO), "Mexico-Measures Affecting Telecommunications Services," Panel on Mexico WT/DS204/R, Publ'n No. 04-211 ¶¶ 7.230, 7.232 AND 7.237 (2004), available at http://www.wto.org/english/tratop_e/dispu_e/204r_e.pdf.

Competitive Safeguards	Kenya	Tanzania	Uganda
		applying tariffs below the underlying cost of providing the service. The Licensing Regulations provide that: (1) a licensee shall not show undue preference or unfair discrimination with respect to persons of any class or description regarding the provision of the licensed services. (2) a licensee may be deemed to have shown such undue preference or unfair discrimination if it unfairly favors to a material extent, a business carried out by itself in relation to the provision of the licensed services so as to place at a significant competitive disadvantage other persons competing with that business. (3) Any question relating to whether an act or omission done or course of conduct amounts to undue preference or unfair discrimination may be determined by TCRA. The Regulation also prohibits unfair subsidization of the provision of one type of service by revenues from other type of services.	dominant position; and anti-competitive mergers, take-overs, consolidations, acquisitions, etc.; and all other practices and acts with an effect on fair competition. The Fair Competition Regulations provide that an operator licensed under the Act shall not engage in any activity which has or is intended to or is likely to have the effect of unfairly preventing, restricting or distorting competition where the act or omission is done in the course of or as a result of or in connection with any business activity relating to communication services. The Licensing Regulations provide that an operator shall not engage in anti-competitive acts, or acts in breach of fair competition and it must comply with the fair competition rules stipulated in the Act and regulations made under the Act.

Source: TMG, Inc.

4.2.2.2 Interconnection

Section 2 of the Reference Paper contains extensive requirements relating to interconnection. A WTO Member must ensure that a major supplier provides interconnection:

- At any technically feasible network point;
- On non-discriminatory terms and conditions;
- At non-discriminatory and cost-oriented rates;

- Of a quality no less favorable than provided for its own like services, those of non-affiliated suppliers or subsidiaries or other affiliates;
- In a timely fashion;
- Sufficiently unbundled so that the supplier need not pay for network components it does not need; and
- Upon request, at network termination points other than those offered most users, subject to reasonable charges.

In addition, the Reference Paper contains a transparency requirement with respect to interconnection. Procedures applicable to obtaining interconnection to the major supplier's network must be publicly available and the major supplier also must publish a reference interconnection offer or make public all its interconnection agreements.

Finally, Section 2 of the Reference Paper requires that there should be an independent body to resolve disputes between the major supplier and its competitors regarding the appropriate terms, conditions and rates for interconnection. This interconnection dispute settlement mechanism must be available upon request and must make decisions "within a reasonable period of time."

As demonstrated in table 4-19, the Case Study Countries largely address all aspects of Section 2 of the Reference Paper. The regulations in Uganda cover all aspects of Section 2.

The regulations in Kenya cover all aspects of Section 2 except that they do provide CCK with the power to exempt any telecommunications systems provider from the obligation to enter into an interconnection agreement. However, this should not raise any issues under the Reference Paper. Any license issued to a major supplier would require interconnection so at least two of the reasons for exempting a licensee from interconnection obligations would not apply. The Reference Paper only requires interconnection at technically feasible points so that basis for exemption is also not a problem. There is an exception from GATS obligations (including the Reference Paper) to protect health and safety. Finally, it is difficult to see how the last basis for exemption would ever be available to a major supplier as to raise any concerns.

In Tanzania, the Interconnection Regulations cover all the elements of Section 2 with the exception of interconnection being required at any technically feasible part of the network or sufficiently unbundled so that the supplier does not need to pay for network components it does not need.

Table 4-9: Interconnection

Interconnection	Kenya	Tanzania	Uganda
A major supplier must provide interconnection: • **At any technically feasible network point;** • **On non-discriminatory terms, conditions;** • **At non-discriminatory and cost-oriented rates;** • **Of a quality no less**	The interconnection provisions of the 2001 Regulations apply to all licensees. They require all interconnection agreements to facilitate end-to-end connectivity, in a non-discriminatory and transparent manner, including for terms and conditions, rates, technical standards and quality of service. Network operators	The Interconnection Regulations provide that all licensees must provide interconnection based on transparent and non-discriminatory principles and on technical and commercial conditions no less favorable than that provided to itself, its subsidiaries, and	The Interconnection Regulations and the Fair Competition Regulations cover almost all the elements identified in the Reference Paper in relation to interconnection, obligating all licensees to provide interconnection: • at any technically feasible point in the network,

Interconnection	Kenya	Tanzania	Uganda
favorable than provided for its own like services those of non-affiliated suppliers or subsidiaries or other affiliates; • **In a timely fashion;** • **Sufficiently unbundled so that the supplier need not pay for network components it does not need; and** • **Upon request, at network termination points other than those offered most users, subject to reasonable charges.**	must provide interconnection facilities and information under the same conditions and with the same quality that they provide to their subsidiaries, affiliates or other similarly situated telecommunications service providers. The Regulations require interconnection to take place in a timely fashion. In addition, a major supplier must provide interconnection at cost-based rates and sufficiently unbundled so that an "interconnect operator does not pay charges that are not related to interconnection." This formulation is not quite the same as the one in the Reference Paper, which requires unbundling so that another licensee does not pay for network elements that it does not need to provide service. The 2001 Regulations provide CCK the power, where it deems it expedient to do so, to exempt any telecommunications systems provider from the obligation to enter into an interconnection agreement under a variety of circumstances, including where: • the license issued to the interconnect provider exempts the interconnection provider from the obligation to interconnect; • the license issued to the interconnect operator does not authorize the telecommunications services for which interconnection is requested; • the requested interconnection is not feasible due to technical	affiliates. In addition, the Interconnection Regulations require cost-based charges and similar levels of quality of service and require a licensee to enter into an interconnection agreement within three months of a request from another licensee. Interconnection is not required, however, at any technically feasible part of the network or access to unbundled network elements.	• in a quantity sufficient to meet all reasonable demands for the conveyance of messages, • at a level of quality that is equal to that which it provides itself or a related party, and • on terms and conditions that are just, reasonable and non-discriminatory and equivalent to the terms and conditions it provides itself and its related parties. In addition to the general interconnection obligations set forth in the Interconnection Regulations, a dominant operator must provide interconnected service on an unbundled basis, at cost-oriented rates and at access points other than the network termination points offered to end users.

