GLOBAL INFORMATION SOCIETY WATCH 2008

Focus on access to infrastructure

Global Information Society Watch

2008

Global Information Society Watch 2008

TANZANIA

Tanzania Internet Service Providers Association (TISPA)
Suhail Sheriff
www.tispa.or.tz

Introduction

Tanganyika gained independence in 1961 from British rule, and formed a union with Zanzibar in 1964 to create Tanzania, a vast country covering 945,000 square kilometres with an estimated population of 40 million (CIA, 2008).

The first president, Julius Nyerere, led the country under socialist rule for 21 years until 1985.[1] However, his policies of socialism and collective farming have all but been reversed, and Tanzania has at present a capitalist-based economy. Even though a multiparty system was reintroduced in 1992 after 30 years of single-party rule (Baregu, 2004), the ruling party has retained power, placing three presidents in office after Nyerere.

The current president is Jakaya Kikwete, who was elected in 2005 with a margin of 80%. His stated focus was job creation, promising Tanzanian youth an additional one million jobs by the end of his term. He still enjoys overall support, although he is challenged by rampant institutionalised corruption, high rates of unemployment and continued political deadlock in Zanzibar, with renewed discussion and debate on the state of the union.

Tanzania has experienced steady economic growth over the past five years. In 2007, the gross domestic product (GDP) per capita was approximately TZS 550,000 (USD 475), up by 7.1% compared to 6.7% in 2006 (Government of Tanzania, 2008).

The fastest growing sectors were communications (19.8%), mining (14%), financial services (12%) and construction (9.7%) (Bank of Tanzania, 2008). However, the growth in the communications sector contributed only 2.3% to GDP (Government of Tanzania, 2008).

Tanzania had its first store-and-forward e-mail service in 1989, pioneered by the then Muhimbili University College of Health Sciences (MUCHS) in partnership with FidoNet[2] and GreenNet,[3] using low earth orbiting satellites. The first commercial full-fledged internet service was provided in 1996 by a company called CyberTwiga.

As the regulatory environment improved, more companies began to offer data connectivity services, resulting in rapid growth in the use of the internet. In 2005, the whole regulatory framework changed to a converged licensing framework, ending the exclusivity period for the incumbent telecoms operator. This licensing regime introduced a completely different approach for investors in that it was technology and service independent (*info*Dev/ITU, 2008), which allowed companies and institutions to get licences that were more appropriate in terms of services offered and regions covered. This effectively allowed fairer competition and eased restrictions on new entrants into the market. The framework has been hailed as a great achievement by both local and international stakeholders and a pioneering move within the region (Van Gorp & Maitland, 2007).
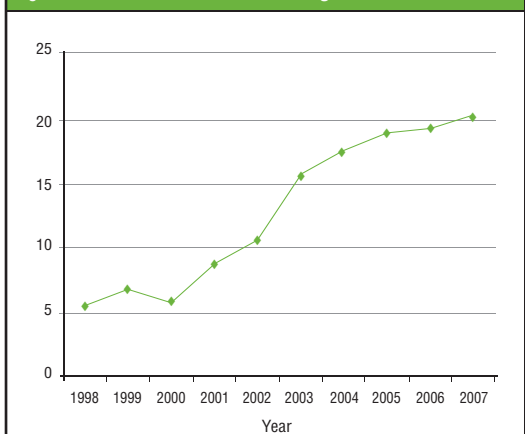
Access to the internet

By March 2008, the number of cellular users was 9.5 million, almost 10% of the population (TCRA, 2008), while internet users amounted to only 400,000, or about 1% of the population (ITU, 2008). However, the steady growth in the communications sector has been accompanied by small but commendable strides in internet access.

Formation of tzNIC

In 2008, the Tanzania Communications Regulatory Authority (TCRA) and the Tanzania Internet Service Providers Association (TISPA) collaboratively formed the Tanzania Network Information Centre (tzNIC), which has taken on the responsibility of .tz domain name management. Previously this name space was managed on a voluntary basis with certain institutions and people offering their assistance until such time as a formal institution was established. The formation of tzNIC will ensure the transparency, security and neutrality of the internet.

Figure 1: **Communications sector growth rate**

Source: **Budget Speech 2008**

---

1   en.wikipedia.org/wiki/Julius_Nyerere

2   www.fidonet.org

3   www.gn.apc.org

Proliferation of local internet exchange points (IXPs)

TISPA launched the Tanzania Internet Exchange (TIX) in 2003. This was the first initiative that attempted to interconnect different internet service providers (ISPs), in order to route traffic between them locally instead of over their independent satellite links, which was not only expensive but also inefficient. Upon launching, the exchange had only two ISP peers, but now it has over twenty peers, including commercial ISPs, telecommunication firms, non-commercial institutions and learning centres.

