

GLOBAL INFORMATION SOCIETY WATCH 2008

Focus on access to infrastructure



Global Information Society Watch

2008



Global Information Society Watch 2008

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CinnamonTeal Print and Publishing
Printed in India

Global Information Society Watch 2008
Published by APC, Hivos and ITeM
2008

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ISBN: 92-95049-65-9
APC-200812-CIPP-R-EN-P-0058

ETHIOPIA



Ethiopian Free and Open Source Software Network (EFOSSNET)

Abebe Chekol
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Introduction

Ethiopia is one of the poorest and least developed countries in the world, with an estimated per capita income of about USD 160 (World Bank, 2007a). With a population of 83 million, it is the second-most populous nation in Africa behind Nigeria. Amharic is the official language of the Ethiopian government, which follows a federal governing system with nine regional states.

Ethiopia's economy is largely based on agriculture, accounting for half of the country's gross domestic product (GDP), 60% of exports, and 80% of total employment. The share of agriculture, industry and services as a percentage of the GDP was 48%, 13% and 39% respectively in 2005 (World Bank, 2007a). The country's literacy rate is among the lowest on the continent, with only 42% of the adult population able to read and write.

Telecommunications was introduced in Ethiopia in 1894. Despite the very early introduction, Ethiopia has one of the most underdeveloped information and communications technology (ICT) infrastructures on the continent.

This report reviews the current ICT infrastructure and access in Ethiopia and assesses the appropriateness of technology to communities and organisations. It also reviews locally relevant content, applications and services available for use by citizens and organisations. It then concludes with a review of important issues discussed in the report and provides recommendations as a way forward.

With an average of 1.15 main telephone lines per 100 inhabitants (the African average being 3.77 and sub-Saharan African average being 1.65), Ethiopia is ranked 32nd out of 53 countries. The number of computers per inhabitant is 0.31, a dramatically low figure even compared to regional figures for Africa averaging 2.24.

While the capacity of the landline telephone network is 1,123,281, the number of subscribers is 913,821. With a waiting list of over 100,000 in 2006, it shows that the current capacity might not be enough. Mobile network capacity has grown to 2,311,803, while mobile subscribers reached 1,935,000 in May 2008, which shows an 83% usage of the capacity.

Internet users in Ethiopia as of December 2007 totalled 164,000, with a 0.2% penetration, representing 0.4% of the users in Africa.¹ Under the rural connectivity project, between 2005 and May 2008, the Ethiopian Telecommunications Corporation (ETC) connected 10,353 villages. With regard to broadband, since its introduction in 2001, capacity has grown to 2.5 Gigabytes (Gbps), although the maximum speed that is available for subscription is 512 Kilobytes per second (Kbps). The number of subscribers reached 1,341 by May 2008.

The national state-run radio broadcaster, Radio Ethiopia, claims 80% coverage. It broadcasts in Amharic, Oromiffa, Tigrigna, Afar, Somali, Arabic, English and French. Another national station is Radio Fana, which also claims 80% coverage. The ruling government party, the Ethiopian People's Revolutionary Democratic Front (EPRDF), owns it. This technically makes it a private station. There are also three more recently licensed commercial radio services: Zami Public Connections (FM 90.7), Adei Promotions and Tinsaye Kinetbebat (FM 102.1) and Fana FM 98.1. There have been two new community radios set up, one in Dire Dawa and one in Yirgalem. At a regional level, there are now twenty state-owned services together with the eleven educational radio-broadcasting transmitters run by the Education Mass Media Agency (EMMA).

Table 1: Physical access to technology

Fixed telephone lines per 100 inhabitants (May 2008)	1.15
Mobile cellular telephone subscribers per 100 inhabitants (May 2008)	2.46
Computers per 100 inhabitants (2006)	0.31
Internet subscribers per 100 inhabitants (May 2008)	0.04
Broadband internet subscribers per 100 inhabitants (May 2008)	0.002
International internet bandwidth (Mbps) (2006)	2.79
Percentage of population covered by mobile cellular telephony (2006)	10
Internet access tariffs (20 hours per month), in USD, and as a percentage of per capita income	USD 12 and 92
Mobile cellular tariffs (100 minutes of use per month), in USD, and as a percentage of per capita income	USD 7 and 53
Radio sets per 100 inhabitants (2001)	18.35
Television sets per 100 inhabitants (2003)	0.79

Source: ITU Telecommunications Indicators Database (2007), ETC Company Profile 2007

¹ Internet World Stats Usage and Population Statistics: www.internetworldstats.com

Ethiopian Television (ETV) is the only TV broadcasting service in Ethiopia, with two channels. The first serves the whole country and the second broadcasts to Addis Ababa and its surrounds only.

A relatively small advertising market has made it difficult for investors to come forward to start up stations. In addition, the number of people with radio receivers is still relatively small. A recent survey found that around half (48.3%) of the population owns a radio set.

The main modern source of energy in Ethiopia is hydropower, and the Ethiopian Electric Power Corporation is the sole energy service provider in the country. Only 17% of the population uses electricity, 50% of which is consumed in Addis Ababa, and much of the rest in other urban areas (Admassie & Taye, 2007).

