International Telecommunication Union

AFRICAN TELECOMMUNICATION/ICT INDICATORS 2008: AT A CROSSROADS

ITU TELECOM AFRICA 2008
Cairo
12-15 May

ITU
International Telecommunication Union

International Telecommunication Union

AFRICAN TELECOMMUNICATION/ICT INDICATORS 2008:

AT A CROSSROADS

International Telecommunication Union

International Telecommunication Union
Place des Nations
CH-1211 Geneva Switzerland

ISBN 92-61-12411-9

Foreword

I am pleased to present the African Telecommunication/ ICT Indicators 2008, our 8th indicator publication on the region. This Report has been specially prepared for ITU TELECOM Africa taking place in Cairo, Egypt, from 12 to 15 May 2008.

This Report contains the latest available telecommunication and Information and Communication Technology (ICT) data and highlights the tremendous growth in the sector that has taken place in African telecommunication markets since the last ITU TELECOM Africa event in 2004. Since that time, even the most optimistic projections for the growth of mobile telephony and the increase in mobile subscribers in Africa have been surpassed and the continent today is home to more than 260 million mobile subscribers, over a quarter of its total population. Sector liberalization, the licensing of multiple cellular operators and innovation in services and applications have helped drive explosive growth in Africa's mobile telephony markets.

While there has been rapid expansion in access to ICTs, this Report highlights a number of challenges that the continent is currently facing. As the end of the first decade of the new millennium approaches, Africa must sustain and deepen its ICT growth and expand access in areas in which it is lagging behind, especially in terms of Internet and broadband uptake. Governments need to create pro-ICT policies and, in cooperation with the private sector, re-think approaches to take advantage of convergence and the full potential of wireless technologies. Universal access and broadband are essential in connecting Africa, a continent that now stands, as the title of this Report indicates, "at a crossroads".

This Report includes a number of recommendations to sustain growth and deepen access to ICTs in the region. We hope that its statistical information and analysis will inform, encourage and guide policy-makers, investors and analysts.

Sami Al Basheer Al Morshid
Director, Telecommunication Development Bureau
International Telecommunication Union

This report was prepared by a team led by Vanessa Gray of the Market Information and Statistics (STAT) Division of ITU's Telecommunication Development Bureau. Michael Minges contributed significantly to this Report. Monika Muylkens contributed and Rebecca Mayer provided valuable comments. Data were collected by the Market Information and Statistics Division, including Nathalie Rollet, Herawasih Yasandikusuma and Cao Zhang. The statistical tables were prepared by the STAT Division and Paulo Cabral de Mello. Nathalie Rollet was responsible for the design of the Report and Stéphane Rollet designed its cover.

The Market, Information and Statistics Division would like to thank Susan Schorr, Nancy Sundberg, Youlia Lozanova, Philippa Biggs and Desire Karyabwite for their valuable comments and suggestions.

The report would not have been possible without the collaboration of the many telecommunication organizations, regulatory agencies and other data suppliers throughout the region, to whom we owe our thanks.

Table of contents

1. Introduction

African Telecommunication Indicators has been published eight times spanning a period of 18 years (Figure 1-1). The first edition was prepared for the African Regional Telecommunication Development Conference in Harare, Zimbabwe, in December 1990. At the time the first edition was published, there were only 8.6 million telephone subscribers in Africa, mostly located in the North African countries and South Africa. At that time, Norway had more telephone subscribers than all of Sub-Saharan Africa. Mobile communications were virtually non-existent, with only six networks in operation, and beyond Mauritius and South Africa, there were none in Sub-Saharan Africa. Not one African country was connected to the Internet in 1990.

Today, the situation is radically different, with all African countries having mobile networks in operation and connections to the Internet. Growth has defied predictions. For example, the 2004 edition of *African Telecommunication Indicators* forecast three different scenarios for the number of mobile subscribers in Africa by 2010. The

Figure 1-1: Eighteen years of indicators

Source: ITU World Telecommunication Indicators Database.

most optimistic scenario of 200 million by 2010 was almost reached in 2006 and exceeded by over 60 million subscribers at the end of 2007.

The development of the African ICT sector has resulted in exciting services and opportunities for the region:

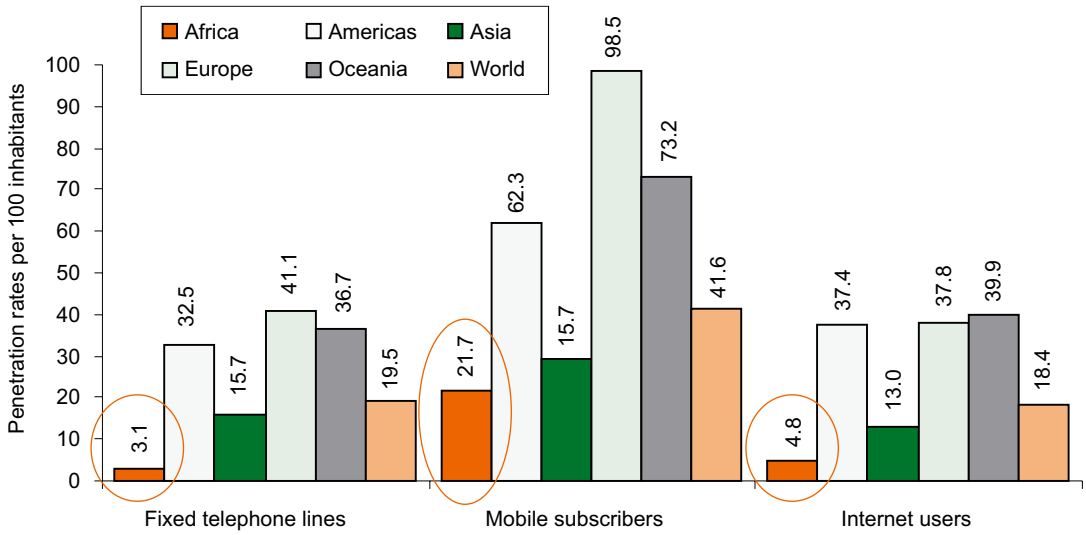
- The growth in mobile is fueling local m-commerce applications such as pricing information for rural farmers and the use of mobile phones to pay for goods and services. For example, Kenyan mobile operator Safaricom launched the M-PESA system in March 2007. It allows subscribers to use their phone as a virtual bank by depositing and withdrawing funds through the value stored on their mobile phone. As of September 2007, M-PESA had over 600'000 active users, many of them without conventional bank accounts. The Safaricom International Public Offering (IPO) is also generating public interest in the sector by allowing local citizens to purchase shares in the company.

- Connectivity to international fiber networks is providing opportunities for African countries to tap into ICT services exports. South Africa has emerged as an attractive call center destination while Mauritius is leveraging its ties with India to grow its ICT-enabled services export industry. A study of Ghana's economic prospects focuses on the potential of "IT-enabled services" in improving business competitiveness and increasing economic growth in that country.[1]

Although it is tempting to get excited about ICT growth in Africa, the stakes have risen. The milestones by which success is measured are changing. Two decades ago, achieving a teledensity of one per one hundred inhabitants represented a major milestone, but today's benchmarks of achievement are much higher. The rest of the world has forged ahead with strong investment and the adoption of new technologies. While Africa has made impressive gains, it remains far behind other regions in ICT access (Figure 1-2).

Africa is at a crossroads. While there has been strong growth in access to ICTs, much more needs to be achieved. A second wave of regulatory reform could really unleash growth and investment in Africa. It is essential to find the right mix of policy, economic and technical ingredients and committed entrepreneurs that will not only sustain growth in ICTs across the continent, but boost access to the level of other regions.

Figure 1-2: ICT penetration rates per 100 inhabitants, 2006



Source: ITU World Telecommunication/ICT Indicators Database.

1.1 Mobile telephony

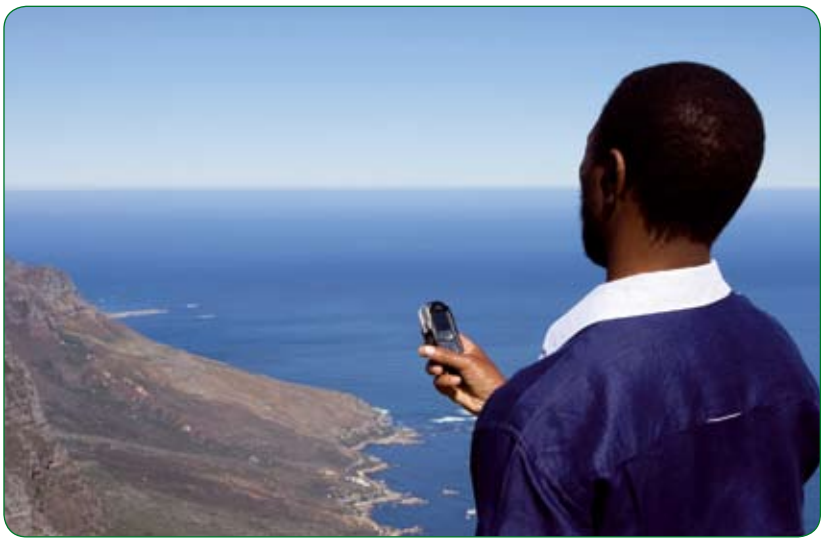
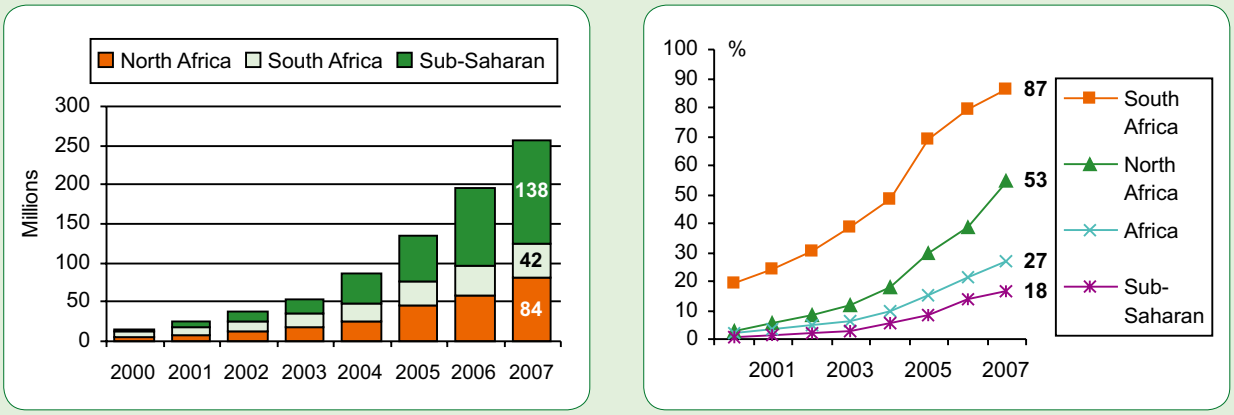


Photo: Stefan Reimschuessel.

When the first mobile networks were launched in Africa two decades ago, few imagined that mobile phones would become Africa's communications device of choice. In 1990, only six countries had networks and there were less than 15'000 subscribers. It took six years to surpass one million mobile subscribers. The 100 million barrier was shattered nine years later in 2005 and at the beginning of 2008, there were over a quarter of a billion mobile subscribers on the continent (Figure 1-3). Mobile penetration has risen from two in 2000 to over a fourth of the population today. Mobile subscribers are also now more evenly distributed. In 2000, South Africa accounted for over half of all Africa's mobile subscribers, but by 2007, only 16 percent of mobile subscribers were located in South Africa.

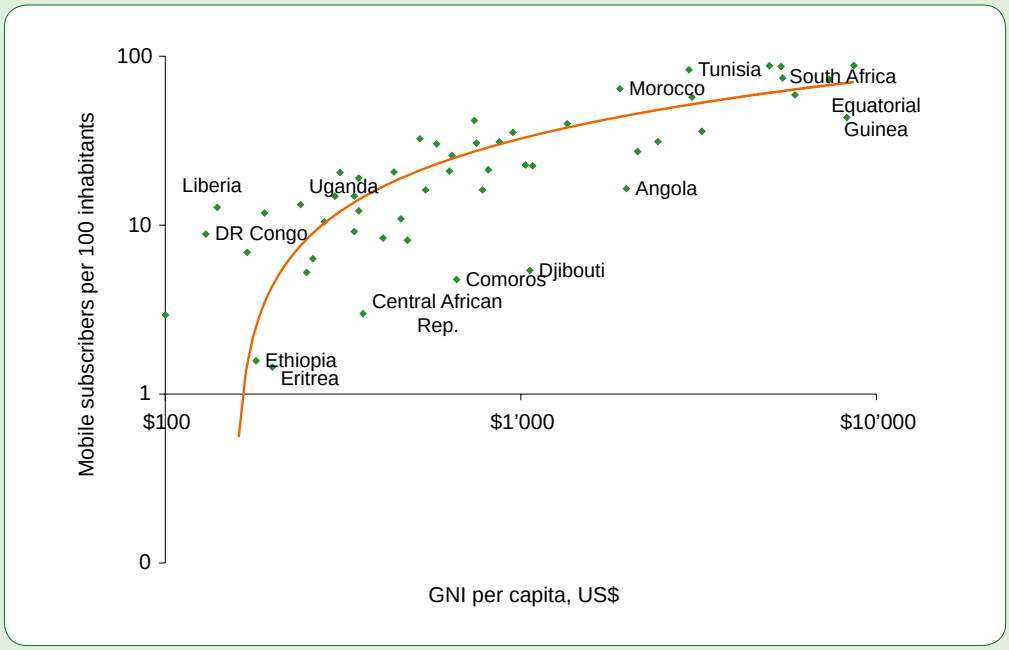
Nevertheless, today there is still considerable variation in mobile penetration among African countries. While the average number of mobile subscribers per 100 inhabitants was 27 in 2007, this ranges from close to 90 in Gabon, the Seychelles and South Africa to less than two in Eritrea and Ethiopia. Although wealth is one key explanatory factor, the degree of competition in the mobile sector also impacts mobile penetration. Most countries where mobile performance is poor relative to per capita income have limited competition. For example, Eritrea and Ethiopia have the lowest mobile penetration on the continent and only one mobile operator each. This is in sharp contrast with Liberia, which is emerging from civil war and has a lower per capita income than Eritrea or Ethiopia. With four mobile operators, Liberia has a mobile penetration more than six times greater than that of Eritrea or Ethiopia (Figure 1-4). Other similar examples exist, across a range of countries of different income levels. Take Equatorial Guinea, whose petroleum-based economy results in the second-highest per capita income in the region. Yet Equatorial Guinea has only one mobile operator and its penetration is half that of South Africa, where per capita income is one third less, but three facilities-based mobile operators are active.