Based on the success of TIX, the TCRA has supported TISPA in the formation of the Arusha IXP, Mwanza IXP and Dodoma IXP. The building of these key infrastructure initiatives encourages the growth of the Tanzanian internet, facilitates the generation and sharing of local content, improves service for consumers, and helps to maintain the neutrality and independence of the internet.

Implementation of the East African Internet Exchange Point (EAIXP)

In extending the concept of "keeping local traffic local" to a regional perspective, the East African Regulatory, Postal and Telecommunications Organisation (EARPTO) has initiated the East African Internet Exchange Point (EAIXP) in an attempt to interconnect Tanzania, Kenya and Uganda. Successful peering has already started between Tanzania and Kenya. Although it is a satellite hop between the three East African countries, it still greatly increases the efficiency and lowers the cost of routing traffic from one country to another.

Creation of the Universal Communications Service Access Fund

Although growth in the ICT sector has been impressive, it still covers only 25% of the population (World Bank, 2006). The government has recognised the pattern in the penetration of communication services and has acted proactively by enacting the Universal Communications Service Access Act, passed by parliament in 2006. This act dictated the formation of a fund whose objectives are to "ensure the availability of communication services in rural and under-served areas," and "promote the participation of the private sector in the provision of communication services in rural and under-served areas." The fund will generate revenue and maintain its financial sustainability from a tax on communication services (Government of Tanzania, 2006).

With the increased availability of funds, commercial and non-commercial operators will be encouraged to venture into new geographic areas, reducing the percentage of the population who do not enjoy access to the internet. Although the creation of this fund has been delayed, the Ministry of Communication, Science and Technology has now revived the initiative, and the fund should be operational in the near future.

Preparations to host international fibre systems

Currently the East African coastline hosts no international fibre connectivity, routing all international voice and data traffic via satellite. This has been an obstacle for the greater development of the sector as prices remain comparatively expensive. In light of fibre systems landing in Tanzania, and assuming that any new fibre systems will be governed by an open-access policy that does not promote a monopoly or facilitate "price-fixing" practices, Tanzania can greatly benefit economically and strategically with the arrival of the various fibre projects at its shores.

The East African Marine System (TEAMS) is an initiative of the Kenyan government to build a 4,500-kilometre fibre-optic submarine system between Fujeira in the United Arab Emirates and Mombasa on the Kenyan coast. A separate spur of this cable is being planned to stretch from Mombasa to Dar es Salaam. The cable is owned by Etisalat (15%) and the Kenyan government (20%), while the rest is owned by private investors, including Safaricom, Telkom Kenya, Kenya Data Networks (KDN), Econet, Wananchi Telecom, Jamii Telkom, Access, Inhand, Flashcom, Equip and Uganda's Fibre Network.[4] This cable is expected to be complete by the second quarter of 2009.

The SEACOM cable is a private equity project owned by South African companies (50%), Industrial Promotion Services-Kenya, a unit of the Aga Khan Fund for Economic Development (25%), and the New York-based Herakles Telecom (25%) (SouthAfrica.info, 2007). It aims to link South Africa, Madagascar, Mozambique, Tanzania, Kenya, India and Europe. It is expected to be operational by June 2009 (SEACOM, 2008).

Finally, the Eastern Africa Submarine Cable System (EASSy) project, which has now been in discussion for some time and is at least a year behind schedule, aims to connect all countries along the East African coast from South Africa to Sudan. The project is supported in part by the World Bank and Development Bank of Southern Africa. It is expected to be operational by the second half of 2010.[5]

Establishing a national fibre backbone

The government, through the then Ministry of Communication and Transportation, commissioned a team in 2004 to "look into identifying infrastructure initiatives and to suggest the best ways to move forward" (MoID, 2004). The team looked at all the options and possibilities of building a converged national fibre backbone that can cater to national development goals, as well as allow Tanzania to excel as an information technology hub by offering terrestrial fibre connectivity to our neighbouring landlocked countries. Based on the recommendations of this study, a national fibre backbone technical plan has been drafted, aimed at connecting the existing fibre systems, as well as building new routes

---

4   en.wikipedia.org/wiki/Teams

5   en.wikipedia.org/wiki/EASSy_(cable_system)

and reaching most, if not all, of the 128 district capitals in Tanzania. The government is in advanced stages of securing a developmental soft loan from the Chinese government, and construction is set to start soon after.