Key access programmes

The ICT infrastructure – both internet protocol (IP) and non-IP based – described in this section comprises the core programmes through which ICT-based activities and initiatives are being delivered.

WoredaNet is a terrestrial and satellite-based network whose prime objective is to provide ICT services to government at the federal, regional and *woreda* (district) levels. Currently over 565 *woredas* are connected to the network, and through the network are linked to regional and federal government offices. Moves are taking place to link *kebeles* (the lowest level of government administration) and it is reported that 6,000 are currently connected and 18,000 will be connected by the end of 2008.

One application of WoredaNet is videoconferencing facilities during court hearings held at the Federal Supreme Court,² as well as district-level courts. The Federal Supreme Court was one of the winners of the 2007 Technology in Government in Africa (TIGA) Awards, organised by the United Nations Economic Commission for Africa (UNECA) and the Canadian government in recognition of achievements that have led to changes at national, regional or provincial level (UNECA, 2007).

SchoolNet is a satellite-based network that covers secondary schools across Ethiopia.³ Currently 668 secondary schools are connected to a gateway that provides video and audio streamed educational programming. Access to the internet is available through a downlink-only very small aperture terminal (VSAT) satellite connection. The fact that SchoolNet has one-way downlink capability only limits the ability of students to download useful material of their own choice.

The Engineering Capacity Building Programme (ECBP) in the Ministry of Capacity Building is undertaking a trial in which they are implementing 5,000 low-cost laptops in selected schools. This project uses the XO machines produced by the One Laptop per Child (OLPC) Foundation, designed for use by children in developing countries to provide them with access to knowledge (Chekol, 2007).

Another project is HealthNet, which enables health practitioners throughout Ethiopia to access a wide range of information services that are crucial to health care. Established by SATELLIFE in 1994 in collaboration with Addis Ababa University Medical School, there are 62 points that are connected and making use of HealthNet's services.

AgriNet is a broadband network linking 50 agricultural research centres, of which 34 fall under regional governments and are provided with communications linkages through eight VSATs.

Community radios have significant potential to reach communities. The government recently invited people seeking community radio licences to apply. There have been two new community radios set up, one in Dire Dawa and one in Yirgalem.

Various forms of telecentres have been widely deployed, often as pilot projects. The Ethiopian Information and Communication Technology Development Agency (EICTDA) estimates that there are 0.03 telecentres per 100 people. However, like many other countries in Africa, telecentres in rural areas have proved difficult to sustain once start-up funds have run dry.

The use of open standards is crucial for a country like Ethiopia. In this regard the Ethiopia Free and Open Source Software Network (EFOSSNET), established as an informal network of ICT professionals in February 2005 with support from UNESCO and the Catalysing Access to ICTs in Africa (CATIA) programme in association with APC, has been promoting FOSS in Ethiopia through training, research and consultation. The current level of awareness of FOSS in Ethiopia, including policy sensitivity to the issue of free software, can be attributed to the activities of EFOSSNET.⁴

Locally relevant content, applications and services

Based on a UN e-government survey, Ethiopia's e-government readiness index is 0.1857, which reflects improvement compared to the 2005 index, which was 0.1360. However, Ethiopia showed a decrease in its rank worldwide, from 170th in 2005 to 172nd in 2008 (United Nations, 2008). The e-government index is a composite measure of three areas: the web measure index, telecommunication infrastructure index and human capital index.

The key challenges for e-government in Ethiopia, as is the case for many other African countries, include the overall literacy rate, the development of telecommunication infrastructure, and the government's commitment to a more transparent and citizen-centred form of governance (Kitaw, 2006).

Through the public sector reform programme, government institutions began to provide information and services online. Some of the major content, applications and services provided by the government are delivered through the WoredaNet, SchoolNet, AgriNet and HealthNet programmes.

2 www.federalsupremecourt.gov.et

3 www.schoolnet.et

4 www.efossnet.org

Conclusion

Ethiopia faces a challenge in adopting and fully benefiting from the current ICT revolution and knowledge economy. Studies have indicated that a successful transition to a knowledge economy can be attained through four pillars: the prerequisite economic and institutional regime; education; information and communication technology; and innovation (World Bank, 2007b). In this regard, Ethiopia places significant emphasis on the first three areas, but there is little or no progress in the area of innovation other than a national science and technology innovation policy, drafted by the Ethiopian Science and Technology Agency in October 2006, which has yet to be approved (ESTA, 2006).

ICT infrastructure development has also been the biggest constraint in the use of ICTs in education (Hare, 2007) and business (Admassie & Taye, 2007), amongst other sectors of the economy.

Furthermore, a lack of resources, language barriers and a low level of skills and capacities, including awareness of the benefits of ICTs, are major hurdles to ICT development in the country. Most rural communities in Ethiopia, which form more than 80% of the population, have not woken up to the issues of the information society. The government and other stakeholders need to act together to enable Ethiopia to join the knowledge economy. The government, for its part, needs to open up the ICT market and create an enabling environment for the private sector to flourish. ■

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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

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