Interconnection	Kenya	Tanzania	Uganda
	specifications required by the CCK or technical limitations inherent in the telecommunications systems to be interconnected; • such interconnection would endanger life or safety or result in injury or harm to the interconnection provider's property or unreasonably impair the quality of the licensed services provided by the interconnection provider; • there are technically and commercially viable alternatives to the form of interconnection requested.		
Require that procedures for interconnection with major supplier are publicly available	The 2001 Regulations provide that all requests by an interconnect operator for any form of interconnection shall be in writing and shall provide the interconnect provider with information in relation to: (a) the form of interconnection; (b) the approximate date the interconnection is required; and (c) an estimate of the capacity required. A copy of the request for interconnection referred must be forwarded to the CCK by the requesting party. The interconnect provider shall inform the interconnect operator in writing within 15 days of receipt of the request for interconnection of its ability and willingness to supply the form of interconnection requested, whether it will be able to do so within the time frames requested by the interconnect operator, and its ability to commence negotiations on the date	The Interconnection Regulations provide that all interconnection agreements between any network service provider and other operators must be submitted to TCRA for approval within one month before the licensee's network becomes operational, and Article 6 provides that TCRA will make each agreement available to the public for a fee.	The Interconnection Regulations define interconnection negotiation procedures for all interconnection providers.

Interconnection	Kenya	Tanzania	Uganda
	requested.		
Require major suppliers to publish interconnection agreements or a reference interconnection offer	While interconnection agreements must be filed with and approved by the CCK, nothing in the 2001 Regulations provides that the agreements are publicly available or that a major supplier must publish a reference interconnection offer. The Regulations do stipulate, however, that network operators must annually provide relevant licensees with a proposal for interconnection rates, terms and conditions that are just, reasonable and non-discriminatory.	The Interconnection Regulations provide that all interconnection agreements between any network service provider and other operators must be submitted to the TCRA for approval within one month before the licensee's network becomes operational, and Article 6 provides that TCRA will make each agreement available to public for a fee.	The Interconnection Regulations provide that all licensees subject to the general interconnection requirements must publish a reference interconnection offer by sending a copy to the UCC, making it available at each of its major offices and sending a copy to anyone who requests one.
Provide a dispute settlement mechanism for a service supplier requesting interconnection with a major supplier which is available: at any time or after a reasonable period of time which has been made publicly known. The dispute settlement body must be an independent domestic body.	The 2001 Regulations contain provisions providing that any interconnection disputes, including related to reasonableness of a request for interconnection, timely provision of interconnection or notice of planned changes shall be submitted to CCK.	The Interconnection Regulations provide for arbitration and dispute resolution mechanisms. If parties are unable to resolve the interconnection dispute, then any aggrieved party may petition to TCRA to arbitrate any open issues and submit a copy of the same to the other party.	The Interconnection Regulations provide dispute resolution procedures relating to interconnection, and provide that any party negotiating an agreement under the regulations may, at any time during the negotiations, request the UCC to participate in the negotiations and to mediate any differences arising in the course of the negotiations. Parties may request UCC to participate or mediate, and to arbitrate if resolution is not reached within 45 days.

Source: TMG, Inc.

4.2.2.3 Universal service

Section 3 of the Reference Paper contains obligations concerning the administration of a universal service program. Each Member has the right to define the scope of universal service and the specific means of achieving universal service. These programs, however, must be designed and administered in a manner that is transparent, non-discriminatory and competitively neutral and not more burdensome than necessary for the kind of universal service adopted.

As noted in Table 4-10 below, Tanzania and Uganda have specific legislation relating to universal service. Kenya currently addresses universal service obligations under the conditions imposed on a licensee although universal service is included in the Kenya Communications Amendment Bill that has not been passed. Given that Tanzania's legislation has recently been passed and the universal service fund has yet to be established and that Kenya's draft legislation has not been passed, it is too early to tell whether the universal service funds in either country

would be consistent with the Reference Paper. Uganda's legislation would appear to comply with the principles set forth in this Section.

Table 4-10: Universal service

Universal Service	Kenya	Tanzania	Uganda
Reference Paper § 3 **Any universal service mechanism must be administered in a transparent, non-discriminatory, and competitively neutral manner.** **Universal service obligations must not be more burdensome than necessary.**	Currently, universal service obligations are implemented through specific obligations included in an operator's license. The Kenya Communication Amendment Bill that is currently under consideration includes the establishment of a universal service fund (USF). The USF will be used to subsidize the cost of ICT infrastructure rollout and expansion to unserved and underserved areas by operators in the sector. It will be financed by the operators providing services in the various market segments, although the amount of required contribution has not yet been established.	The Universal Communication Access Service Act was enacted in January 2007. Pursuant to the Act, the Government shall establish a fund to ensure the availability of communications services in rural and urban under-served areas. The fund shall subsidize investment costs for companies that wish to provide communications services in marginalized rural areas. All communications operators must contribute to the fund. The Fund is will be a separate entity, and will be run at arms length from the TCRA.	The Universal Service Regulations provide that access to communications networks and services for the provision of basic universal communications services shall be open, non-discriminatory and upon conditions based on objective criteria that are transparent and readily available to the general public. In addition, the Universal Service Regulations provide that the UCC shall establish a mechanism for sharing the net cost of the universal service obligation between designated operators so that the universal service obligation does not represent an unfair burden on any operator providing universal service.

Source: TMG, Inc.

4.2.2.4 Licensing

Section 4 of the Reference Paper requires WTO Members to make publicly available all licensing criteria and the timeframe required to review and issue licenses, as well as the terms and conditions of individual licenses. In addition, it requires that the reasons for denial of a license be made known to the applicant, upon request. The obligation to make publicly available the terms and conditions of individual licenses is often implemented by the posting of the individual licenses on the website of the regulator or requiring the operators to do so on their websites. This section applies in addition to the licensing provisions of GATS Article VI (see item 2 of table 4-6) The Reference Paper does not require a regulator to set a deadline by which license decisions must be made, but rather to establish a time period that is "normally" required to reach licensing decisions. A WTO Member does not violate its commitments if it occasionally exceeds the "normal" period.