Accessibility of technology

The total numbers of landline, cellular and internet customers do not fully address the issue of accessibility of ICTs. There are many factors that limit physical access to technology.

The biggest and most fundamental factor limiting access is affordability. In Tanzania, the cost of communication services remains comparatively higher than rates enjoyed in so-called developed markets. Table 1 provides a sampling of per-minute costs for mobile telephony.

Similarly, the average cost of internet access is also comparatively high. A home customer in urban Tanzania would pay a minimum of USD 35 for a shared 64 kilobits per second (kbps) link and a business may pay USD 400 for a dedicated 128 kbps link. In the rural areas, this expense may be higher due to the limited infrastructure to deliver internet access. A small office/home office (SOHO) user in Europe or North America may pay as little as USD 20 a month for a reliable broadband connection, getting a minimum speed of one megabit per second (Mbps).

Another factor is the geographic reach of technology and networks. In Tanzania, 75% of the population lives in low population density areas (Thomas, 2007).

The highest levels of technology penetration are enjoyed by cellular networks. At present, they cover 25% of the population (World Bank, 2006). These are impressive statistics, even though 75% of the population has yet to be reached. Healthy competition in the sector, as well as a favourable regulatory environment, have encouraged telecommunication companies to venture into isolated parts of the country, including areas that are not on the electricity grid. These networks are predominantly used for voice communication. Use of these networks for internet over general packet radio service (GPRS) is possible in most areas, but not commonly used. Third generation (3G) access is only available in a few of the major towns and cities.

Cellular companies have predominantly used global system for mobile (GSM) technology. There has not been the expected growth and use of code division multiple access (CDMA) 800 or CDMA 450 technologies. These technologies are more appropriate for rural areas in that they have a much wider footprint, reducing the cost of covering a specific area. Similarly, other communication technologies, such as licence-free as well as licensed frequency wireless, remain concentrated only in the major towns and cities in Tanzania.

The use of very small aperture terminal (VSAT) satellite technology for rural institutions is widespread. It has unlimited geographic reach, but remains an exclusive medium due to the capital and operational costs involved. However, this service is also beginning to be more affordable, as some communications companies have launched local satellite hubs and are able to offer more competitive pricing. This is an area that Tanzania can still capitalise on as there are few infrastructure barriers.

A third major factor affecting access to technology is the availability of electricity. Even if access is present in the form of cellular coverage or the possibility of using VSAT technology, the absence of power either means access is not possible, or that its costs are much higher as alternative arrangements of power need to be used.

Tanzania has 577 megawatts (MW) of installed power production capacity, the majority of which is hydropower. It also has 2,248 kilometres of 220-kilovolt (kV) power transmission lines and 1,400 kilometres of 132-kV lines running across the country. Despite this, only 6% of the population is actually connected to the national power grid (AREED, 2001).

Action steps

The various stakeholders in Tanzania, including the government, have made commendable achievements that have resulted in the proliferation of the ICT sector and the economy in general. Such activities should continue so that the rate of progress is maintained, if not accelerated.

However, there are some specific areas where the government, as a custodian of national policies, can play a more active role. While foreign direct investment is directly proportional to the economic growth of the country, especially when one considers GDP, it does not encourage the growth of the nation's capabilities in terms of developing human capital, encouraging local investment and maintaining wealth in circulation within the country. The government, while encouraging the growth of the sector, should simultaneously pay special attention to the growth of home-grown Tanzanian businesses.

The government should also take strides to create an enabling environment in terms of supporting the growth of infrastructure. This includes encouraging investment in communication infrastructure so that parallel networks are unnecessary, as their weight is borne by end-users in terms

Table 1: **Sample of per-minute cost of mobile calls (September 2008) (in USD at the rate of TZS 1,150 = USD 1)**						
Network	BOL	Tigo	TTCL	Vodacom	Zain	Zantel
Within network	0.04	0.16	0.16	0.23	0.30	0.19
To other networks	0.13	0.26	0.20	0.35	0.30	0.22
Calling United States	0.17	0.52	0.34	0.61	0.61	0.57
					Source: **Official company websites**	

of higher usage pricing. The regulatory environment is ripe for segment-specific investment in the communication sector, rather than one investor needing to build their own infrastructure in order to deliver a service. However, more needs to be done to amplify the possibilities and invite direct investment in those areas.