Figure 1-3: Mobile subscribers and penetration in Africa



Source: ITU World Telecommunication/ICT Indicators Database.

Figure 1-4: Mobile subscribers per 100 inhabitants and per capita income, 2007



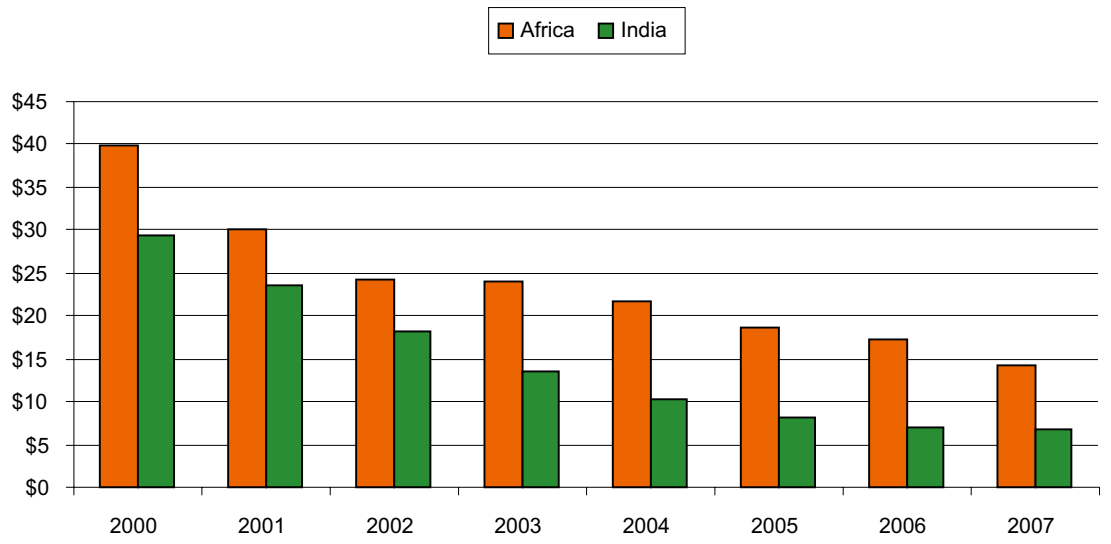
Note: Logarithmic scales.
Source: ITU World Telecommunication/ICT Indicators Database.

Operators in Africa have developed different services to meet the unique circumstances of the region and boost mobile take-up and usage. The most apparent is prepaid; some 94 percent of mobile subscribers in the region are using prepaid services. Providers have searched for ways to enhance the ease of use of prepaid services and make it convenient for low-income users. This includes offering features such as low denomination airtime recharges and per second billing. In Nigeria, recharges are available for as low as N50 (US$0.40). Text messaging is another area being utilized to enhance customer satisfaction. Some mobile operators allow free text messages to be sent from their web sites. In Kenya, mobile operator Safaricom offers the "Flashcom 130" service which provides an alternative to calling someone, and letting their mobile phone ring just long enough to know they should call you back (so-called "flash calling"). Instead, Flashcom 130 allows users to send a free text message asking for someone to call. Operators are also offering services that allow users to transfer airtime to other users via a text message. In Burkina Faso, Celtel provides the "Recharge mobile" service where a user can send a text message to charge an acquaintance's airtime in denominations as low as F 200 (US$0.40).

Competition has been a key driver in reducing mobile prices across the region. Tariffs have dropped, as networks expand and operators compete for less affluent customers. Average marginal revenues per customer have fallen in line with tariffs. The monthly mobile Average Revenue Per User (ARPU) stood at US$ 14 in 2007 compared to US$ 40 in 2000 (Figure 1-5). This reduction in ARPU is linked with the strong growth in the subscriber base. There is plenty of scope for prices to come down even further, essential if mobile phone ownership is to reach new customer segments among the broader population. For example, average ARPU in India is less than US$ 7, or one half the African level.

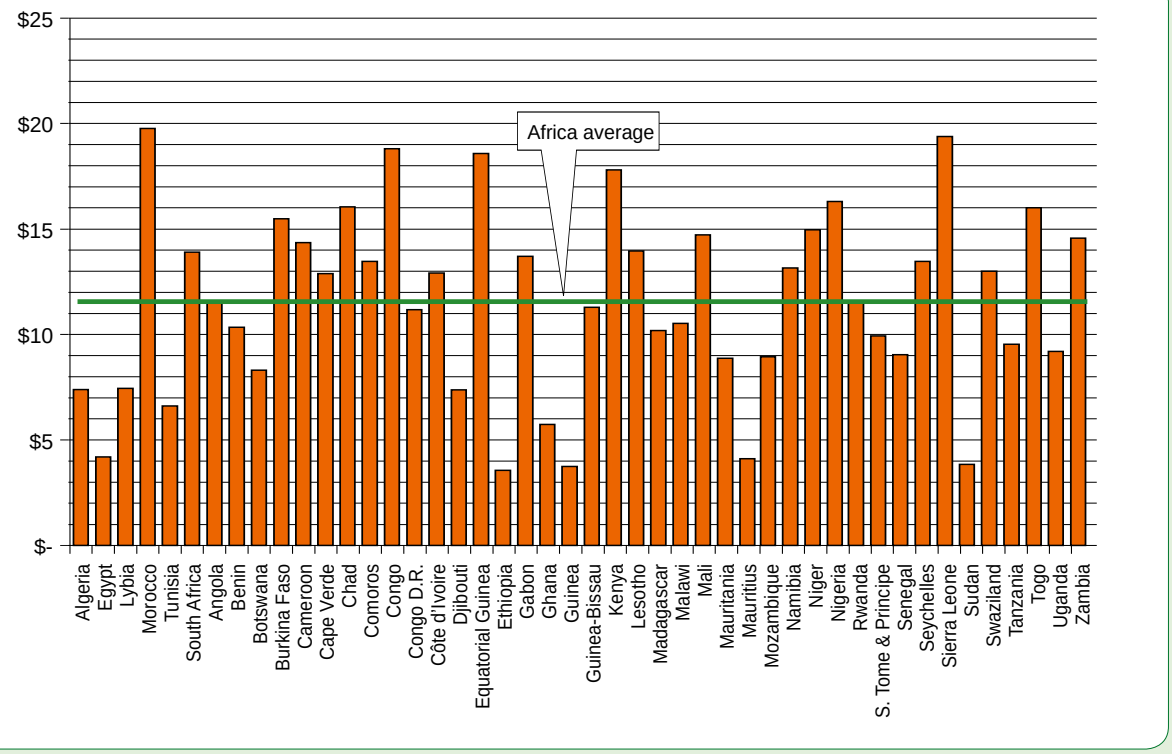
A monthly prepaid basket that incorporates the variety of different prices depending on the call destination (e.g., to own network, other mobile networks, fixed network) and the time of the call (e.g., peak, off-peak, weekend) is used to compare mobile tariffs in Africa.[2] The average monthly prepaid mobile basket in African countries in 2007 amounted to US$ 11.56, ranging from a high of US$ 20.00 to a low of US$ 4.00 (Figure 1-6). Although mobile prices are reducing, there is further room for improvement, given the high

Figure 1-5: Mobile ARPU, US$, Africa in comparison with India



Source: ITU World Telecommunication/ICT Indicators Database.

Figure 1-6: Monthly mobile prepaid tariff basket, Africa, US$, 2007



Note: Based on OECD, low user basket. For Burundi, Central African Rep., Eritrea, Gambia, Liberia, Somalia and Zimbabwe: data not available.
Source: ITU World Telecommunication/ICT Indicators Database.

termination rates in some countries, as well as high tax rates (see section 3.3). Continuing competition, ex ante monitoring of termination rates and reductions in value-added and excise taxes will help ensure continued growth in the mobile market and promote widespread universal access to communications in Africa. In addition, a reduction in the price of handsets could stimulate the market further (see Box 1-1).

Box 1-1: Low Cost devices for Africa?

The lack of telecommunication infrastructure and public access points are not the only barriers to wider connectivity and use of ICTs. In Africa, 64 percent of the population is covered by a mobile signal and therefore has theoretical access. But mobile penetration only stands at 27 percent, suggesting that other barriers exist. It has been widely recognized that affordability is key for the uptake and use of ICTs. Although the ICT market has seen an important drop in prices for mobile services over the last years, affordability remains an important issue.

Several price barriers may be identified and include high entry costs for services, roaming charges and taxes on telecommunication services and devices. A burden that is especially problematic for low-income groups is the cost of the end-user device. Indeed, the cost of a handset is often seen as the most important entry barrier and manufacturers have been trying hard to reduce prices.[3] More affordable devices should help bridge the gap between supply and demand and to penetrate user segments previously considered to be outside the addressable market. Low-cost handsets are also of great interest to operators and investors. Many see new opportunities in less-developed regions.[4] With mobile penetration levels heading towards 100 percent in many developed countries, operators and equipment makers are eager to connect new users outside mature and saturated markets.

Indeed, growth in developing markets makes them an exciting prospect for operators and manufacturers. The African continent saw a Compound Annual Growth Rate (CAGR) of 32 percent in mobile subscribers between 2006 and 2007, with almost 65 million new subscribers added during the year. Despite the fact that most of today's unconnected will be from low-income groups with little extra to spend, operators are eager to get them onboard. Existing business models and strategies show that lower revenues are compensated by masses of new subscribers. Also, studies have shown low-income groups are prepared to spend proportionally more of their income on telecommunications. Business models and devices tailored to low-income groups will therefore be key and the growing demand for cheap devices in large markets such as Africa can generate economies of scale for reducing costs.

In 2005, the GSM Association hosted a competition to develop a fully functional mobile phone for less than US$30, including all electronic devices, software components, batteries, charger, packaging and manual. Since then, several advancements have been made. The major area for reducing the production costs for these so-called Ultra Low Cost Handsets (ULCH) was the chip. Already in 2006, Infineon Tec pushed the cost of a GSM handset to below US$20, with material costs below US$15.[5] This prototype contained half the number of components of a regular handset. Other big chip makers like Texas Instruments, Motorola and Philips have entered into the development of cheaper chips and other more costly components to replace those used in full-featured phones.[6]

Low-cost handsets also reduce the problem of high energy-consumption – a major challenge to vendors and users particularly in developing countries – since they can be used with cheap rechargeable batteries such as nickel metal hydride (NiMH) AAA batteries. Motorola, for example, has been able to develop a phone with talk times of five to eleven hours and standby times of 175 to 450 hours.[7] Remaining energy needs could be satisfied either by shop owners offering power recharge services or by systems based on solar energy.[8]

The quest to develop affordable handsets is critical to extending mobile access in developing markets. At the same time, mobile phones are becoming a substitute for various activities in developing regions such as Africa. For example, the use of text and picture messaging is an alternative for users who do not have computers or regular access to email. Usage of "m–banking" is also growing throughout the region as an alternative to traditional bank accounts. For mobile services to have an even greater impact on developing regions and to realize the promises of mobile technology in terms of Internet access and advanced applications, mobiles will not just have to be affordable but also 3G enabled.[9]

1.2 Fixed telephone service

Africa's dramatic growth in mobile communications has left fixed telephone lines behind. This was not always the case. In the late 1990s, the number of fixed telephone lines was growing rapidly at over ten percent a year, following a wave of incumbent privatizations and prior to the widespread introduction of mobile competition. Lately, growth in fixed telephone lines has fallen to its lowest level in the last two decades. At the end of 2007, there were 35 million fixed lines on the continent, equivalent to an overall teledensity of 3.8 fixed telephone line subscribers per 100 inhabitants. This is up only slightly from 2.8 fixed lines per 100 inhabitants in 2002. Within the continent, North African countries have 11.9 fixed lines per 100 inhabitants and South Africa 9.6 compared to just 1.6 in Sub-Saharan Africa.

Incumbents and new entrants are seeking to increase the popularity of fixed telephony through the expansion of fixed wireless networks. These networks often use billing platforms supporting a variety of price plans and offering prepaid solutions. Some operators have added features, such as limited mobility and free inter-network calling, in an effort to attract customers.

CDMA2000 1X has emerged as the *de facto* technology for fixed wireless in Africa. According to the CDMA Development Group, 31 African countries had commercially deployed a CDMA2000 1x wireless network by April 2007 (Table 1-1).[10]

While growth in fixed wireless networks has been positive for expanding basic access to telecommunications, it does come at the price of regulatory and technological complications. The regulatory implications for the mobility aspects of fixed wireless are likely to intensify, as fixed wireless platforms grow in success and subscriber numbers increase. Over-emphasis on fixed wireless will also affect the broadband market, as DSL technology over copper line is the prevalent high-speed technology in the region.

The emergence of fixed wireless has altered the pricing structure for fixed line networks. Many CDMA2000 1x networks have pricing structures similar to mobile – for example, prepaid with no monthly subscription charges, but higher usage charges. Traditional fixed line tariffs have risen, as operators move to rebalance tariffs by raising subscription and local call charges and lowering long-distance call charges.

The average price of a monthly basket for subscription-based, conventional fixed line telephone service was US$ 13 in 2007, with considerable variation around this average (Figure 1-7). In some countries, there is a move towards flat-rate pricing, with either unlimited local calls or a number of minutes included in the subscription. Variety in fixed line pricing – whether prepaid with fixed wireless or flat rates – makes services more affordable and provides consumers with wider choices. These options are most common in markets where there is a choice of alternative fixed line operators.