Table 4-11: Licensing

Licensing	Kenya	Tanzania	Uganda

Licensing	Kenya	Tanzania	Uganda
Where a license is required, make publicly available: • all the licensing criteria and the period of time normally required to reach a decision concerning an application for a license, and • the terms and conditions of individual licenses. Provide the reasons for the denial of a license to an applicant upon request.	Neither the 1998 Act nor the 2001 Regulations provide any detail regarding the evaluation criteria for licenses, the timeframe required to review a license application or a requirement to provide reasons for refusal of a license. No requirement exists requiring that the terms and conditions of individual licenses be made publicly available. However, some of this information is published through guidelines on the CCK website.	The Licensing Regulations provide the requirements for licensing and TCRA has published information on procedures and processes of licensing, general guidelines on licensing, evaluation criteria and a requirements checklist, though the Regulations do not provide a specific time frame for licensing decisions or the reasons for denial of a license. On the website, the TCRA does publish a timeline of the licensing process.[154] The terms and conditions of individual licenses are not publicly available. These terms and conditions are only made available when TCRA issues an invitation to bid.	The guidelines and application procedures for applying for licenses are available on the UCC website. General licensing principles are set forth in the 1997 Act and the Licensing Regulations and License Application Guidelines set forth procedures, terms and conditions of licenses, and timeframes. On the website, the UCC states that the timeline for approving an application will generally be a month after all the necessary documents have been submitted and provided payment has been made on time. The 1997 Act requires the Minister to give reasons for the refusal of a license.

Source: TMG, Inc.

4.2.2.5 Independent Regulator

Section 5 of the Reference Paper provides that a WTO Member must have a government entity with responsibility for regulating the telecommunications sector that is separate from and not accountable to an operator telecommunications services. However, the Reference Paper does not mandate a particular institutional model, *i.e.* single or multi-sector regulator, or a general competition authority, that should be used to establish such an authority. Also, the Reference Paper does not require that the regulatory functions be independent of any government ministry. In addition, the regulator must act impartially with respect to all operators. As noted in Table 4-12, the Case Study Countries have all complied with this requirement, with each country having an independent telecommunications regulatory authority. However, the obligation to act impartially is an ongoing responsibility of the regulator, quite apart from its "independence" of operational functions, and requires constant vigilance.

Table 4-12: Independent regulator

Independent Regulator	Kenya	Tanzania	Uganda
The regulatory body must be separated from, and not accountable to, any supplier of basic	Kenya has established the CCK as an independent regulator separate from any supplier. There are no	Tanzania has separated the operator from the regulator, creating TTCL as a corporate entity and	Uganda has established the UCC as an independent regulator. The 1997 Act provides that

[154] http://www.tcra.go.tz/licensing/pdf_documents/licensing%20processes.pdf

Independent Regulator	Kenya	Tanzania	Uganda
telecommunications services. The decisions of and the procedures used by regulators should be impartial with respect to all market participants.	current provisions but Article 7 of the Draft ICT Bill 2006 provides that the CCK shall exercise its functions independent of any person or body. Since the government continues to own the incumbent operator, however, it may be difficult for CCK to act impartially with respect to all market participants.	TCRA as a stand-alone regulatory agency. There are provisions requiring TCRA to operate in an impartial manner and its members to avoid conflicts of interest. Since the government partly owns TTCL, it is difficult to judge whether TCRA will be able to act in an "impartial" manner with respect to all market participants.	the UCC shall exercise its function independent of any other body or person. Since the Government of Uganda owns 31 percent of the incumbent operator, however, it may be difficult for the UCC to act impartially with respect to all market participants. The Act also gives the Minister the right to license major operators.

Source: TMG, Inc.

4.2.2.6 Scarce Resources

Section 6 of the Reference Paper contains some disciplines on administration of scarce resources, such as radio spectrum, telephone numbers, and rights of way. The allocation of scarce resources must be done in an objective, timely, transparent, and non-discriminatory manner. The current state of allocated frequencies must be made publicly available, although allocations for government use do not have to be specified. It is also generally understood that government measures relating to scarce resources must be complied with and implemented consistently with the general obligations in the GATS Articles and the commitments made.

The Table 4-13 sets forth the legislation in each of the Case Study Countries that addresses scarce resources. While in each of the Case Study Countries there are regulations related to use of spectrum, only Uganda has specific language requiring that the procedures for allocating spectrum be consistent with the principles set forth above. With regard to the allocation of other scarce resources, only Kenya and Tanzania have numbering regulations, and Uganda has specific provisions regarding rights of way, but none of these provisions specifically addresses that the procedures for allocating such resources be carried out in an objective, timely, transparent, and non-discriminatory manner.

Table 4-13: Numbering spectrum

Numbering/ Spectrum	Kenya	Tanzania	Uganda
Procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, must be carried out in an objective, timely, transparent and non-discriminatory manner.	The allocation and use of scarce resources is administered by CCK in accordance with provisions established in the 2001 Regulations. Spectrum: No provisions specify that procedures for the allocation and use of frequencies or rights of way must be carried out in an objective, timely, transparent and non-discriminatory	Spectrum: The Radiocommunications Regulations contain provisions relating to spectrum licensing procedures and conditions but do not require that spectrum allocation be	Spectrum: The Radio Regulations provide for managing the radio frequency spectrum in accordance with principles of openness, transparency, objectivity, non-discrimination.

Numbering/ Spectrum	Kenya	Tanzania	Uganda
	manner. Numbering: The 2001 Regulations require that allocation of numbers be done in a timely fashion and in an objective and non-discriminatory manner. In addition, the numbering plan is publicly available.	carried out in an objective, timely, transparent and non-discriminatory manner. Numbering: The Numbering Regulations provide that TCRA will maintain control of all electronic communication numbers and addresses and ensure fair and efficient use of them. But they do not require that allocation be carried out in an objective, timely, transparent and non-discriminatory manner. Rights of Way: There are no provisions on allocation of rights of way.	Numbering: There are no specific regulations regarding the allocation of numbers, only one reference under the Uganda Communications Act specifying that UCC has responsibility for drawing up national numbering plan. Rights of Way: The Uganda Communications Act provides that the UCC grants operators the right to utilize public rights of way to construct facilities for the provision of services regulated by UCC, but it does not require that allocation be carried out in an objective, timely, transparent and non-discriminatory manner.
The current state of allocated frequency bands must be made publicly available (except for identification of specific frequencies allocated for government.)	The National Frequency Plan is available on the CCK website at: http://www.cck.go.ke/national_frequency_table/	There is no publicly available spectrum allocation table on the TCRA website.	The Uganda Table of Frequency Allocations is available on the UCC website.

Source: TMG, Inc.

4.3 Legal and regulatory modifications necessary to make full WTO commitments

4.3.1 GATS General Obligations and Telecommunications Services

In order for the Case Study Countries to make full commitments under telecommunications services, the modifications discussed below would be necessary.

