

# GLOBAL INFORMATION SOCIETY WATCH 2008

*Focus on access to infrastructure*



# Global Information Society Watch

## 2008



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# RWANDA

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## Introduction

Rwanda, a densely populated, landlocked country in East Africa, lies south of the equator and covers 26,338 square kilometres. In 2008, the population was pegged at 9,139,919 (CNE, 2008). Dominated by very young people, with about 63% of the population living below the poverty line of USD 1 per day, there is a rapid population growth of 2.9% per annum. The country's commitment to gender equality has resulted in a high representation of women in decision-making positions. Along with recent legal reforms, these changes hold the potential of alleviating the unequal share of challenges facing the population.

Despite the 1994 genocide and challenges of poverty, Rwanda is hailed in the region as having the highest level of commitment and a unified approach to ensuring information and communications technology (ICT) diffusion and exploitation for development. The country is trying to find the path that will set it on course for achieving the objectives laid out in its Vision 2020.

Today, Rwanda boasts an internet exchange point (IXP), an ICT park, a national computing centre, and a telemedicine network that connects hospitals and universities in an attempt to transform and expand health services to underserved areas. However, despite a high level of political commitment to taking ICT development forward as a priority area, the current trend reveals several gaps. These relate to access to adequate infrastructure, affordability of ICT services, and weak coordination of ICT initiatives.

This report considers how far Rwanda has come in its plan to move from an agricultural-based economy to a knowledge-based economy through developing competitive, service-based industries.

## Policy context

Rwanda started developing an integrated ICT policy in the late 1990s, with the vision of making ICTs a key part of its global socioeconomic development planning and policy. Known as the National Information and Communication Infrastructure (NICI) plan and policy, the plan is to be implemented in five-year phases with a different focus for each phase. The current NICI II plan (2006-2010) serves as a point of policy reference. It also serves as a framework for the government's long-term goal to transform the country into an information-rich, knowledge-based economy by pursuing an ICT-led socioeconomic development policy (Government of Rwanda, 2006, p.13).

The country has gone through major economic and telecommunications reforms that were aimed at increasing

the competitiveness of the telecommunications industry and attracting foreign investment. Amongst them, the Rwanda Utility Regulatory Agency (RURA) was established with a mission to promote fair competition, to improve quality of services, and to create an enabling environment that attracts investors with the intention of improving the provision of services to citizens. This step was taken in accordance with the universal access obligations set by the International Telecommunication Union (ITU).

Rwanda has based its ICT policy on the Common Market for Eastern and Southern Africa (COMESA) model ICT policy, which was developed to serve as a guide for the harmonious development and application of ICTs within member states. To this end, a Rwanda-Tanzania "digital bridge" policy framework was developed to provide affordable, ubiquitous and high-quality services, and to build a competitive regional ICT sector, while creating an enabling environment for sustainable ICT diffusion and development.

## Physical access to technology

Rwandatel, the main fixed operator and internet service provider, has a fairly extensive national microwave backbone that covers the capital Kigali and the main urban and semi-urban areas. It has built a fibre ring around Kigali city, as well as a link from Kigali to Butare in the southern part of Rwanda. It also has a code division multiple access (CDMA) network on top of its microwave backbone. MTN Rwanda-Cell and Rwandatel have both started to lay fibre to the east, close to the Tanzanian border. The current MTN network is estimated to cover 75% of the country, including Kigali and smaller, rural towns.

The government is currently rolling out fibre optics along all the main roads, a process which will be completed by 2010. From the main fibre-optic trunk, internet will be carried to the countryside via wireless technologies. It is expected that the combination of fibre-optic backbone and 3.5 gigabytes per second (Gbps) WiMAX wireless will cover the country and make Rwanda the most communication-wired country in East Africa (RIEPA, 2007). The first phase, covering 134 kilometres, is already underway (New Times, 2008). The power utility company Electrogaz has also decided to establish a private fibre-optic network alongside its grid.

Besides these, the Karisimbi project plays a significant role in enhancing electronic communications and broadcasting capabilities, not only in Rwanda, but also in nearby areas in neighbouring countries. This project seeks to provide low-cost, high-capacity communications capability to both rural and urban populations, and will expand coverage for

mobile phones, internet, TV and FM radio, and reach many beneficiaries. It also seeks to offer air safety and surveillance capabilities through a Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) system, which has already been endorsed by COMESA. Once fully operational, the project is expected to reduce the cost of communications in Rwanda on average by about 50%.