Prices for overseas calls have declined, as operators move to rebalance tariffs and compete with Internet-based calling solutions (Figure 1-8). The prospect of widely available Voice over Internet Protocol (VoIP) telephony services promises to make international calls more affordable for consumers. Nevertheless, prices remain high by global standards and there is significant variation in the region for the price of international long-distance calls.

Table 1-1: Deployment of CDMA2000 1X networks, April 2007

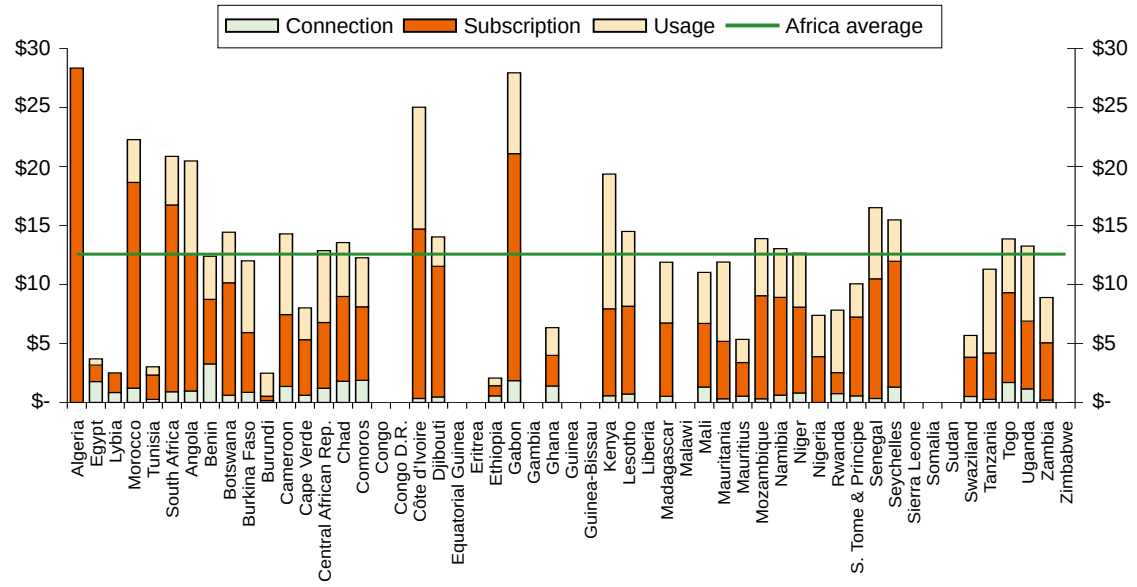
Country	Operator	Incumbent
1. Algeria	Algerie Telecom Consortium Algerian de Telecommunications (Lacom)	§
2. Angola	Movicel Telecomunícações Lda Mundo Startel	§
3. Benin	Bell Benin Communications (BBCOM)	
4. Botswana	Botswana Telcommunications Corp.	§
5. Cameroon	CAMTEL (CTPhone)	§
6. Cote d'Ivoire	Arobase Telecom S. A.	
7. Dem. Rep. of the Congo	Tatem Telecom	

Table 1-1: Deployment of CDMA2000 1X networks, April 2007 (continued)

Country	Operator	Incumbent
8. Djibouti	Djibouti Telecom	§
9. Egypt	Telecom Egypt	§
10. Ethiopia	Ethiopian Telecommunications Corp.	§
11. Gambia	Gambia Telecommunications Co. Ltd.	§
12. Ghana	Kasapa Telecom Ltd.	
13. Kenya	E.M. Communications Ltd. (Popote Wireless) Flashcom Ltd. Telkom Kenya Ltd.	 §
14. Libya	Libyan General Posts & Telecommunications	§
15. Madagascar	Telecom Malagasy S.A.	§
16. Mali	Sotelma	§
17. Mauritania	Mauritel	§
18. Morocco	WANA	
19. Mozambique	Telecomunícações de Mozambique	§
20. Namibia	Telecom Namibia	§
21. Niger	Sonitel	§
22. Nigeria	Bourdex Telecom Cell Communications Ltd. Independent Telephone Network Ltd. Intercellular Nigeria Ltd. MTS First Wireless Multi-Links Telecommunications Ltd. Nigerian Telecommunications Ltd. Oud'a Tel Prestel Rainbownet Ltd. Reliance Telecommunications Ltd. Starcomms Ltd.	 §
23. Rwanda	Terracom	§
24. Sierra Leone	Datatel	
25. South Africa	Neotel Thinta Thinta	
26. Sudan	Canar Telecommunications Co. Ltd. Mobitel Sudan Sudatel (Sudani)	 §
27. Tanzania	Benson Informatics Ltd. MyCell Tanzania Telecommunications Company Ltd. Zanzibar Telecom Ltd.	 § §
28. Togo	Togo Telecom	§
29. Tunisia	Telecom Tunisia	§
30. Uganda	MTN Uganda Uganda Telecom Ltd.	 §
31. Zambia	Zambia Telecommunications Ltd.	§

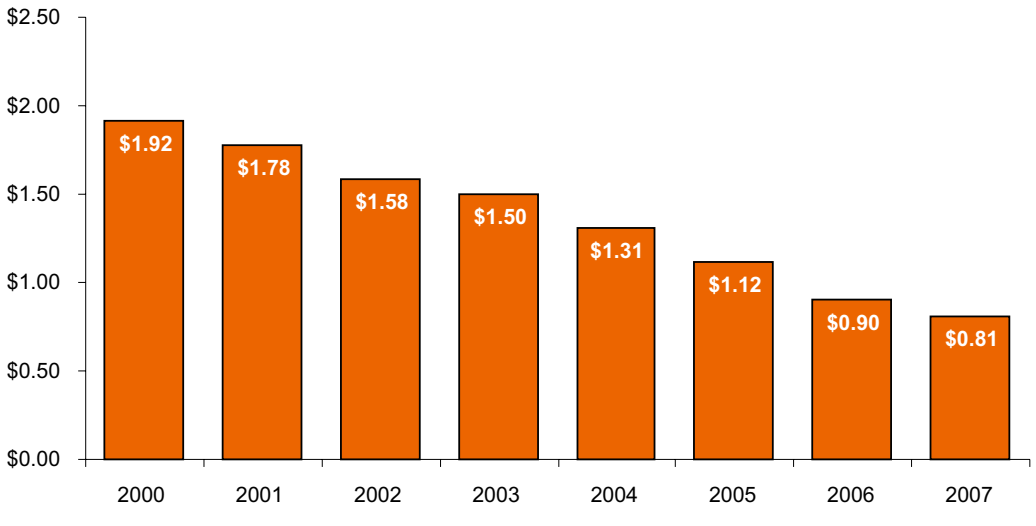
Source: Adapted from CDG Group.

Figure 1-7: Fixed line monthly basket, US$, 2007



Note: The basket is based on 1/5th the connection charge, the monthly subscription charge and 15 three minute peak and off-peak calls each.
Source: ITU World Telecommunication/ICT Indicators Database.

Figure 1-8: Average price of a peak rate, one minute call from Africa to the United States, US$



Note: Peak rate, including taxes.
Source: ITU World Telecommunication/ICT Indicators Database.

1.3 Internet

It is estimated that there were some 50 million Internet users in Africa in 2007, translating into around one user among twenty persons. There are few official surveys on the number of Internet users in Africa. Therefore, estimates are speculative and often derived from subscriptions or international bandwidth. More than half of the region's Internet users are estimated to be located in North African countries and South Africa.

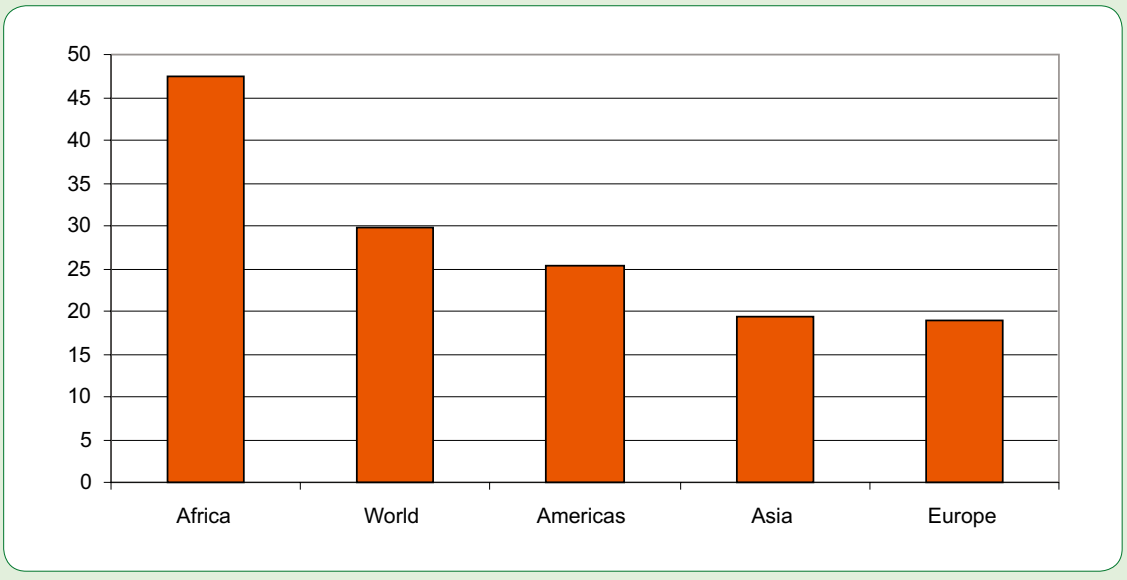
Bandwidth is scarce and telephone usage charges are often included in dial-up access, making Internet access prices generally high across the continent. A few countries charge lower telephone usage fees for Internet access. However, most charge for Internet dial-up at conventional voice calling rates. The move towards tariff rebalancing has raised local call charges and exacerbated the high cost of Internet access in the region. A monthly basket based on 20 hours of Internet use costs almost US$ 50 in Africa, almost twice as much as the next highest region (Figure 1-9) and equivalent to almost 70 percent of average per capita income in Sub-Saharan Africa.

As highlighted by a recently published ITU report,[11] "the high cost of Internet services in Africa is also related to the lack of Internet Exchange Points (IXPs), enabling local Internet Service Providers (ISPs) to exchange Internet traffic at the local, national or regional levels (instead of routing domestic and regional Internet traffic through expensive international links). By 2007, eighteen African countries had created a national IXP and two regional IXPs existed – one in Cairo and another serving Kenya, Tanzania and Uganda[12] (in contrast, there are hundreds of IXPs in the Americas, Asia and Europe). ISPs in countries where no IXP currently exists must pay the full cost of international Internet connectivity, with Internet traffic often routed via the United States or Europe, resulting in higher prices for ISPs, which are invariably passed onto customers".[13]

1.3.1 Broadband

Broadband penetration is low across the continent.[14] There were around two million fixed broadband subscribers in Africa in 2007, less than a quarter of the population of metropolitan Lagos, the former capital of Nigeria. Only five African countries had a broadband penetration of more than one per 100 inhabitants in 2007. In comparison, the average broadband penetration in OECD countries was 18.8 in June 2007 and the lowest ranked country was Mexico with a penetration of 4.6 or some 38 times more than the average for Africa.[15]

Figure 1-9: Price basket for Internet (US$ per month), 2006



Source: ITU.

Further, fixed broadband access is mostly limited to urban centers. The low availability, poor condition and lack of competition in the public switched telephone network market constrains the deployment of broadband access via Asymmetric Digital Subscriber Lines (ADSL), which with 65 percent[16] of all broadband technologies, is the main method of fixed broadband access in most countries across the world in the last quarter of 2007. There are practically no cable television networks in Africa, so broadband access via cable modem is generally not available. Consequently, there is virtually no fixed broadband inter-modal or intra-modal competition to drive take-up.

The high cost of Internet dial-up – primarily a result of telephone usage charges – should encourage users to switch to broadband, which is usually charged on a flat-rate basis. But in reality, this is not always an option, as an affordable mass market fixed broadband offering is not available in most countries. Broadband prices are often high, compared to income levels. The average price of an entry-level (e.g., 256 kbps) monthly broadband subscription is over US$ 100 in Africa, exceeding average per capita income. In contrast, average monthly broadband prices in the OECD are US$ 49 or US$18 per Mbps. The average advertised download speed in the OECD is almost 14 Mbps.[17] In contrast, only one African operator can offer speeds that high and the highest average speed available in Africa is only 2.5 Mbps.

Average broadband prices for Africa disguise significant underlying variability. There are a handful of countries where broadband prices are comparable with those in other regions, although still high for African incomes. At the other extreme, are the remaining African countries where broadband prices are exorbitant. Senegal enjoys some of the cheapest ADSL prices in Africa, at US$ 40 per month for an entry-level 512 kbps package. Broadband has proven so popular in Senegal that 96 percent or virtually all Internet subscriptions in 2007 were ADSL connections, as it is cheaper to subscribe to always-on broadband in Senegal than use dial-up for twenty hours per month. Another example of attractive broadband pricing is Morocco, where average broadband prices are the cheapest in all Africa, at US$ 18 per month for a 256 kbps package. Morocco has one of the highest broadband penetration rates in Africa, at 1.5 subscribers per 100 inhabitants.