Kenya

Kenya appears to meet GATS obligations with respect to market access and non-discrimination for computer services and telecommunications services, although certain distinctions are made between obligations imposed on foreign investors versus domestic investors. Kenya may need to modify these distinctions as well as the foreign ownership limitations noted below, if it seeks to make full commitments.

In addition, when Kenya scheduled commitments for telecommunications services, it included certain carve-outs to its commitments (*e.g.*, foreign ownership cap, restriction on supply of public voice or data services, exclusion of video and audio broadcast services, restriction on call back services, restriction related to GMPCS MoU). Since then, Kenya has undertaken significant legal and regulatory reform that should be reflected in an updated offer. For example, Kenya should modify the foreign ownership cap for telecommunications services of 30 percent in the schedule to reflect that its law only imposes a cap of 80 percent for such services. In addition, there is no longer a monopoly on supply of services, including international gateway services, and resale is now open to competition therefore, similar modifications should be made with regard to these services in an updated offer. Such changes would require no modifications to Kenya's existing legal and regulatory framework and would enhance its credibility in the global ICT marketplace.

With respect to its regulatory obligations, particularly under the Reference Paper, Kenya has many regulations in place and only modest changes or additions are required as specified below.

Tanzania

To date, Tanzania has not scheduled any commitments under telecommunications or computer services. However, as a WTO Member, it is required to meet its general obligations under GATS that apply to all Members for all services, whether or not they have scheduled commitments. Currently, like Kenya and Uganda (discussed below), it generally meets its obligations regarding nondiscrimination and market access although it does impose certain requirements that are different depending on whether the investor is domestic or foreign. These distinctions would require modification. In addition, unless a carve-out was made, the foreign ownership requirements would need to be modified.

In order to enhance its credibility in the ICT global marketplace, Tanzania should schedule full market access and national treatment commitments (except the presence of natural person's mode of supply) in both the telecommunications and computer services sectors. This requires only a minor legislative change with respect to computer services. For telecommunications services, however, Tanzania would have to remove the existing foreign ownership limitations set forth in its Licensing Regulations.

If Tanzania signed on to the Reference Paper, it would need to make only minor modifications as many of the principles set forth in the Reference Paper are already incorporated in the law or regulations. These changes or additions are specified in the table below.

Uganda

Uganda's telecommunications market is more open to competition than is currently reflected in its GATS schedule of commitments. The current schedule contains numerous limitations on the provision of telecommunications services that may have reflected the state of the market when the commitments were undertaken, but do not reflect the new regulatory reforms regarding market access that have been introduced into the sector since 1999. These modifications should be reflected in an updated offer (*e.g.*, changing the foreign ownership cap and eliminating the restriction on voice services) since it would require no modifications to Uganda's existing legal and regulatory framework but would enhance its credibility in the global ICT marketplace. In general terms, Uganda appears to meet GATS obligations with respect to market access and non-discrimination for computer services and telecommunications services. With respect to

regulatory obligations, Uganda has many regulations in place and only modest changes or additions are required as specified below.

The only aspect that requires legal change for Uganda is elimination of the discriminatory provisions related to foreign investors. Then Uganda would be able to undertake full national treatment commitments in computer and telecommunications services.

In the telecommunications sector, the Ministerial Policy Guidelines have eliminated all restrictions on the provision of telecommunications services. Together with other existing laws and regulations, the Ugandan legal framework meets the requirements for technology neutrality, competition safeguards, interconnection provisions and other Reference Paper obligations. Uganda should also schedule full market access in all modes (except the presence of natural persons mode of supply).

The Table 4-14 outlines recommendations for the Case Study Countries in reference to modifications required for fulfilling general GATS principles and the WTO telecommunications Reference Paper.

Table 4-14: Modifications required for fulfilling general GATS principles, scheduling full commitments in telecommunications services, including the WTO Reference Paper

	Kenya	Tanzania	Uganda
General GATS Principles	In keeping with the general GATS principles and making full commitments, Kenya should take action to: • Provide the same treatment to foreign investors seeking to take advantage of investment incentives as is provided to nationals by making the requirements the same; • Eliminate the requirement that an investment by a foreign national must be deemed to be "beneficial" to Kenya; • Eliminate the limitations on employment of foreign nationals, such as phasing out of non-Kenyan staff; • Remove foreign ownership limitations applicable to investments in the telecommunications sectors; and • Eliminate restriction on foreigners owning land.	In keeping with the general GATS principles making full commitments, Tanzania should take action to: • Eliminate the distinction between foreigners and nationals in the minimum capital required to receive investment incentives and register to do business (GATS Article II); • Eliminate the imposition on steps to train Tanzanian nationals to main positions at all levels in the licensee's administrative and technical organization structure; and • Remove foreign ownership limitations for telecommunications licensees of 65% and remove the 49% limitation on foreign ownership for content service providers.	In keeping with the general GATS principles and making full commitments, Uganda should take action to: • Eliminate any discriminatory investment thresholds applied to foreign investors; • Eliminate any performance requirement imposed on foreign investors; • Eliminate restriction on foreigners owning land.
Telecommunication Services	• Eliminate exclusion of 'video and audio broadcast services' from the scope of telecommunications service as the exact meaning of this phrase is not clear and could raise questions in an era of converged services; • Eliminate restriction on call back services; • Eliminate resale restriction; and	• Ensure that all suppliers of PSTN networks provide access to and use of their networks to other service suppliers on reasonable terms and conditions and that such suppliers lease lines to other service providers and allows other service suppliers to attach terminal equipment to their network (GATS Annex on Telecommunications); and • While tariffs and licensing criteria	• Eliminate restriction for a duopoly in public voice and data services and private voice network services to third parties; • Eliminate restriction that all international services must be provided through the duopoly license holders; • Eliminate restriction prohibiting resale of excess capacity;