Various initiatives in Rwanda are underway to increase the population's access to ICTs. For example, the government is deploying multi-purpose community telecentres throughout the country to facilitate the spread of ICTs in the community (RITA, 2007).

Another government initiative is the ICT Bus Project being developed by the Rwanda Information and Technology Authority (RITA) and scheduled to commence late this year. The programme will use two buses, each with a fully equipped computer laboratory, that will act as mobile computer labs that will benefit farmers, traders, students, women, youth groups, entrepreneurs and other rural-based Rwandans (RITA, 2008).

As for the Rwandan private sector, the Scan ICT survey (Gatera, 2007) shows that ICTs in business is in its infancy stage. A number of businesses are aware of ICTs but are not using them, and only a few of them have a website presence.

Before June 2004, internet service providers (ISPs) were using international operators to carry their local as well as international traffic. The high cost of the satellite links and delays in connection made the situation unbearable, and limited the growth of the internet in Rwanda.

In October 2003, the Swedish International Development Cooperation Agency (SIDA) assisted Rwanda in the establishment of an internet exchange point (IXP). The Rwanda Internet Exchange (RINEX) project entered into operation in February 2004. RINEX keeps local traffic local and saves international bandwidth (Gatera, 2007).

Some ISPs were reluctant to connect to RINEX because they thought that the IXP would be managed by Rwandatel, since it is hosted there. This threat has been relieved a bit following a statement by RINEX management ensuring its neutrality. There is also a need for developing an IXP policy at the national level that guarantees its sustainability.

Licence application processes have been a problem for new telecommunication companies wanting to operate in Rwanda. Delays in processing applications are common, a situation which also contributes to delays in driving ICTs forward in the country.

Recent research by Research ICT Africa (RIA) has shown Rwanda has very poor scores across a range of technical areas, from tariff regulation, to interconnection, to spectrum management. This reflects, according to the authors, the "general lack of capacity in the regulator, as well as lack of a visible regulatory environment that involves not only the regulator, the Ministry of Communications and private operators, but also civil society and academics" (Esselaar et al., 2007, p. 45).

## Appropriateness of technology

As communications facilities are mostly found in the cities where telecom operators are based, radio is the dominant source of information in Rwanda, because of its ease of use and access for more than 94% of the population living in rural areas (RITA, 2007). The lack of adequate power supply in remote areas also hinders the development of communications facilities.

Nevertheless, the health sector in Rwanda has started to use ICTs to deliver information focused on safe and efficient care. Another project is TRACKNet, a database used to collect AIDS data from the field, using cell phones with interactive voice response (IVR), general packet radio service (GPRS) and short message service (SMS) technology (Index, 2008).

The One Laptop per Child (OLPC) project is also worth mentioning. Currently 5,000 laptops are being distributed to all primary school children within five years. The project's implementation faces some challenges, such as reaching rural areas. For Carine Umutesi, who is in charge of the project at RITA, sensitisation campaigns targeting the schoolchildren and teachers will be key to the success of the project. The other major challenge is the lack of pedagogical materials on the laptop. The English versions are not understood by every child. Another issue is that technology is changing so fast that the OLPC programme might become redundant very quickly.<sup>1</sup>

## Action steps

A number of initiatives, projects and activities are being carried out by the public and private sector. However, the organisations carrying out these initiatives are not collaborating or communicating, leading to a duplication of some of the activities (DICTM, 2008). It is recommended that the government put in more effort to encourage synergies. In particular, RITA's authority to manage and oversee all ICT initiatives should be strengthened.

The level of ICT awareness is quite low amongst the general population, and even within some organisations. Although the use of mobile phones is quite widespread in Kigali, there is a general lack of knowledge about the benefits of using other ICT technologies (DICTM, 2008). It is recommended that the government of Rwanda support and encourage civil society organisations to take on the roles of awareness raising, sensitisation and encouraging the uptake of ICTs in society.

At the moment, Rwanda's ICT sector is growing fast and the situation is likely to continue into the next few decades. The government of Rwanda's commitment to ICTs is seen by Rwandans as noble. The introduction of ICTs with a view to contributing to Rwanda's socioeconomic development is a long-term strategy and at present the country is still building the foundations of an information-based economy. Efforts

<sup>1</sup> From an interview with the author, 30 April 2008.

made now will realistically only have a serious impact on overall standards of living several years down the line.

The development of human capacity in the ICT sector is, however, a critical issue that must be given immediate attention. Along with human resource development programmes, the curricula developed in higher education institutions should be designed to meet Rwandan labour market requirements and the demands of changing technologies, particularly in the ICT sector (World Bank, 2007). ■

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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).

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2008 Report

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