Despite these low levels of broadband penetration, double and triple-play services similar to other regions are beginning to emerge in Africa. Some operators include a number of free call minutes in their broadband offerings. Mauritius was the first country in Africa to offer triple-play services. Mauritius Telecom offers a broadband line, plus telephone service and television over ADSL for less than US$ 25 per month. Two other countries, Morocco and Senegal, have also launched television over ADSL, assisted by

Table 1-2: Wireless broadband speeds

Technology	Theoretical speed (Mbps)		Note
	Downlink	Uplink	
WiMAX (Worldwide Interoperability for Microwave Access)	70	70	Quoted speeds only achievable at very short ranges, more practically 10 Mbps at 10 km.
W-CDMA (Wideband Code Division Multiple Access)	0.384	0.384	
HSDPA (High-Speed Downlink Packet Access)	14.4	5.76	Typical downlink rates today 1–2 Mbps, ~200 kbps uplink; future downlink up to 28.8 Mbps.
EV-DO (Evolution Data Optimized) 1x Rev. 0	2.45	0.15	
EV-DO 1x Rev.A	3.1	1.8	
iBurst	64	64	3–12 km. True speed far lower. Not a third-generation technology, but used by various countries in Africa as a dial-up and broadband alternative.

Note: All speeds are theoretical maximums and vary according to a number of factors, including the use of external antennae, distance from mast and ground speed (i.e. communications on a train may be poorer than from a a stationary access point). Usually, bandwidth is shared between several terminals. The performance of each technology is determined by a number of constraints, including the spectral efficiency of the technology, the cell sizes used, and the amount of spectrum available.

Source: ITU adapted from various sources.

the success of their strategic partners in the Internet Protocol TV (IPTV) market in France.

If broadband is to become more prevalent in Africa, it is most likely to be through wireless, where several technologies now deliver broadband speeds (Table 1-2). According to Craig Barrett, Chairman of the Board of the semiconductor powerhouse Intel, "Africa needs to embrace wireless broadband".[18]

An increasing number of countries on the continent are deploying wireless broadband technologies. Although third-generation (3G) networks have been developed anticipating access through mobile phones, they are also often used for Internet access from fixed locations using PC data cards, particularly where fixed broadband access is unavailable. This is also the case with CDMA2000 1x, which is widely used as a Wireless Local Loop (WLL) system throughout Africa. Most 3G offerings in Africa include an option to buy data cards for installation in a PC or a USB modem for connecting a 3G handset to a laptop.

EMTEL in Mauritius was the first operator to launch W-CDMA 3G in Africa in November 2004. Since then, seven other countries have launched W-CDMA networks (Table 1-3). According to the GSM Association, there were 883'000 W-CDMA subscribers in the region by June 2007,[19] a little under half the fixed broadband subscriber base. Four African countries have also launched HSDPA, which provides faster speeds than W-CDMA. While W-CDMA provides a theoretical speed of 384 kbps, actual speeds with HSDPA networks in Africa are between 400 and 800 Kbps, with peak speeds of approximately 1.2 Mbps.[20]

In Mauritius and South Africa, 3G subscribers already outnumber DSL subscribers. In South Africa, there were some 1.8 million 3G subscribers in September 2007 compared to 335'000 ADSL connections. Vodacom of South Africa reported that over 10 percent or almost 150'000 of its 3G subscribers used data cards for connections to laptops in September 2007, reflecting the popularity of 3G as a broadband access method. South Africa has also been innovative in using 3G to provide Internet access to Internet cafes. The mobile operator MTN uses HSDPA to link Internet cafes at speeds of up to 1.8 Mbps.[21]

EVDO third-generation mobile technology has been commercially deployed in almost a dozen African countries, often building on the experience using CDMA 2000 1x which has been widely deployed as a fixed WLL system. EVDO can also be deployed in the 450 MHz spectrum band, which allows for wider coverage, making it attractive for areas with low population density, such as rural areas.

EVDO operators in Africa advertise average download speeds between 300 kbps-1 Mbps (Table 1-4). EVDO offers several other advantages. Internet connections are available for users beyond EVDO coverage areas by switching them on to CDMA 2000 1X networks at speeds of around 100 kbps. EVDO operators also tend to impose fewer download caps than W-CDMA operators. WANA, an EVDO operator in Morocco, offers a

Table 1-3: 3G W-CDMA networks in Africa, February 2008

Country	Operator	Launch	HSDPA
1. Mauritius	Emtel	November 2004	§
2. South Africa	Vodacom	December 2004	§
	MTN	June 2005	§
3. Seychelles	Airtel	May 2006	
4. Libya	Libyana	September 2006	
5. Sudan	MTN	September 2006	
6. Egypt	Etisalat Misr	May 2007	
	Vodafone Egypt	March 2007	
7. Tanzania	Vodacom	February 2007	§
8. Morocco	Maroc Telecom	January 2008	§

Source: ITU, adapted from GSM Association and operator data.

Table 1-4: EVDO wireless broadband tariffs, 2008

Country	Operator	Advertised download speed	Package	Cap (GB)	Monthly Subscription (US$)
Nigeria	Starcomms	300-600 kbps	Surf Always	None	$ 124
Rwanda	Rwandatel	400-700 kbps	EVDO Pricing	None	$ 62
Morocco	Wana	128-1000 kbps	internet à la carte +	None	$ 24
Sudan	Canar	Up to 2 Mbps	Canar Go 2	2	$ 29
Angola	Movicel	Up to 1 Mbps	Movinet	15	$ 257

Note: Converted to US$ using the 2007 annual average exchange rate.
Source: ITU, adapted from operator information.

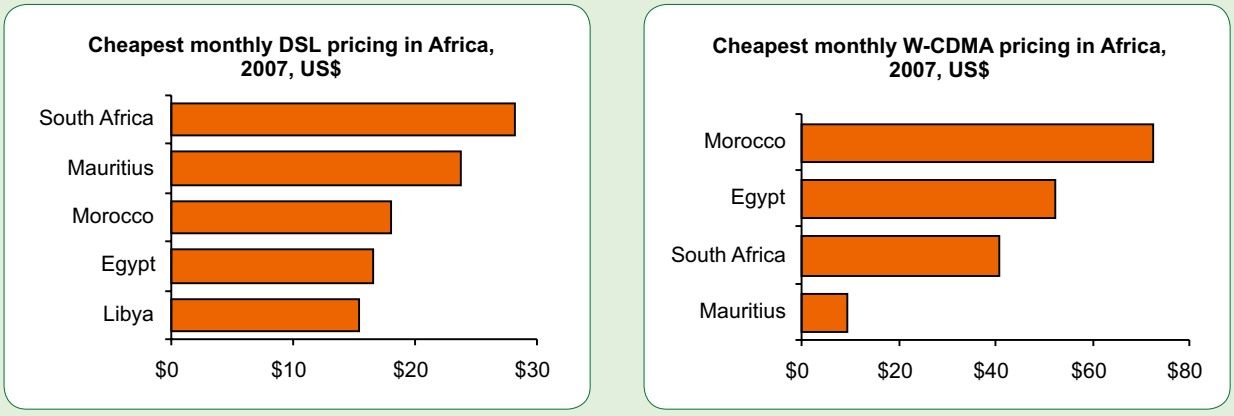
one month EVDO pre-paid card that can be used from any connection. In some countries, EVDO is making inroads into the broadband market. Although EVDO tariffs are high in comparison with other countries, the operator Movicel claims it is the largest broadband operator in Angola, with some 20'000 EVDO subscribers by early 2008.[22]

WiMAX is gaining momentum across the continent and is likely to get an additional boost from its adoption as a third-generation technology in October 2007.[23] Alvarion, a leading manufacturer of WiMAX products, has sold equipment to a dozen African countries. According to one source, there were some 20'000 WiMAX subscribers in Africa at the end of 2007.[24]

Intra-modal competition between 3G and fixed broadband may be reducing the cost of telecommunication services. Not only is 3G competitive with fixed broadband pricing where both are offered, but countries with "dual" broadband tend to have cheaper ADSL tariffs, compared with other African countries. The cheapest ADSL packages are all available in countries that have launched W-CDMA 3G networks (Figure 1-10).

More widespread broadband connectivity in Africa can be achieved through greater competition. Where there are alternative options for broadband access, tariffs tend to be cheaper. A variety of wireless broadband technologies should be promoted to develop intra-modal as well as inter-modal

Figure 1-10: Cheaper to have both- broadband pricing in Africa, 2007, US



Note: In the left chart, prices refer to 256 kbps downstream capacity, except for South Africa (384 kbps).
Source: ITU World Telecommunication/ICT Indicators Database.

competition with ADSL. The use of caps in Africa by some broadband operators limits greater use of broadband, particularly for Internet cafes with many clients. Caps are applied mainly to minimize the use of expensive international bandwidth, so they could only be applied to international access. This could help promote the development of local content. There is a large potential broadband market comprising Internet cafes, government offices, businesses and schools and governments should find ways to aggregate this demand and attract private sector investment.

1.3.2 International Internet bandwidth

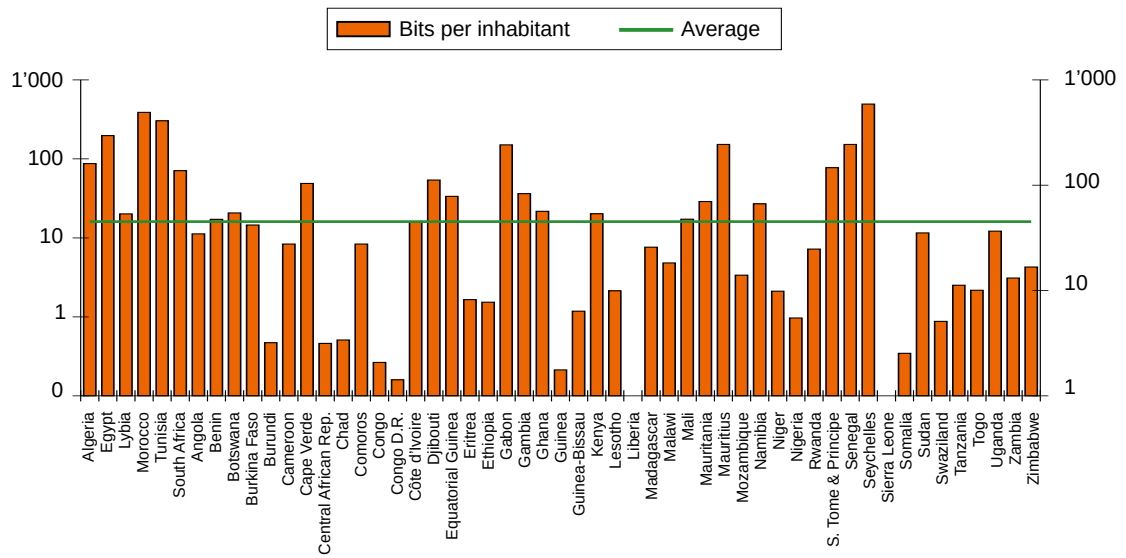
Similar to broadband, levels of international Internet connectivity are quite low in most African countries. Africa as a whole had in total around 43 Gbps of international bandwidth in 2007, of which close to 80 percent was devoted to North African countries and South Africa. The total Internet bandwidth of Sub-Saharan Africa is less than one third of India's total international connectivity. Countries with access to undersea fiber optic cable networks have significantly higher levels of per capita bandwidth than those without, so coastal countries generally enjoy greater bandwidth and connectivity than landlocked countries in the continent's interior. There is an enormous gap between countries in the region in international Internet bandwidth (Figure 1-11).

The limited availability of international Internet bandwidth has been acknowledged as a critical impediment for Africa: "Bandwidth is the lifeblood of the world's knowledge economy, but it is scarcest where it is most needed – in the developing nations of Africa, which require low-cost communications to accelerate their socio-economic development."[25]

Fiber-based international connections are an essential cost-effective solution. The SAT-3 undersea fiber optic cable has helped alleviate the shortage of bandwidth for a number of countries along Africa's western coast. In addition, countries such as Cape Verde and Sudan have been able to connect to other fiber optic submarine cable systems. Although landlocked, Ethiopia uses overland fiber connections to Sudan to tap into that country's fiber connection to Saudi Arabia. A number of nations on the western coast of Africa without their own international fiber outlets also use terrestrial links to connect to neighbors that have a SAT-3 landing station – for example, Namibia has a fiber link to South Africa.

East Africa is particularly afflicted by a shortage of fiber-based international Internet connectivity, resulting in high retail prices. Most East African countries are collaborating to establish an East African Submarine Cable System (EASSy),[26] which would provide high-speed fiber optic connectivity at lower costs. The cable will run 10'000 kilometers from the continent's southern tip to the Horn of Africa, connecting South Africa, Mozambique, Madagascar, Tanzania, Kenya, Somalia, Djibouti and Sudan, at a total estimated cost of US $235 million. A further thirteen countries[27] could be linked to the system through terrestrial backbone networks, with financial support from the World Bank and IFC. However, progress in rolling out EASSy has not always proved straightforward, with governments keen to ensure that the system does not result in a 'closed club', limiting access to those who are not consortium members.

Figure 1-11: International Internet bandwidth (bits per inhabitant), 2007



Note: Logarithmic scale.
Source: ITU World Telecommunication/ICT Indicators Database.

[1] 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.

[2] OECD. *Mobile Basket Revision*. July 3, 2002. http://www.olis.oecd.org/olis/2002doc.nsf/87fae4004d4fa67ac125685d005300b3/02842f20bb153c97c1256beb00404cf5/$FILE/JT00129163.PDF.

[3] The Global Guru: The Global Mobile Phone Megatrend: Sounds Like an Opportunity, http://www.theglobalguru.com/article.php?id=99&offer=guru001, 26.03.2008.

[4] See ABIResearch, "Ultra Low Cost Handsets" available from, http://www.abiresearch.com/products/market_research/Ultra_Low_Cost_Handsets, "Handset Market Growth Drops to 6% in 2008." *Cellular News*. March 25, 2008. http://www.cellular-news.com/story/30101.php?source=newsletter and ABIResearch. "One of Four Handsets Shipped in 2011 Will Cost Less Than $20." *Press Release.* January 22, 2007, http://www.abiresearch.com/abiprdisplay.jsp?pressid=794.

[5] Dan Nystedt. "Ultra-low-cost handset market taking off." *ComputerWorld*. October 24, 2006. http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9004394.

[6] John Blau. "Talk Is Cheap." *IEEE Spectrum Online*. October 2006. http://spectrum.ieee.org/oct06/4662.