	Kenya	Tanzania	Uganda
	• Eliminate restriction on access under the Schedule that appears to be limited to what is provided under the Memorandum of Understanding relating to Global Mobile Personal Communications Satellite (MoU) given that the MoU only relates to the importation and use of global mobile phones and does not relate to the provision of the service itself.	must be published under the TCRA regulations, ensure that other conditions affecting access to and use of the PSTN are publicly available – *i.e.*, conditions of service, technical interfaces, standards bodies, conditions for attachment of terminal equipment to the PSTN (GATS Annex on Telecommunications).	• Eliminate restriction providing for a maximum of three mobile service providers (one of which must be Uganda Telecom Limited); and • Eliminate exclusion of "video and audio broadcast services" from the scope of telecommunications services, particularly given its relevance in an era of converged services.
Telecommunications Reference Paper	To comply with the Reference Paper, Kenya should take action to: • Require telecommunications providers to publish the conditions for attaching terminal or other equipment to their networks; • Provide for the right of review of regulatory decisions affecting the computer services sector; • Adopt a provision requiring network operators to make leased lines available to the public generally on reasonable and non-discriminatory terms and conditions, and also information concerning technical interfaces for connection to their network; • Clarify that a major supplier must make available network elements in a sufficiently unbundled manner so that a licensee does not have to purchase more elements than necessary to provide service; • Clarify that the exceptions to interconnection do not apply to a major supplier;	Tanzania should adopt the Reference Paper with respect to basic telecommunications services. Doing so will require the changes noted bellow: • Ensure that TTCL makes publicly available the terms and conditions for service and technical interfaces to all other service providers, not just telecommunications service providers; • Ensure that TTCL make publicly available the procedures for obtaining interconnection; • Clarify that TCRA is responsible for standards setting; • Adopt provisions ensuring that TTCL provides unbundled network elements and interconnection at any technically feasible part of the network and through unbundled network elements; • Adopt provisions setting a specific time frame for making licensing decisions and a requirement to inform an applicant of the reasons for refusal;	Uganda should: • Ensure that all operators make publicly available all other terms and conditions for connection to the public network and the specifications of technical interfaces, in addition to the existing requirement to make their wholesale tariffs publicly available.

	Kenya	Tanzania	Uganda
	• Adopt a provision requiring publication of a major supplier's interconnection agreements; • When Kenya adopts universal service obligations, ensure administration is in a non-discriminatory, transparent and competitively neutral manner and is not more burdensome than necessary to provide the type of universal service adopted; • Adopt provisions making publicly available licensing evaluation criteria, the timeframe for decisions on licenses and terms and conditions of individual licenses; • Adopt a provision requiring CCK to provide an applicant with the reasons for refusal of a license; and • Clarify that CCK will carry out spectrum assignments and allocation of rights of way in an objective, timely, transparent and non-discriminatory manner.	• Make publicly available the terms and conditions of individual licenses; • To the extent not specified, adopt provisions ensuring that numbering and spectrum allocation is carried out in an objective, timely, transparent and non-discriminatory manner; • Make publicly available the allocation of spectrum (except for national security use); and • Ensure that the universal service fund (when established) is competitively neutral, non-discriminatory, transparent and not more burdensome than necessary.	

Source: TMG, Inc.

4.3.2 Computer services

The Case Study Countries should make commitments to cover all types of computer services. To avoid any confusion, such commitments should be based on the WTO Secretariat's Services Sectoral Classification List, and should reference the corresponding United Nation's Central Product Classification (CPC) number contained therein. While this list breaks down computer services into various sub-sectors (represented by a three-digit CPC number), commitments should be made at the overall computer services sector level (represented by the two-digit CPC number of 84) so that all forms of computer services are covered by its commitments. Full market access should be provided in all modes (except the presence of natural persons mode of supply) in this sector.

4.3.3 Becoming a signatory to ITA

As noted earlier, the Case Study Countries are not signatories to the ITA and have not undertaken any WTO commitments for any of the products in these categories. Their consolidated goods schedule has no bound duties for them, so the amount of duty can be modified at any time.

The East African Community Customs Union[155] maintains applied duties in accordance with the other Members on products covered by the ITA at the following rates:

Table 4-15: Common external tariffs of East African Community Customs Union for selected ICT products

Product	Tariff Rate
Digital processing machines (HS 8471)	0%
Wireline telephone equipment (HS 8517.69 & 8517.70)	10%
Telephones for cellular networks (HS 8517.12)	0%
Electronic integrated circuits (HS 8542)	10%

Note: The codes refer to the Harmonized Schedule (HS) tariff numbers used by the East African Community Customs Union (EACCU)
Source: EACCU.

In reality, the Case Study Countries' import duties for the above products are usually either zero or less than the East African Community Customs Union figure. Many of the legal and regulatory provisions are in place to support "full' WTO commitments. They have zero tariffs on many of the ITA products, which will lessen the financial effect of joining the ITA.

Many of the leading developing countries in Business Process Outsourcing (BPO) have signed on to the ITA. Given the fierce competition for the BPO market, countries recognize that it is important for them to undertake measures to provide them with an advantage over other countries. The ITA is one such vehicle, as it facilitates the reduction of ICT-related products and fosters a more attractive market for investors.

[155] The members are Kenya, Tanzania, Uganda, Rwanda, and Burundi.

5. Conclusions

Trade in ICT-enabled services offers Case Study Countries an opportunity to increase export services earnings, generate employment, and participate more meaningfully in the global information society. However, ICT-enabled services trade is a highly competitive sector and a number of economies have a head start on the Case Study Countries. If Kenya, Tanzania and Uganda are to successfully develop their ICT-enabled services sector, they will need to make a number of changes to become more competitive. The tables below highlight each country's relative strengths, weaknesses, opportunities and threats in the business process outsourcing area.

The table 5-1 summarizes Kenya's strengths, weaknesses, opportunities, and threats for ICT-enabled services and identifies where it is doing well and where it needs improvement.

Table 5-1: Kenya's BPO SWOT

STRENGTHS	WEAKNESSES
• The government has made a top level commitment to BPO, positioning it as a key sector in its 2030 Vision. • The country has the most developed ICT sector in East Africa, and is the hub for a number of global and regional ICT companies. • Kenya's ICT market is dynamic and innovative. Kenyans were the founders of the regional Africa Online Internet service provider, the country was the first to launch regional mobile roaming at local rates and the m-Pesa money transfer service over mobile phones is the first of its kind. • English is one of the official languages and Kenya has the highest level of education in the region. • Kenya is a WTO Member and has committed to the basic telecommunications agreement. • Kenya ranks highest among the Initial Study Countries in "Doing Business."	• Infrastructure. The lack of international connectivity via fiber optic cable limits the amount and quality of bandwidth and results in high prices. The country's fixed line infrastructure is also relatively undeveloped. Plans for up to four undersea fiber optic cables in East Africa and Kenya's national fiber build-out should help alleviate these problems in the near-term. • The shortage and price of electricity is a difficult challenge for businesses. • The limit on foreign ownership in telecommunications impacts investment in the sector. • Kenya's telecommunications licensing framework is too segmented and would benefit from streamlining as Tanzania and Uganda have done. • Kenya does not have an established ICT legal environment for electronic transactions, nor has it signed on to ITA or made WTO Computer and Related Services commitments. • The perception of the country is an issue with Kenya ranking low in a number of governance indicators. • Kenya is not yet widely known as a potential BPO location. • There is a concern that Kenya may have insufficient skilled manpower to support a large BPO industry.
OPPORTUNITIES	**THREATS**
• The Indian-Kenyan connection is rooted in history. India is the largest developing country BPO with years of experience. The link to India should be leveraged to attract Indian BPO firms to Kenya. • The pending privatization of Telkom Kenya should lead to better infrastructure and renewed interest in foreign investment. • There could be up to four different fiber optic submarine cables landing in Kenya over the next few years providing abundant bandwidth and making it a	• Ongoing efforts to liberalize and privatize the telecom industry could stall. There have been several instances of delays in the past. Further setbacks can impact confidence in the sector reform process. • Kenya faces intense competition from other developing countries to serve the BPO market. It must continually monitor and improve its competitiveness or it risks losing business to more visible offshore locations. • There is a risk that the backlash against offshoring in developed countries could intensify. This could lead to