Likewise, the ongoing activity for the establishment of the Universal Communications Services Access Fund should be sped up as a matter of urgency. Such a fund, which subsidises investment in areas that are less profitable from a business perspective, can go a long way towards minimising the digital divide.

Businesses also have a large part to play. Consumers have many choices now, and more than ever innovativeness will be paramount to new successful businesses. They should focus on offering value-added services, developing new markets that are unique and relevant, and offering alternative, appropriate and enabling technologies. Most of all, they should venture into offering content and content-driven services. The smaller ISPs should also create greater synergies and partnerships with other companies so that they may be able to compete more vigorously. ■

References

AREED (African Rural Energy Enterprise Development) (2001) *Tanzania Country Assessment 2001*. Available at: www.areed.org

Bank of Tanzania (2008) *Monetary Policy Statement, Governor, Bank of Tanzania, June 2008*. Available at: www.bot-tz.org/Publications/MonetaryPolicyStatements/2008_Jun_MPS.pdf

Baregu, M. (2004) Parliamentary Oversight of Defence and Security in Tanzania's Multiparty Parliament. In Le Roux, L. et al. (eds.), *Guarding the Guardians*. Pretoria: Institute for Security Studies. Available at: www.iss.co.za/index.php?link_id=21&slink_id=207&link_type=12&slink_type=12&tmpl_id=3

CIA (2008) *The World Factbook: Tanzania*. Available at: www.cia.gov/library/publications/the-world-factbook/geos/tz.html

Government of Tanzania (2006) Universal Communications Service Act of 2006.

Government of Tanzania (2008) Budget Speech. Presented by Minister for Finance and Economic Affairs Mustafa Mkulo to Parliament in June 2008. Available at: www.tanzania.go.tz/budgetspeech/2008/budgetspeech.pdf

*info*Dev/ITU (2008) Tanzania – The Converged Licensing Framework (Practice Note). *ICT Regulation Toolkit*. Available at: www.ictregulationtoolkit.org/en/PracticeNote.aspx?id=3128

ITU (International Telecommunication Union) (2008) Internet World Stats: Usage and Population Statistics. Available at: www.internetworldstats.com/africa.htm

MoID (Ministry of Infrastructure Development) (2004) Report on the Status of the National ICT Infrastructure Backbone, November 2004.

SEACOM (2008) SEACOM project update, 14 August. Available at: www.seacom.mu

SouthAfrica.info (2007) Seacom cable construction begins. *SouthAfrica.info*, 13 December. Available at: www.southafrica.info/business/economy/infrastructure/seacom-141107.htm

TCRA (Tanzania Communications Regulatory Authority) (2008) Telecommunication Statistics as at March 2008. Available at: www.tcra.go.tz/publications/telecom.html

Thomas, J. (2007) Population of Tanzania now 39 million. *IPP Media*, 14 November. Available at: www.ippmedia.com/ipp/guardian/2007/11/14/102444.html

Van Gorp, A. and Maitland, C. (2007) The Regulatory Design Problem Revisited: Tanzania's Pioneering Position in Africa. Paper submitted for the 35th Research Conference on Communication, Information and Internet Policy (TPRC), Arlington, USA, 28-30 September. Available at: web.si.umich.edu/tprc/papers/2007/711/VanGorpMaitland_TPRC07_TZ.pdf

World Bank (2006) ICT at a Glance: Tanzania. *Information and Communications for Development 2006: Global Trends and Policies*. Available at: www.worldbank.org/ic4d

GLOBAL INFORMATION SOCIETY WATCH 2008 is the second in a series of yearly reports critically covering the state of the information society from the perspectives of civil society organisations across the world.

GLOBAL INFORMATION SOCIETY WATCH or **GISWatch** has three interrelated goals:

- **Surveying** the state of information and communication technology (ICT) policy at the local and global levels

- **Encouraging** critical debate

- **Strengthening** networking and advocacy for a just, inclusive information society.

Each year the report focuses on a particular theme. **GISWatch 2008** *focuses on access to infrastructure* and includes several thematic reports dealing with key access issues, an analysis of where global institutions stand on the access debate, a report looking at the state of indicators and access, six regional reports and 38 country reports.

GISWatch 2008 is a joint initiative of the Association for Progressive Communications (APC), the Humanist Institute for Cooperation with Developing Countries (Hivos) and the Third World Institute (ITeM).

GLOBAL INFORMATION SOCIETY WATCH
2008 Report
www.GISWatch.org