[7] John Blau, Talk Is Cheap, http://spectrum.ieee.org/oct06/4662, October 2006.

[8] See "Shedding light on the charging challenge", February 18, 2008, available at: http://blogspot.kiwanja.net/2008/02/shedding-light-on-charging-challenge.html.

[9] See, "Mobile Internet Services Set to Grow As the Last Mile Solution in Africa." *Cellular News.* January 28, 2008.

[10] CDG. "CDMA2000 is the Technology of Choice for 3G Services in Africa and the Middle East." *Press Release.* April 30, 2007; see: http://www.cdg.org/news/press/2007/Apr30_07.asp.

[11] See ITU. *Creating an Enabling Environment for Investment*. October 17, 2007.

[12] AfrISPa at www.wideopenaccess.net/files/session7/ixp.pdf and ITU World Telecommunications Regulatory Database

[13] 2004 ITU/IDRC report, *Via Africa: Creating local and regional IXPs to save money and bandwidth* at www.itu.int/ITU-D/treg/publications/AfricaIXPRep.pdf.

[14] This report defines broadband as access speeds of at least 256 kbps in one or both directions.

[15] http://www.oecd.org/document/54/0,3343,en_2649_33703_39575670_1_1_1_1,00.html.

[16] Point topic: World Broadband Statistics: Q4 2007, London 2008, p. 9.

[17] http://www.oecd.org/document/54/0,3343,en_2649_33703_39575670_1_1_1_1,00.html.

[18] "Intel backs wireless Africa plan." *BBC News.* October 31, 2007. http://news.bbc.co.uk/2/hi/technology/7070859.stm.

[19] See "3GSM Platform" at http://www.gsmworld.com/technology/3g/statistics.shtml.

[20] The HSDPA speeds are those reported by Vodacom South Africa. See "Vodacom 3G, 3G HSDPA and 3G HSUPA" at http://www.vodacom.co.za/services/mobile_data/3g_hsdpa_hsupa.jsp.

[21] GSM Association. "MTN brings high-speed internet to South African townships." *Press Release.* June 21, 2006. http://www.gsmworld.com/news/press_2006/press06_34.shtml.

[22] See "Movicel 5 anos de sucesso", available at: http://www.movicel.net/DescNews.aspx?ID=122.

[23] "ITU defines the future of mobile communications". *Press Release*. October 19, 2007. Available at: http://www.itu.int/newsroom/press_releases/2007/30.html.

[24] See "WiMAX Opportunities in Africa" available at: http://www.maravedis-bwa.com/article-38.html.

[25] Association for Progressive Communications. *Open Access: Lowering the costs of International Bandwidth in Africa.* APC "Issue Papers" Series 2006. October 2006. See: http://rights.apc.org/documents/open_access_EN.pdf.

[26] For additional information, see the EASSy web site at: http://www.eassy.org [Accessed March 6, 2008].

[27] Botswana, Burundi, Central African Rep., Congo D.R., Chad, Ethiopia, Lesotho, Malawi, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe.

2. Universal service and access

2.1 Introduction

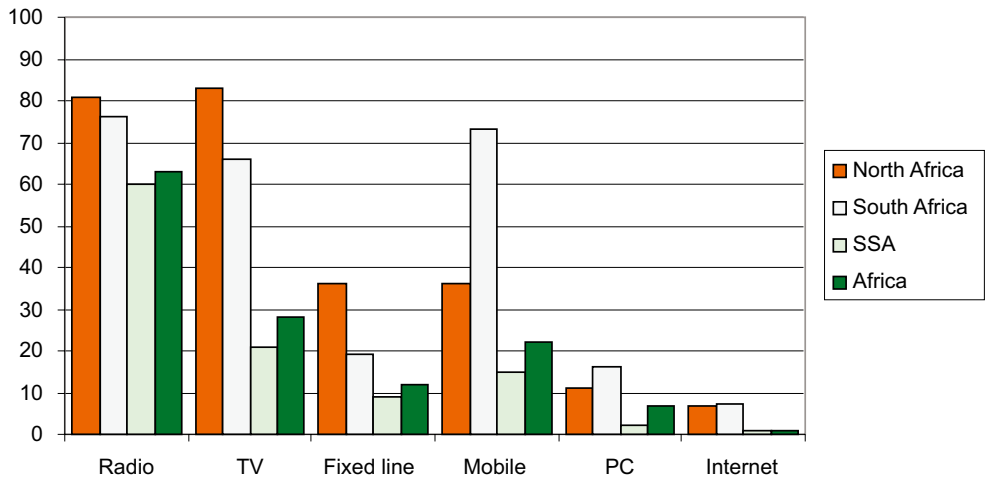
Universal service and access to ICTs are important policy goals to ensure citizens can participate in and reap the benefits of the Information Society. While *universal service* is defined as the provision of ICTs to households, *universal access* relates to making them available at public facilities such as payphones, Internet cafes, etc.[1]

An overview of data on the availability of ICTs shows that a minority of Africans possess ICTs in the home. This makes community ICT access crucial. This section reviews the availability of access through public facilities in the region, including an analysis of public payphone penetration, community access in localities with ICT service and mobile coverage.

2.2 Universal service

The only telecommunication technology owned by more than half of households in Africa is a radio (Figure 2-1). Almost a third of African households possess a television, although over half of all households in North African countries and South Africa own a television. Levels of universal telephone service are low, with just over ten percent of households enjoy a fixed telephone line. Mobile phone ownership is twice that of fixed, but still only a quarter of households subscribe to mobile phone service. Household ownership of computers and Internet

Figure 2-1: Percentage of households with ICTs, latest available data, Africa



Note: This analysis is based on a simple average of all those countries with data available.
Source: ITU, adapted from national household surveys from national statistical offices.

access in African homes is extremely low, at seven and one percent respectively. Public access to ICTs is thus all the more important.

2.3 Universal access

There are a number of ways of measuring universal access, including indicators such as public telephone penetration, mobile telephony coverage of the population and localities with ICT services.

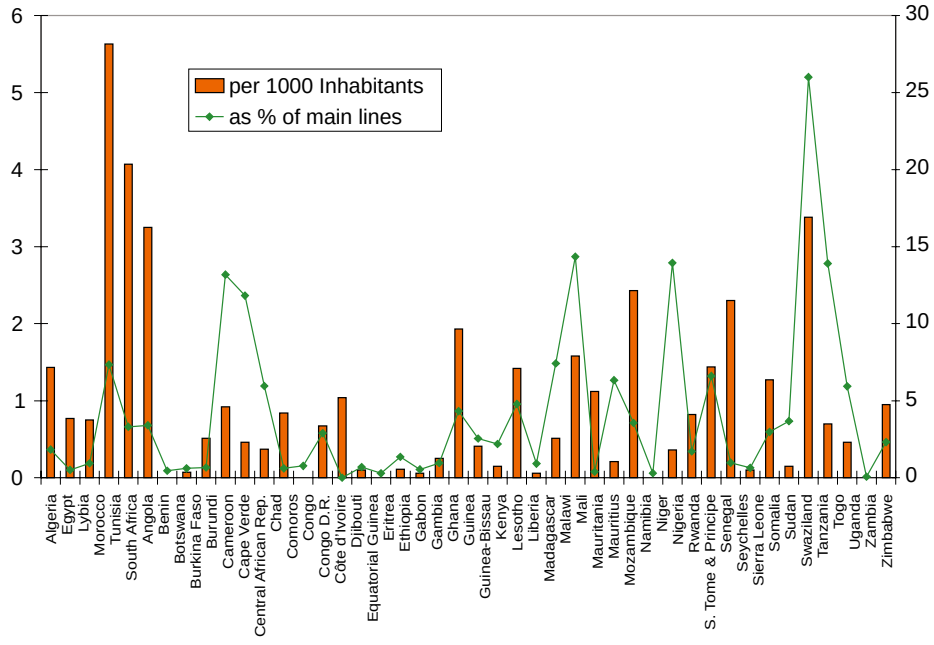
2.3.1 Public telephones

The penetration of public telephones is a common benchmark of achievement in universal access. There are over 700'000 public pay telephones in Africa. These statistics probably understate the availability of public call options, since they sometimes exclude Africa's large informal market offering calls to the public through mobile telephones.

The data available show that some countries have made a satisfactory commitment to the provision of public telephones (Figure 2-2). Morocco, South Africa, Togo and Tunisia have more than three public telephones per 1'000 inhabitants, significantly above the regional average. Public telephones account for a significant portion of main lines in Burkina Faso, Mauritania and Togo.

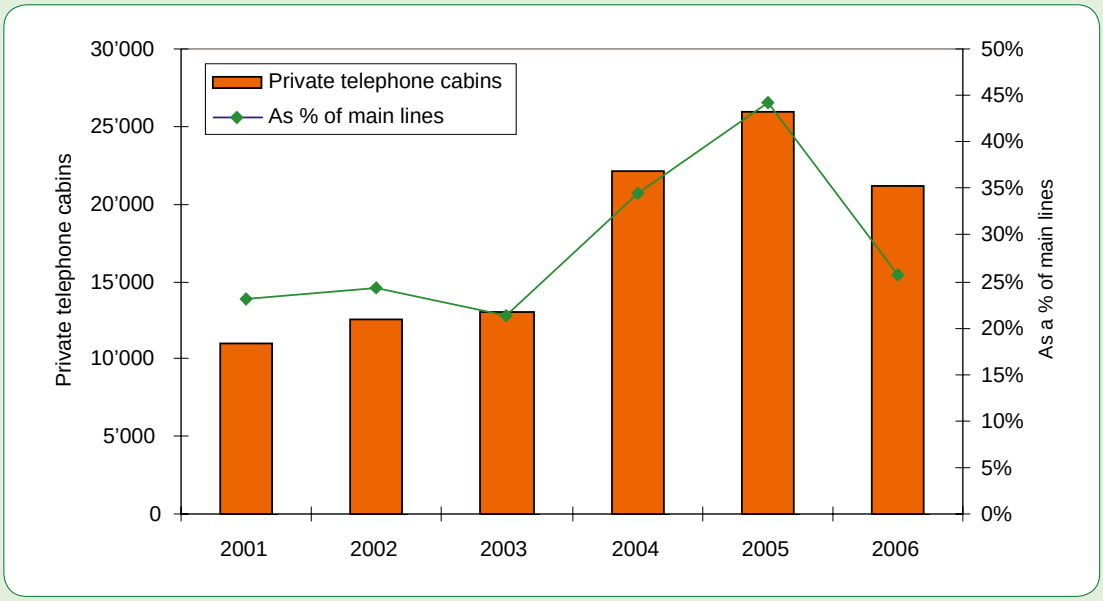
West Africa has been a leader in the liberalization and consequent proliferation of privately operated pay phone services. Togo stands out with the highest ratio in Africa of public pay phones as a percentage of fixed lines. Almost one quarter of Togo's main lines are connected to "cabines téléphoniques privées" (private telephone cabins). This

Figure 2-2: Public pay phones, Africa, 2007



Source: ITU World Telecommunication/ICT Indicators Database.

Figure 2-3: Private telephone cabins in Togo



Source: Adapted from L'Autorité de Réglementation des secteurs de postes et de télécommunications, Togo.

ratio even reached over 40 percent in 2005 prior to the introduction of fixed wireless service which led to a sharp rise in main lines in 2006. Togo eased the ability for the private sector to provide public telephone services following the liberalization of its telecommunication sector in the late 1990s. Togo's two mobile operators also provide public telephony through GSM cabins which numbered over 10'000 in 2006. According to the telecommunications regulator in Togo, L'Autorité de Réglementation des secteurs de postes et de telecommunications, the average distance to reach a public telephone facility in the country is around 400 meters.

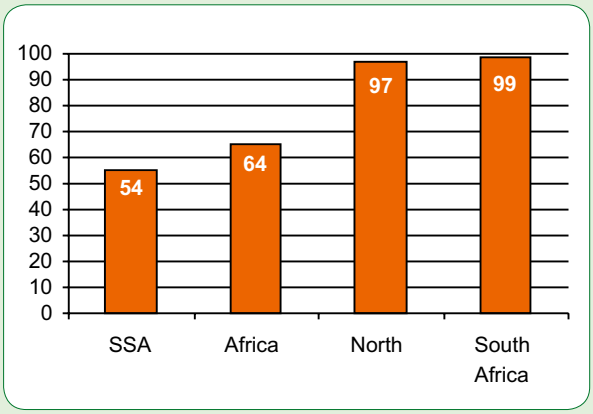
The availability of public telephones is increasing through mobile communications, with various initiatives to enhance universal access. South Africa has been at the forefront of linking mobile licenses to universal access obligations. Under the terms of the GSM licenses issued, mobile operators were required to install a certain number of so-called "Community Service Telephones". By the end of 2006, there were close to 100'000 community service telephones installed in South Africa by mobile operators.

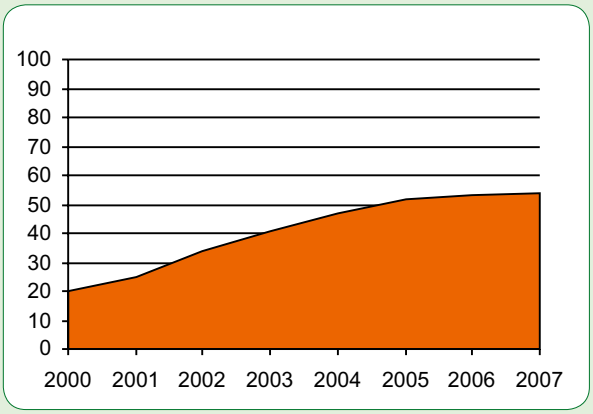
The strategic mobile operators MTN and Vodacom are now bringing their experience of community telephones in South Africa to other countries. MTN has launched Village Pay Phone projects in Rwanda and Uganda, modeled after the successful programme in Bangladesh,[2] where microfinance is extended to rural dwellers to buy mobile phones in order to sell airtime to the public. In Uganda, MTN had installed 10'000 "Village Phones" by December 2007, more than twice as many as planned.[3] Some use booster antennas and solar or car-battery power, where electricity is not available.[4] In Rwanda, MTN is aiming for 3'000 Village Phone operators by 2009.[5] Vodacom has also expanded its Community Service Telephones to other countries it operates in. By December 2007, there were 65'000 in DR Congo, 6'000 in Lesotho, 11'000 in Mozambique and 10'000 in Tanzania.