STRENGTHS	WEAKNESSES
hub for regional connectivity.	restrictions that impede the growth of the global ICT-enabled services market. Unless Kenya makes commitments to the WTO computer and Related Services agreement, it may lose an important possible venue in which to push against new restrictions that can be imposed against BPO countries likes Kenya

Source: TMG, Inc.

Although Kenya has several advantages as a BPO location, it also has several weaknesses that could undermine its goal of becoming a top African BPO destination. Some of the weaknesses such as international connectivity are being addressed and should soon reach a near term solution. Others, like electricity, will be harder to solve. However, there are weaknesses that are relatively painless to address. This includes strengthening ICT laws and regulations. In that regard, Kenya can improve on its current global ICT commitments, specifically enhancing its WTO telecommunications offer, making commitments for computer services and considering signing on to other global ICT-related agreements, such as the ITA.

The Table 5-2 summarizes Tanzania's strengths, weaknesses, opportunities, and threats for ICT-enabled services and identifies where it is doing well and where it needs improvement.

Table 5-2: Tanzania's ICT-enabled services SWOT

STRENGTHS	WEAKNESSES
• Launch of 3G—HSDPA network (only 2nd in Africa) provides broadband alternative. • Region's most competitive mobile market. • Flexible telecom licensing structure. • Low labor costs. • Relatively good governance perception.	• The lack of international connectivity via fiber optic cable limits the amount and quality of bandwidth and results in high prices. The country's fixed line infrastructure is also relatively undeveloped. • The shortage of electricity is a difficult challenge for businesses. Other factors affecting the business environment include excise taxes on communications services. • No legal environment for electronic transactions. • Formal foreign ownership limits in ICT sector. • The government has not specifically identified development of the BPO sector as a key strategy. • Tanzania is not known as a potential BPO location. • Although a WTO Member, Tanzania has not made any commitments for computer services, telecommunications services, or become a party to the Information Technology Agreement like most of the leading BPO countries.
OPPORTUNITIES	**THREATS**
• There could be several different fiber optic submarine cables landing in Tanzania over the next few years providing abundant bandwidth and making it a hub for regional connectivity. • Swahili ICT center - one of the official languages of African Union, could offer "e-translation" and other BPO opportunities.	• Intense competition from other developing countries to serve the BPO market. It must continually monitor and improve its competitiveness or it risks losing business to more visible offshore locations. • There is a risk that the backlash against offshoring in developed countries could intensify. This could lead to restrictions that impede the growth of the global ICT-enabled services market.

• Historical connections with India could be leveraged to take advantage of that country's BPO experience.	

Source: TMG, Inc.

Like Kenya, some of Tanzania's weaknesses such as international connectivity are being addressed. But it too has electricity issues that will be harder to resolve. However, there are some weaknesses that are relatively painless to address and that could be solved relatively quickly. This includes strengthening ICT laws and regulations. In that regard, Tanzania can improve on its current global ICT commitments, specifically by making commitments related to ICT under the WTO.

The table 5-3 summarizes Uganda's strengths, weaknesses, opportunities, and threats for ICT-enabled services identifying where it is doing well and where it needs improvement.

Table 5-3: Uganda BPO SWOT analysis

STRENGTHS	WEAKNESSES
• Only Study Country where English is the sole official language; it is 2nd among six Initial Study Countries in TOEFL scores. • Liberal telecommunications regime and competition experience. • WTO Member and has made commitments under the GATS and signed on the Reference Paper. • Liberal foreign investment regime. • Some experience already with call centers and software exports. • Clear ICT policy and regulatory environment	• The lack of international connectivity via fiber optic cable limits the amount and quality of bandwidth and results in high prices. The country's fixed line infrastructure is also relatively undeveloped. • The shortage and high price of electricity is a difficult challenge for businesses. • The combination of VAT and excise tax imposes a high cost on communications usage. • Has not signed on to the Information Technology Agreement or made WTO Computer and Related Services commitments. • Lacking laws relating to data protection, privacy and security, and e-commerce. • External perception an issue with Uganda ranking low in some governance indicators. • Not widely known yet as a potential BPO location.
OPPORTUNITIES	**THREATS**
• India is the largest developing country BPO with years of experience. Uganda's ties with India should be leveraged to attract Indian BPO firms. • Planned fiber optic submarine cable initiatives and domestic backbone to be developed over the next few years should enhance current bandwidth and connectivity constraints. • Makerere University—one of oldest and largest in Africa - has ICT program which could be leveraged for training and links with industry.	• Landlocked and therefore reliant on connections to other countries for international Internet connectivity. • Competition from other developing countries to serve the BPO market. • There is a risk that the backlash against offshoring in developed countries could intensify. This could lead to restrictions that impede the growth of the global ICT-enabled services market.

Source: TMG, Inc.

Like the other East African countries, some of Uganda's weaknesses are being addressed. For example, it is anticipated that the impending launch of an undersea fiber optic cable with a landing point in Kenya, coupled with terrestrial fiber build out to the Kenyan border, will

alleviate Uganda's international connectivity problems. Electricity shortages will be harder to resolve in the short-run although planned projects should help to remedy the situation in the future. There are some weaknesses that are relatively painless to address and that could be solved relatively quickly. This includes strengthening ICT laws and regulations. In that regard, Uganda should pass e-commerce related legislation and enhance its current global ICT commitments, specifically by improving its WTO telecommunications offer, making commitments related to computer services and signing on to the Information Technology Agreement.