2.3.2 Mobile coverage

Another universal access indicator is the percentage of the population covered by a mobile signal. This is especially important for Africa, given the prevalence of mobile. Overall mobile population coverage for Africa as a whole was 64 percent in 2007 (Figure 2-4, left chart). Mobile coverage is virtually ubiquitous in the North African countries and South Africa, at 97 percent and 99 percent respectively. In Sub-Saharan Africa, coverage has risen significantly,

Figure 2-4: Mobile population coverage by region, 2007, and for SSA 2000-2007





Source: ITU World Telecommunication/ICT Indicators Database

from 20 percent in 2000 to 58 percent in 2006 (Figure 2-4, right chart).

While mobile coverage in most African urban areas is adequate, mobile coverage in rural areas is much lower. Nevertheless, due to mobile competition and despite numerous barriers (e.g., lack of electricity, difficult terrain, lack of transport), some African countries are approaching full mobile coverage of all inhabited areas.

Today's mobile coverage indicator is based on second-generation mobile services. In the future, indicators of wireless coverage should include broadband access technologies, such as 3G mobile and WiMAX. For example, in South Africa, 2G coverage is nearly ubiquitous, while the percentage of the population covered by 3G is 40 percent. Tanzania became the third Sub-Saharan Africa country to launch a 3G network, but 3G coverage is limited to Dar es Salaam. The expansion in coverage of these services will be vital for promoting universal access to the Internet in the region.

2.3.3 Localities

The availability of ICTs in the localities where people live is a critical measure of universal access. This was recognized by the World Summit on the Information Society (WSIS) Plan of Action whose first target commits governments:

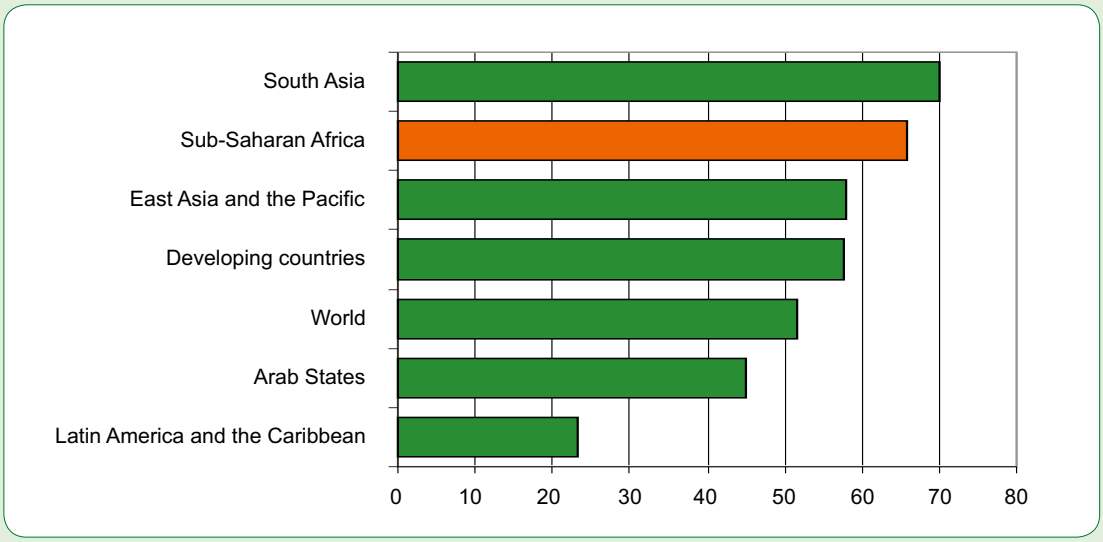
"…to connect villages with ICTs and establish community access points…". [6]

Villages are typically low-populated localities. Therefore, the WSIS target underscores a commitment to rural areas. This is particularly relevant for Africa, and especially, Sub-Saharan Africa, which after South Asia, is the least urbanized region in the world (Figure 2-5). Some two-thirds of people in Sub-Saharan Africa live in rural areas.

According to official data, geo-coded information and approximations based on national definitions of rural areas, it is estimated that there are just over 400'000 localities in Africa, of which 99 percent are villages. Less than four percent have a fixed line telephone connection. The high cost of connecting rural areas with fixed telecommunications, coupled with lack of electricity and low incomes (and demand), has severely restricted the availability of fixed lines. Although many African countries have some type of universal service programme for connecting rural areas, these have, for the most part, not proved very successful. They have also tended to focus on more populated localities, which although in rural areas, do not really qualify as villages.

Mobile communications have made huge inroads in providing connectivity to villages. About half African villages were covered by a mobile signal in 2006 (Figure 2.6).[7] Mobile population coverage has risen in rural areas, largely in the absence of specific universal access policies. Instead, growing competition among mobile providers has provided the impetus to increase coverage.

Figure 2-5: Rural population (% of total), 2004



Source: Adapted from UNDP (2006).

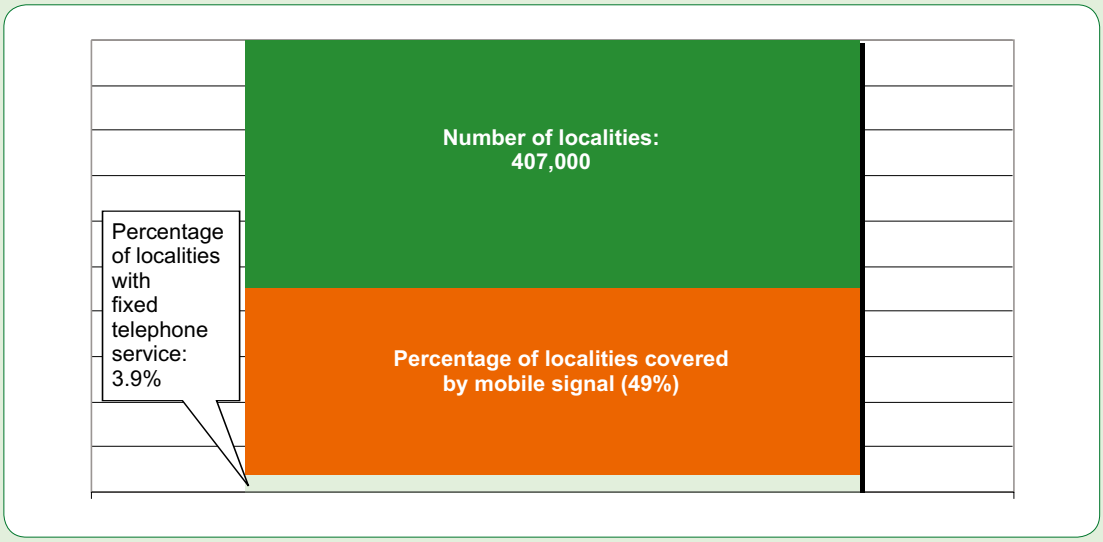
Coverage by a mobile signal does not mean that inhabitants in a rural area are actually mobile subscribers. It is estimated that around seven percent of rural households in Africa currently have a mobile service subscription. Low average incomes inhibit the ability to pay for the service and there may be an absence of retail channels to support the service (e.g., sale of handsets and prepaid cards), as well as electricity to recharge mobile phones. However, it is interesting to note that the level of rural mobile household subscription is higher than the availability of electricity. This suggests that rural households have other power sources besides the electricity grid to recharge mobile handsets (such as car batteries). Users may also recharge their handsets when they travel to larger localities where electricity is available. Indeed, it is common in Africa to see mobile handset recharging offered as a paid service.

The other WSIS target on village connectivity calls for community access centers to provide access to the Internet. While the availability of fixed telephone lines in villages is low, Internet access is even lower. It is estimated that less than one percent of African villages have a public Internet facility.

There are numerous projects to install community access centers in rural areas. Early efforts were often not sustainable and experienced difficulty continuing to operate when donor funding ended. It is hoped that the development of e-government in the region will provide a new impetus to rural Internet access, through the generation of desirable content and entrepreneurial management of rural Internet kiosks. In Kenya, the government is developing a Digital Village scheme to provide rural inhabitants with electronic access to government services by providing Internet connectivity in some 200 locations.[8] Entrepreneurs will be assisted to extend access to more remote rural areas through kiosks with wireless connectivity back to the main centers. The wireless connectivity includes WiMAX and 3G technologies, such as EDGE and EV-DO.

The WSIS village connectivity target might be achieved in some African countries before 2015, primarily through the spread of wireless technology. Rural mobile population coverage is growing rapidly, supporting low-speed data access and text messaging. Upgrading rural networks to provide high-speed 2.5 and 3G mobile services will further promote village connectivity. The development of wireless WiMAX technologies is also promising – a number of African operators already provide this service. Growing experience with successful community access models (such as the MTN Village Phone in Uganda) should also help boost village connectivity. Finally, the development of e-government services[9] and the need to provide all citizens with these reinforce the social justification for enhancing village connectivity.

Figure 2-6: Percentage of localities in Africa with telephone service, 2006



Source: ITU.

[1] For more information on universal service and access, see: ITU. 1998. *World Telecommunication Development Report: Universal Access*. http://www.itu.int/ITU-D/ict/publications/wtdr_98/wtdr98.pdf.

[2] The VillagePhone scheme in Bangladesh was spearheaded by Muhammad Yunus, founder of Grameen Bank and winner of the 2006 Nobel Peace Prize. The Grameen Foundation is involved in both the Rwanda and Uganda operations. See http://presse.telenor.no/PR/200610/1081182_5.html.

[3] See "Village Phone Uganda" available at: http://www.grameenfoundation.org/where_we_work/sub_saharan_africa/uganda/village_phone_uganda.

[4] International Finance Corporation. "Replicating Village Phone from Uganda and Bangladesh." *Monitor*. May 2006.

[5] See "Village Phone in Rwanda" available at: http://www.grameenfoundation.org/where_we_work/sub_saharan_africa/rwanda/village_phone_rwanda/.

[6] World Summit on the Information Society (WSIS), December 2003, *Plan of Action*. The full text of the WSIS documents is available at www.itu.int/wsis/.

[7] The distance that wireless signals radiate from a base station varies by the frequency used and terrain. Localities with mobile service have been estimated assuming an even distribution of rural population coverage.

[8] Rebecca Wanjiku. "Kenya rolls out Digital Villages project." *InfoWorld*. April 2, 2008. http://www.infoworld.com/news/feeds/08/04/02/Kenya-rolls-out-Digital-Villages-project.html.

[9] For example, the Nigerian Government is rolling out its 'Galaxy Backbone' to provide a single cost-effective service for the one million civil servants it employs across all government administrative units, rather than building different networks for each agency (Balancing Act Africa, Issue 389, available at: www.balancingact-africa.com). Tunisia has launched an electronic tax filing system that has been used by 813 companies to register revenues and will be extended to cover natural persons by 2009.

3. Enhancing the enabling environment

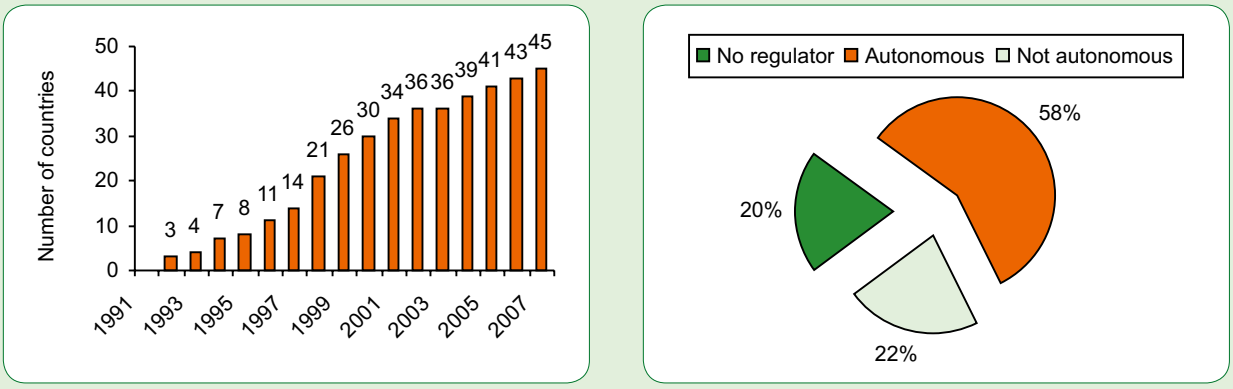
While Africa's ICT sector has shown considerable growth recently, sustaining this growth in the future may prove difficult. Additional subscriptions and use of ICT services will come from lower income segments of the population, typically including people in rural and remote areas. This segment is harder for operators to address, because the costs of infrastructure provision are high. These customers are also highly sensitive to pricing and small price changes can have a big impact. Factors beyond the control of telecommunication operators that significantly influence investment, network deployment and pricing decisions, include regulation, taxation and electricity. This chapter examines these issues, noting how changes in regulatory, taxation and energy policy can enhance the enabling environment and help make ICTs more accessible to more of the population.[1]

There has been significant progress in regulatory reform across the region, including initial steps towards liberalization and the introduction of competition. However, more remains to be done, including the monitoring of significant market power, the promotion of access to incumbent networks and pro-competitive policies such as number portability. In taxation, studies suggest that small reductions in ICT equipment and service taxes can result in large increases in ICT penetration and uptake and may even boost overall government revenues (depending on the tax elasticity of the local market). Energy provision is more difficult to tackle and requires long-term solutions. Nonetheless, there are several policies that governments can adopt to promote the deployment of ICT infrastructure in areas where traditional electricity is unstable or unavailable.

3.1 Regulation

Significant progress has been achieved in the reform of telecommunication regulation in many African countries. Nevertheless, market entry is still constrained in a number of countries and competitive measures (including number portability, local loop unbundling and virtual network operators) have yet to be implemented in the majority of countries. This

Figure 3-1: Number of telecommunication regulators in Africa and degree of independence, 2007



Note: In the right chart, autonomy is defined by answer to the question: "Is the Regulatory Authority autonomous in its decision making?".
Source: ITU World Telecommunication Regulatory Database.

Box 3-1: Paving the way for a harmonized approach in regulating ICTs

Countries in West Africa have opted for a harmonized approach to face the fast changing ICT environment, develop a common integrated ICT market in the sub-region and keep policy and regulatory frameworks in line with the constant evolution of technologies, applications and services. The Supplementary Acts, which form part of the framework for harmonizing the ICT sector in the West African community, were recently adopted by the ECOWAS Heads of State and Government on 19 January 2007. The adoption of the Acts that cover ICT policy, the legal regime, interconnection, numbering, spectrum management and universal access, mark a watershed event for the region.

ECOWAS Member States have now embarked on the challenging national transposition path that leads to the translation of these decisions into national legal frameworks, creating a common ICT market in the region. These decisions mark a major milestone in furthering cooperation between the countries and in promoting the establishment of regional harmonized ICT regulatory frameworks and related integrated markets both on the African continent and worldwide.

The project was launched in June 2004 by the International Telecommunication Union (ITU) in cooperation with the European Union, to support the establishment of an integrated ICT market in West Africa. Stakeholders, including government representatives, regulators, operators and consumers from across the region, participated in the process by providing their input to make the texts appropriate and relevant to their respective interests and countries.

In addition, the ITU World Telecommunication Development Conference, held in Doha in March 2006, saw the adoption of regional initiatives for Africa and the Arab States that provided for the strengthening and harmonizing of policy and regulatory frameworks to facilitate the integration of their respective ICT markets. This will eventually require the adoption of harmonized ICT policies and regulatory frameworks. The work carried out by West African countries will certainly serve as a basis for such regional harmonization.

For more information see www.itu.int/ITU-D/treg/projects/itu-ec/index.html.

section reviews the overall regulatory environment and constraints in Africa's telecommunication sector.

3.1.1 Regulatory authorities

Telecommunication regulators have been established in over three-quarters of all African countries (Figure 3-1, left). Providing regulators with the tools and powers to effectively and efficiently regulate the sector increases the opportunities for attracting investment and innovation, and for building confidence in the market. The degree of financial autonomy and level of independence in decision making from the government plays an important role in determining the regulator's effectiveness. Of all the countries in the region with a regulator, around one quarter are not fully autonomous in their decision-making (Figure 3-1, right). Most regulators are financed through license and other fees. Sometimes, funds are remitted to the treasury with budgets fulfilled through government allotments, but such funding can prove unstable and may make regulators subject to political interference and 'regulatory capture'. Ensuring sustainable growth in the telecommunication sector depends on countries establishing a regulator (where one does not already exist), ensuring regulatory independence and providing sufficient resources for it to monitor and regulate the sector effectively.

Some regional economic organizations such as the West African Economic and Monetary Union (Union Economique et Monétaire Ouest Africaine, UEMOA) and the Economic Community of Western African States (ECOWAS), have developed harmonized regional ICT policy and regulatory approaches to lay the foundation for the creation of common ICT markets (Box 3-1).

3.2 Private participation

Over a decade on since the first round of incumbent privatizations in Africa, the agenda is only half-complete, and in some cases, riddled by reversals and disappointments.[2] By the end of 2007, only around half of African countries had partially privatized their incumbent telecommunication operator. Most sales have been to strategic investors, with a few cases of public share sales (including Nigeria, Senegal, South Africa and Sudan). Cable and Wireless Seychelles is the only fully private incumbent operator.

Some incumbent privatizations have stalled, or been reversed, for a variety of reasons. Some

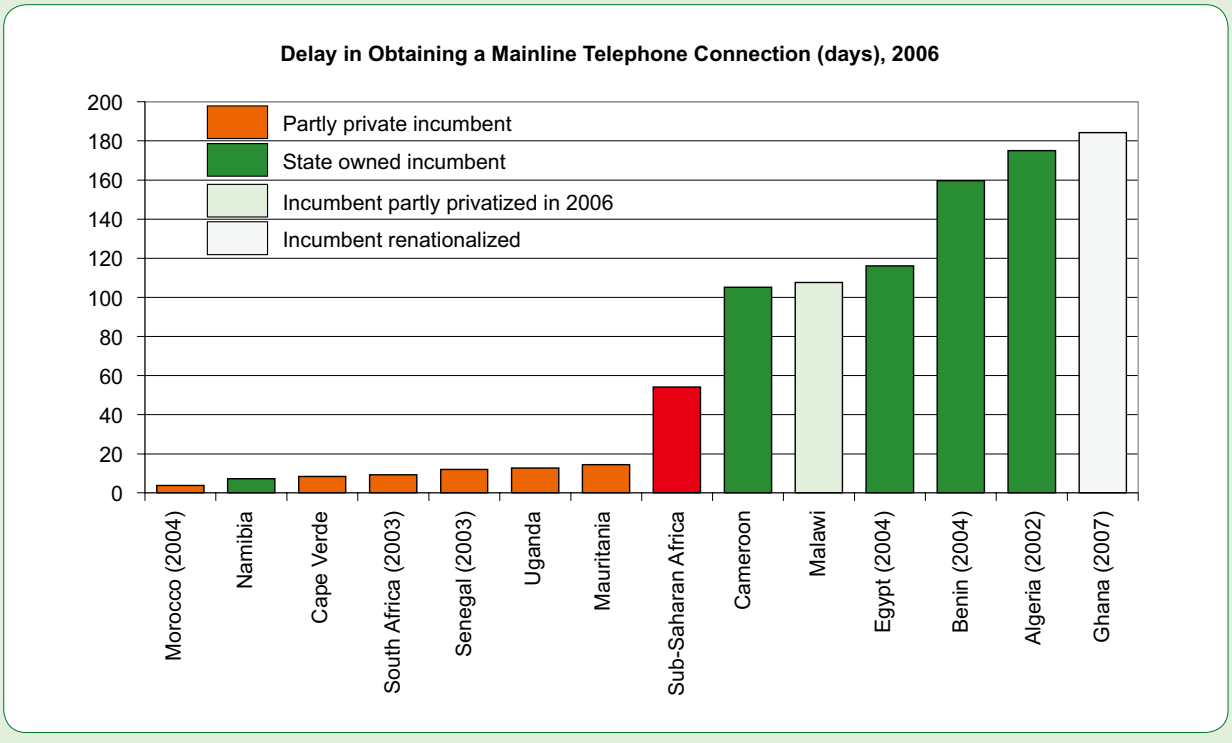
countries still do not see the virtue of private incumbents and have yet to take steps to privatize. Other countries have placed high valuations on their incumbents that investors have refused to pay. This is exacerbated by the fact that investors from developed economies have largely withdrawn from telecommunications privatizations in Africa. In other cases, host countries, investors or both have been dissatisfied with the results of privatization and a subsequent return to state-owned status has ensued. This includes Ghana, Guinea and Rwanda; in the latter case, shares in the former incumbent were subsequently resold to another investor.

There is some evidence that privatized incumbents perform better. In general, there is far less delay to obtain a main telephone lines in countries that have partly privatized their incumbent telephone operator. In countries where the wait is under a month, all incumbents have been partly privatized with the exception of Namibia, where the incumbent is corporatized and operated, as if it were a private company. At the other extreme, in practically all of the countries where it takes more than 100 days to obtain a main telephone line, all of the operators are state-owned (Figure 3-2). Practically every African country has introduced private investment into its mobile sector. By the end of 2007, only four countries had not done so. Most mobile operators in Africa are controlled by strategic operators with regional operations. Only eight African countries do not have at least one strategic foreign investor present in their mobile sector (Table 3-1). The top ten strategic mobile investors account for 80 percent of all subscribers in the region.

3.2.1 Competition

Many African countries have introduced some degree of competition into their telecommunications market (Figure 3-3). Mobile has the highest degree of competition, where almost 90 percent of reporting countries have established either partial or fully competitive mobile markets. Internet services also have a high degree of competition, with 87 percent of reporting countries stating that their Internet market has some degree of competition. However, the true extent of competition can only

Figure 3-2: Delay in Obtaining a Mainline Telephone Connection (Days), 2006



Source: Adapted from "Enterprise Surveys" (http://www.enterprisesurveys.org).

Table 3-1: Strategic mobile investors, 2007

	Subscribers (000s)	Number of countries	Revenue (US$ m)	CAPEX (US$ m)
MTN (South Africa)	49'837	16	9'040	1'780
Vodacom (South Africa)†	33'041	5	5'818	929
Orascom (Egypt)	32'394	4	3'761	979
Zain (Celtel) (Kuwait)	30'171	15	3'957	1'269
Vodafone (UK)†	22'578	2	2'075	592
Vivendi / Maroc Telecom‡	15'342	4	2'336	NA
France Telecom	11'948	12	1'795	NA
Portugal Telecom	10'950	5	1'753	NA
Millicom (Luxembourg)‡	5'632	7	477	NA
Moov (UAE)	1'500	7	NA	NA
TOTAL	211'893			

Note: † Financial data refer to year ending March 2007.‡ Financial data are proportionate.
Source: ITU, adapted from company reports.

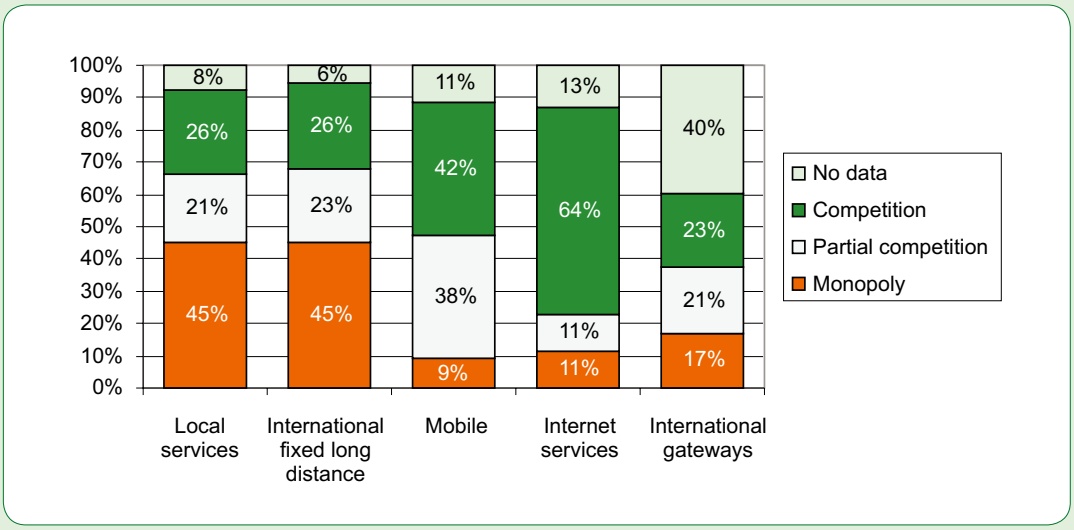
be evaluated by whether Internet Service Providers (ISPs) are allowed to obtain their own international bandwidth. Although 72 percent of countries reported that their international gateway market is liberalized, less than half of all countries provided data. Roughly half of all countries report allowing competition in the local fixed line and international calling markets. Excluding the mobile market, there is considerable scope for further liberalization of African telecommunication markets.

There are few outright bans on telecommunication competition in national legislation. In most instances, barriers to market entry have arisen from exclusivities granted to fixed and mobile operators on the basis that privatization of incumbents or new mobile licenses would be more attractive to investors, if exclusivity periods were guaranteed. Exclusivity periods also provide incumbents with time to prepare for competition.

In most African countries, exclusivities have ended or there are no *de jure* restrictions on market competition. There is often a lag between the end of exclusivity and changes in the regulatory framework to support market entry. Although Telkom South Africa's exclusivity ended in May 2002, a second national operator's license was not issued until December 2005. In Namibia and Zambia, there do not appear to have been any legal exclusivities against competition. Since incumbents have enjoyed monopoly status since their inception, this is accepted as the *de facto* situation. In other countries, the lack of or opaque licensing processes and high market entry fees have discouraged new market entrants.

Licensing can also prove a barrier to competition in several ways. In some countries, although there

Figure 3-3: Level of telecommunication market competition, African countries, 2007



Source: ITU World Telecommunication Regulatory Database.

is no *de jure* restriction against competition, there is no clear procedure for obtaining a license, perpetuating the original monopoly. In other countries, licensing complexity can discourage new entrants. These countries segment the market to a large degree, requiring a different license for each segment. It is often unclear which licenses are necessary to provide a service or whether the scope of a license allows the licensee to provide the services it wants to. Licensing segmentation works against convergence, where multiple services can be provided over a single network.

Ideally, the regulatory environment should promote a licensing process, such that one license allows any type of service to be provided. This is the situation in Tanzania, where a Converged Licensing Framework (CLF) was introduced in 2005. There are now four license categories: Network Facilities, Network Services, Applications Services and Content Services.[3] As of December 2007, eight Network Facilities licenses had been issued under the new regime, allowing licensees to offer any facilities-based telecommunication service. One outcome of the new licensing framework is that the incumbent (TTCL) and a new operator (Benson Informatics) launched mobile services in 2007, without the need for any additional licenses.

License fees can present a significant barrier to potential entrants, particularly domestic companies that tend to have fewer resources than foreign investors. Some countries not only charge large sums for some licenses, but also require operators to have a number of licenses for different market segments, adding to the cost of doing business. When license fees are combined with other regulatory charges (such as administration charges, universal service contributions and spectrum usage fees), the total amount can represent a significant barrier to market entry. For example, an international voice license in Zambia costs US$ 12 million, with the result that the incumbent remains the sole facilities-based provider for international telephone calls.[4]

Broadband wireless access (BWA) services offer significant benefits to developing countries. The benefits of these services ultimately depend, however, on the amount of spectrum regulators make available. Spectrum has traditionally been allocated for operators to deploy on a national or regional basis, but operators can also provide broadband wireless access services on a small scale. Care needs to be taken, however, not to fragment spectrum plans so the emergence of sustainable business models is not prevented. In addition to innovative spectrum practices, African countries need to ensure competitive allocation of adequate spectrum for a full range of BWA technologies. Global and regional harmonization of spectrum allocation is important to reduce deployment costs for operators.