Annex I: ICT Enabled Services Index

1. Introduction

Many developing countries are keen to participate in the growing market for ICT-enabled services (ICTES). They are promoting their attractiveness for business process outsourcing citing factors such as favorable time zone, language ability and low labor costs. Given the growing competitiveness in this area, a metric is needed to objectively measure the advantages of one country over another.

Although there are a number of ICT "readiness" indexes compiled by different organizations, they suffer from a lack of coverage—primarily focusing on developed or large emerging nations—or are not designed to measure the variety of factors necessary for success as an ICTES location. There have also been some ICTES specific indexes but they suffer from limited country coverage. As such, a need exists for a set of standard metrics to measure ICTES capabilities that can be applied to a wide group of developing countries.

Criteria that are considered important for ICTES have been identified in both cross-country studies and national promotional efforts. These factors include financial attractiveness, people and skills availability, business environment, an existing ITES industry, linkages between domestic and overseas firms and government policies. These categories map back to the classification of ICT-competitiveness used earlier in this report.

Marketing factors such as linkages, the size of ICTES market, etc. are also critical for success. This includes industry associations promoting the sector, overseas contacts with firms looking to use outsourcing services, geographic zones of like-minded ICTES firms and the size and specialization of the market. These factors are related to the experience of existing ICTES destinations, but are not well-developed or measurable in other developing countries and therefore omitted.

Widely available indicators have been chosen to proxy each category in order to include the Initial Study Countries in the analysis. The indicators selected to measure performance in each of the categories are described below.

2. Categories

ICT Infrastructure

The availability, capacity, quality and pricing of telecommunication networks, services and equipment underpin business process off shoring. Key indicators for an ICT-enabled business include:

- International Internet bandwidth. Internet bandwidth is the lifeblood of the ICTES industry moving voice communications, data, files, documents, tax returns, medical transcriptions, etc. across the world. Just as ships and roads are essential for trading in goods, Internet bandwidth provides the transport for trade in services. The lack of sufficient bandwidth seriously inhibits a country's ability to participate in ICTES trade. The indicator selected for this category is bits per capita (*i.e.*, international Internet bandwidth (measured in bits per second) divided by the population).

- Broadband pricing. ICTES businesses need competitive pricing to the high speed "on-ramps" of the information superhighway. The price of broadband access provides a proxy for this. The indicator selected for this is the monthly price of a 256 kbps broadband connection.
- Fixed telephone lines. The relative number of fixed telephone lines in a country is a proxy for the overall spread of other network elements such as leased lines, fiber optic cable, etc. The indicator selected for this is teledensity (number of main telephone lines divided by the population).

Data for these three indicators are available from the International Telecommunication Union.[156]

ICT laws

The existence of laws that support ICT-enabled services are crucial. A country's commitment to international ICT-related agreements is used to measure this:

- WTO Basic Telecommunications Agreement. Captures whether a country has signed on to the WTO Basic Telecommunications Agreement and the corresponding reference paper.[157]
- United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce.[158] Indicates whether a country has enacted legislation covering electronic transactions that conforms to the UNICTRAL model law.
- World Intellectual Property Organization (WIPO) Copyright Treaty (WCT) indicates whether a country is a signatory to this treaty.[159]

Business environment

Factors such as the ease of hiring staff, minimization of red tape, availability of electricity, etc. affect a company's decision to invest in one country over the other. The perception of a country's governance is also a key factor affecting ICTES business investment decisions. Indicators that measure these are:

- Governance. The World Bank has constructed indicators that look at various aspects of governance such as political stability, corruption, etc.[160] A country's rank in each of the six indicators is averaged to get produce an overall rank.
- Doing business. The World Bank has constructed indicators that examine various aspects of business operations ranging from establishing a company to import and export

[156] Available from http://www.itu.int/ITU-D/ict/publications/world/world.html.
[157] See "Telecommunications Commitments and Exemptions" at http://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_commit_exempt_list_e.htm.
[158] The following UNICTRAL web page lists countries that have either adopted or based their legislation on the model e-commerce law: http://www.uncitral.org/uncitral/en/uncitral_texts/electronic_commerce/1996Model_status.html
[159] See "Contracting Parties" at http://www.wipo.int/treaties/en/ShowResults.jsp?treaty_id=16
[160] World Bank, Worldwide Governance Indicators, (2007), available at http://info.worldbank.org/governance/wgi2007/ [Accessed on Nov. 1, 2007].

procedures. A country's overall rank is used as the indicator to represent the overall business environment.[161]

- Electricity. The availability of inexpensive and reliable electricity is critical for ICTES. The percentage of households with electricity is used as a proxy for measuring this.[162]

Human resources

The existence of skilled yet inexpensive labor is one of the most cited factors for ITES success. Companies look at wages and skill sets such as university graduates, language ability, etc. Three indicators have been selected:

- Income. In the absence of official and comparable data on wages, per capita income is used as a proxy. The assumption is that the lower the per capita income the lower the level of overall wages in the economy.[163]
- Education. This indicator is compiled by the United Nations Development Programme (UNDP) and consists of a weighted average of the adult literacy rate and overall school enrollment.[164]
- English proficiency. Since the majority of Initial Study Countries have English as an official language and some are promoting development of English language customer contact call centers, this indicator has been selected. It is based on scores from the *Test of English as a Foreign Language* (TOEFL).[165]

3. Methodology

Each indicator is normalized based on "goalposts" (the highest achievable value). The resulting normalized values are then averaged within each category to generate a category sub-index. The category sub-indexes are then averaged to produce and overall index value.

[161] World Bank, Doing Business (2007), available at http://www.doingbusiness.org [Accessed on Nov. 1, 2007].
[162] This data is widely available through national household surveys.
[163] See "Quick Reference Tables" at http://go.worldbank.org/LNPAOM3W80.
[164] The Education Index data can be obtained from http://hdrstats.undp.org/indicators/7.html.
[165] Educational Testing Service, 2007 TOEFL Test and Score Data Summary (2007).

4. Results

Table 5-4: ICT infrastructure index

Country	Bits per capita	Broadband price	Teledensity	Score	Rank
Ethiopia	0.33	-	0.01	0.12	11
Ghana	0.49	-	0.02	0.17	7
India	0.51	0.93	0.07	0.50	3
Kenya	0.56	-	0.01	0.19	6
Mauritius	0.70	0.83	0.48	0.67	1
Philippines	0.56	1.00	0.07	0.54	2
Rwanda	0.46	-	0.00	0.15	9
South Africa	0.65	-	0.17	0.27	5
Sudan	0.50	0.83	0.03	0.45	4
Tanzania	0.40	-	0.01	0.14	10
Uganda	0.49	-	0.01	0.17	8

Table 5-5: ICT laws

	WTO BTA	UNCITRAL e-commerce	WIPO WCT	Score	Rank
Ethiopia	0	0	0	-	8
Ghana	1	0	1	0.67	2
India	1	1	0	0.67	2
Kenya	1	0	0	0.33	6
Mauritius	1	1	0	0.67	2
Philippines	1	1	1	1.00	1
Rwanda	0	0	0	-	8
South Africa	1	1	0	0.67	2
Sudan	0	0	0	-	8
Tanzania	0	0	0	-	8
Uganda	1	0	0	0.33	6

Table 5-6: Business environment

	Doing Business	Governance	Electricity	Score	Rank
Ethiopia	0.45	0.23	0.14	0.27	7
Ghana	0.47	0.55	0.49	0.50	4
India	0.24	0.49	0.56	0.43	5
Kenya	0.53	0.27	0.16	0.32	6
Mauritius	0.82	0.73	0.99	0.85	1
Philippines	0.28	0.39	0.88	0.51	3
Rwanda	0.10	0.33	0.06	0.16	10
South Africa	0.84	0.65	0.80	0.76	2
Sudan	0.12	0.08	0.15	0.12	11
Tanzania	0.19	0.41	0.09	0.23	9
Uganda	0.39	0.32	0.11	0.27	7

Table 5-7: Human resources

	GDP	Language	Education	Score	Rank
Ethiopia	0.91	0.70	0.40	0.67	7
Ghana	0.69	0.76	0.54	0.66	8
India	0.62	0.81	0.61	0.68	6
Kenya	0.85	0.78	0.69	0.77	1
Mauritius	0.33	0.85	0.81	0.66	10
Philippines	0.54	0.78	0.89	0.74	4
Rwanda	0.84	0.73	0.61	0.73	5
South Africa	0.34	0.85	0.80	0.66	9
Sudan	0.69	0.65	0.53	0.62	11
Tanzania	0.97	0.71	0.62	0.77	2
Uganda	0.81	0.76	0.67	0.75	3

Annex II: Technical Note

The data in this report have been collected from the sources shown and refer to the time periods listed in the figures and tables.

Tariff data refer to prices of the operator with the largest market share measured by subscribers.

With the exception of 2007, financial data have been converted to United States dollars (US$) using annual average exchange rates. Financial data for 2007 have been converted to US$ using September 30, 2007 exchange rates.

Note that summary totals in some tables cannot be calculated due to a lack of complete data for all countries.

Annex III: Glossary of Terms

ADSL – Asymmetric Digital Subscriber Lines

BPO – Business Process Outsourcing

CCK – Communications Commission of Kenya (CCK)

CPC – Central Product Classification

CRS – Computer and Related Services

CSI – Coalition of Services Industries

EAC – East African Community

EASSy – East Africa Submarine Cable System

EU – European Union

GATS – General Agreement on Trade in Services

GATT – General Agreement on Tariffs and Trade

GDP – Gross Domestic Product

IBGO – Internet Backbone and Gateway Operator

ICT – Information and Communication Technology

IFC – International Finance Corporation

ILO – International Labor Organization

ISP – Internet Service Provider

ITA – Information Technology Agreement

ITES – ICT-enabled Services

ITU – International Telecommunication Union

IXP – Kenya Internet Exchange Point

MFN – Most Favored Nation

MoU – Memorandum of Understanding

MTN – Mobile Telephone Networks

NASSCOM - National Association of Software and Service Companies *(in India)*

NEPAD – New Partnership for Africa's Development

NGN – Next Generation Network

OECD - Organization for Economic Cooperation and Development

PDNOs – Public Data Network Operators

PSP – Public Service Provider

PSTN – Public Switched Telephone Network

SAFE – South Africa Far East Cable System

SEACOM – SEA Cable System

SMS – Short Message Service

SNO – Second National Operator

SSA – Sub Saharan Africa

TEAMS – East African Marine System

TOEFL – Test of English as a Foreign Language

TRIMs – Agreement on Trade-Related Investment Measures

TRIPs – Agreement on Trade-Related Intellectual Property

TCRA – Tanzania Communications Regulatory Authority

TTCL – Tanzania Telecommunications Company Limited

UCC – Uganda Communications Commission

UIA – Uganda Investment Authority

UNCITRAL – United Nations Commission on International Trade Law

UNCTAD – United Nations Conference on Trade and Development

UNDP – United Nations Development Program

UTL – Uganda Telecom Limited

VAT – Value Added Tax

VoIP – Voice over Internet Protocol

VSAT – Very Small Aperture Terminal

WCT – WIPO Copyright Treaty

WIPO – World Intellectual Property Organization

WTO – World Trade Organization

Annex IV: List of meetings

October 5-13, 2007

Ethiopia

Ethiopian Airlines

Ethiopian Telecommunications Authority (ETA)

Ethiopian Telecommunications Corporation (ETC)

International Telecommunication Union (ITU) Regional Office

Rwanda

Economic Commission for Africa

Minister of State in Charge of Industry and Investment Promotion

MTN Rwandacell

Rwanda Information Technology Agency (RITA)

Rwanda Investment and Export Promotion Agency (RIEPA)

Rwanda Utilities Regulatory Agency (RURA)

Terracom

Uganda

CelTel Uganda

Ministry of Information and Communications Technology

Ministry of Tourism, Trade and Industry

MTN Uganda

One2net

Uganda Communications Commission (UCC)

Uganda Telecom Limited (UTL)

October 19-24, 2006

Tanzania

Better Regulation Unit (BRU)

Ministry of Infrastructure Development

Tanzania Communications Regulatory Authority (TCRA)

Tanzania Telecommunications Company Limited (TTCL)

Vodacom Tanzania Limited

Kenya

AfricaOnline

Business Process Outsource - Kenya (BPOK)

Celtel Kenya

Communications Commission of Kenya (CCK)

Ministry of Information and Communications

Safaricom

Telecommunications Service Providers Association of Kenya (TESPOK)

Telkom Kenya

September 25-October 3, 2007

Kenya

Communications Commission of Kenya (CCK)

ICT Board

Ministry of Information and Communication

Ministry of Trade and Industry

Uganda

Ministry of Information and Communications Technology

Ministry of Tourism, Trade and Industry

Uganda Communications Commission (UCC)

Uganda Investment Authority (UIA)

November 12-14, 2007

Tanzania

Ministry of Infrastructure Development

Tanzania Communications Regulatory Authority (TCRA)

Tanzania Investment Center (TIC)

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