Calls made over the Internet are less expensive than calls over the public switched telephone or mobile networks. Voice over Internet Protocol (VoIP) services could thus play an important role in Africa, where incomes are low. The status of VoIP varies widely throughout the region and is changing so quickly that is it very difficult to keep track and its legality is often not clear. Some countries completely ban VoIP; others allow it; while the remainder fall into a grey area, where the legal status of VoIP service provision is unclear. In the latter case, it might be tolerated for licensed operators to offer VoIP services, even if illegal for others. Figure 3-4 summarizes the status of VoIP service provision in the region, illustrating the lack of clarity. While just over half of countries allow VoIP in some form or another, its legal status is vague in three quarters of the countries. Restrictions against VoIP constrain consumers from making lower priced calls and delay Africa's transition to next-generation networks.

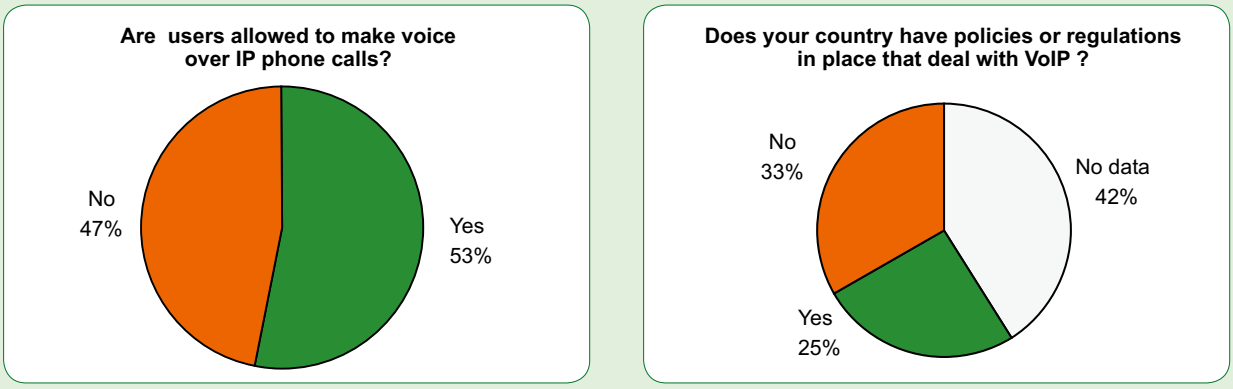
Although liberalization promoted the growth of mobile telephony, advanced features of competition such as Mobile Virtual Network Operators (MVNOs), Mobile Number Portability (MNP) and the regulation of Mobile Termination Rates (MTR) are not widespread. South Africa is the only country in the region to have implemented MVNOs, with Virgin Mobile being launched as a MVNO in 2005, using the infrastructure of one of the licensed mobile operators in South Africa, Cell C.

Mobile Number Portability (MNP) enables users to retain their telephone number when switching operators and results in more competitive markets, as users are less hesitant to switch operators if they can keep their number. The first MNP implementation in Africa was launched in South Africa in November 2006. By March 2007, there were 49'794 portings with the newest operator, Cell C, receiving the most incoming subscribers.[5] Since then, both Morocco and Egypt have launched MNP.

Mobile interconnection has proved problematic in Africa, as elsewhere. There have been ongoing disputes among operators about the prices to charge for terminating calls on mobile networks (i.e. mobile termination rate). More often than not, rates are unrelated to costs and can be used to discourage competition through different own network and off-network pricing structures. Although retail mobile competition may exist, regulators in a number of countries around the world have determined that mobile operators exercise a monopoly over the termination of calls on their networks and have begun to regulate MTRs. Although MTRs in Africa are low compared with other regions (given lower incomes in the region), there is a need to keep termination rates as cost-based as possible. There is also considerable variation in the region (Figure 3-5).

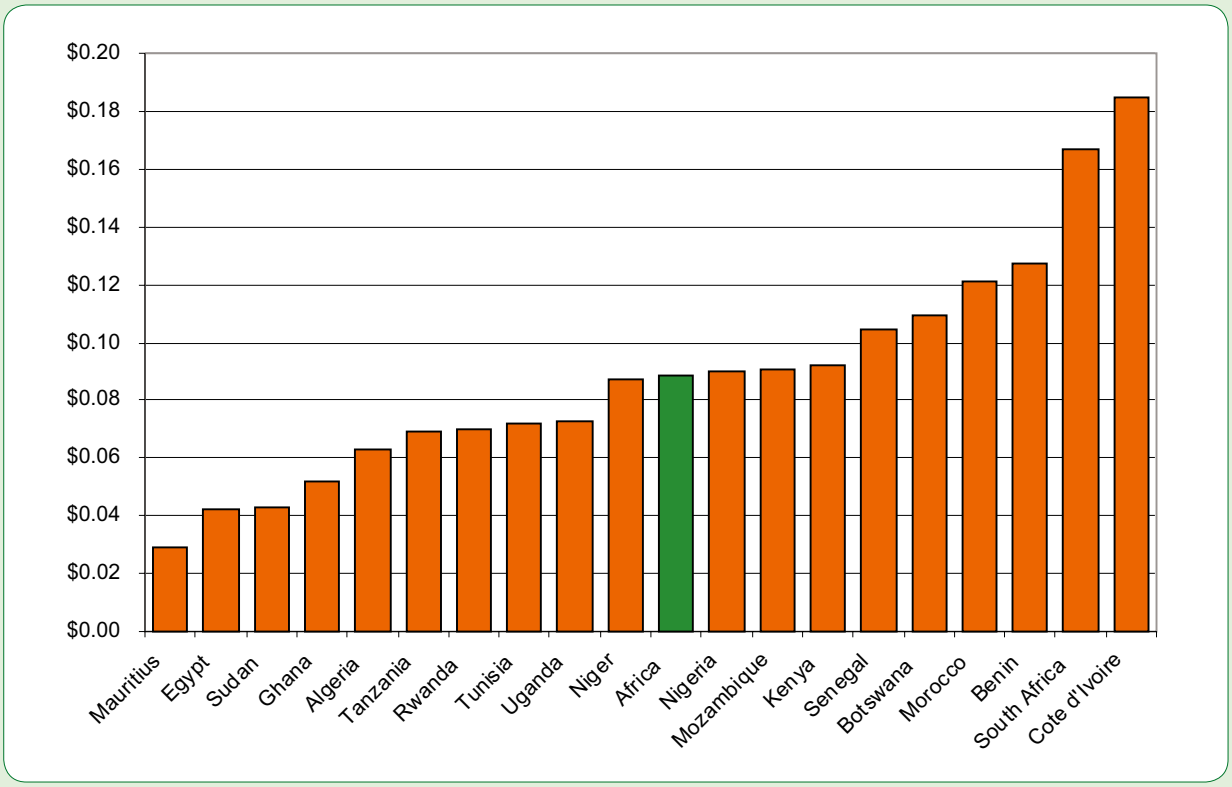
In Africa, mobile interconnection has generally been left to operators to resolve, with regulatory authorities only becoming involved, where operators cannot agree. This approach has often not worked well and some regulators are now taking a more proactive approach establishing MTR ceilings. The Tanzania

Figure 3-4: Status of VoIP, Africa, 2007



Source: ITU World Telecommunication Regulatory Database.

Figure 3-5: Mobile Termination Rates, US$ per minute, October 2007



Source: TMG, Inc.

Communications Regulatory Commission has introduced a glide path calling for annual MTR reductions.[6] The Nigerian Communications Commission has intervened several times, establishing MTR targets.[7] The Communications Commission of Kenya established a ceiling MTR, as well as a cap on retail off-net call prices.[8] The regulator claims that MTR regulation has contributed to Kenya's mobile market doubling in 2007. [9]

Infrastructure-sharing—the topic of the Global Symposium for Regulators 2008—is particularly relevant for the ICT sector in Africa (Boxes 3-2 and 3-3)[10]. Given the great need for investment in ICT infrastructure in the region, it is logical to minimize duplication and share facilities, where practical. This will reduce costs, making ICTs more affordable for a wider segment of the population. Regulators can help by creating a trusting environment among operators and developing policies that promote infrastructure-sharing.

3.3 Taxes

Taxes on communication services strongly influence ICT access in Africa, given the low average levels of income in the region. Import duties on ICT equipment, VAT on goods and services and excise taxes on communications services raise prices, limiting take-up and discouraging use.

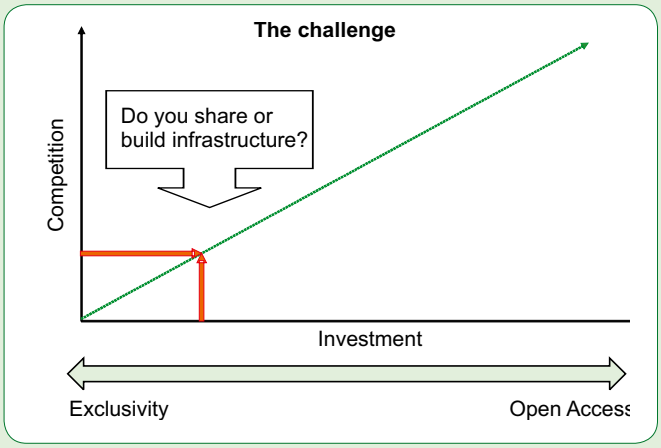
One positive development is the trend by African countries to lower or eliminate import duties on ICT equipment (including computers, data processing parts and mobile handsets). The World Trade Organization (WTO) Information Technology Agreement (ITA)[16] commits signatories to eliminating tariffs on goods essential to the ICT sector, including computers, telecommunications equipment and semiconductors. Under the ITA, any existing tariff reductions become an international obligation, which can reduce perceived risk and help attract investment. It also lowers costs for manufacturers and consumers and increases

Box 3-2: Let's do it together! Infrastructure Sharing for Africa

Key policies in the first wave of regulation, market liberalization and privatization were the separation of networks and interconnection agreements. Many incumbents in developed economies today have been forced to open up their networks to competitors and new market entrants on a non-discriminatory basis[11] and functional or operational separation continue to be key regulatory steps to increase competition, bring down prices and address consumer needs.

However, in markets where new infrastructure deployment is needed either to upgrade exciting networks like fibre optic or roll out infrastructure to previously (usually rural) unconnected areas, functional separation is not necessarily the ideal remedy since operators have little (financial) incentives to invest in these areas.

To address these challenges, a number of countries have adopted regulations to encourage and support infrastructure sharing. The idea is not to go back one step and concentrate market power within one monopoly, but rather, to share the infrastructure, and its cost, and to compete on the service level. Governments should closely examine their specific market environments and intervene where market failures occur. Infrastructure sharing could help developing countries lower the cost of deploying fixed broadband and encourage second generation mobile operators to mitigate to wireless broadband technologies.[12]



Source: Dr. Tracy Cohen and Russell Southwood, Sharing National Fibre in Developing Countries, Presentation at the 8th Blobal Symposium of Regulators, Thailand 2008.

Infrastructure sharing has been identified as a valid alternative for fixed networks, mobile base stations but also for international gateways. It also helps to address environmental concerns or local planning aspects like passage rights or geographic situations that encourage the cooperation of providers. Cooperation can take place in the form of passive infrastructure sharing – e.g. poles, equipment rooms, and passage rights - and active infrastructure sharing of network elements such as base stations.[13] Passive infrastructure is estimated to reduce deployment costs by 40 percent and active infrastructure by 60 percent.

It is up to governments to create the right regulatory framework to encourage and allow operators to engage in infrastructure sharing. It is also up to governments to identify market failures and those areas that could benefit most from infrastructure sharing. To raise awareness and to highlight regulatory possibilities, technicalities and advantages, ITU's last Global Symposium for Regulators focused on infrastructure sharing. A key objective of the meeting was to highlight alternative regulations, including private public partnerships and investments to extend infrastructure availability especially in developing countries. As for any regulatory environment, the success of infrastructure sharing will largely depend on the ability of governments to create trust through transparency, accountability and non-discriminatory actions.

There are various examples in the area of infrastructure sharing in Africa:

- In Tanzania, the regulator allowed Zanzibar Telecom Ltd (Zantel) to provide a mobile service to the mainland from its base in Zanzibar using Vodacom Tanzania's mobile network. This has lowered costs for Zantel's subscribers on Zanzibar who travel to the mainland and also provided mainland users with additional competition. Another example of mobile infrastructure sharing is collaboration among mobile operators to provide regional roaming services (Box 3-1).
- Local loop unbundling (LLU), where the incumbent's network is shared among competing operators, is largely absent in Africa. However in Morocco, partial local loop unbundling was mandated in January 2007. Growth in the broadband market has been facilitated as a result. The Economic Community of West African States (ECOWAS) is mandating LLU for dominant operators in member states.
- In addition to cost savings, another motive for infrastructure sharing relates to environmental concerns. The Nigerian Communications Commission has issued guidelines on shared infrastructure stating that one aim is to "protect the environment by reducing the proliferation of infrastructure and facilities installations."
- In many African countries, a lack of cooperation among operators has resulted in a proliferation of backbone transmission infrastructure. Two consequences of this are that nationwide connectivity has often been neglected as the networks often consist of bits and pieces clustered around urban areas, and that in many instances, backhaul infrastructure is microwave and not higher capacity fiber optic. In South Africa, the government has created a company to operate the national fiber backbones of the power utility and telecommunications arm of the railway company. It will then be leased to the second fixed-line operator, Neotel, who can in turn sell capacity to other service providers.

Box 3-3: Mobile roaming

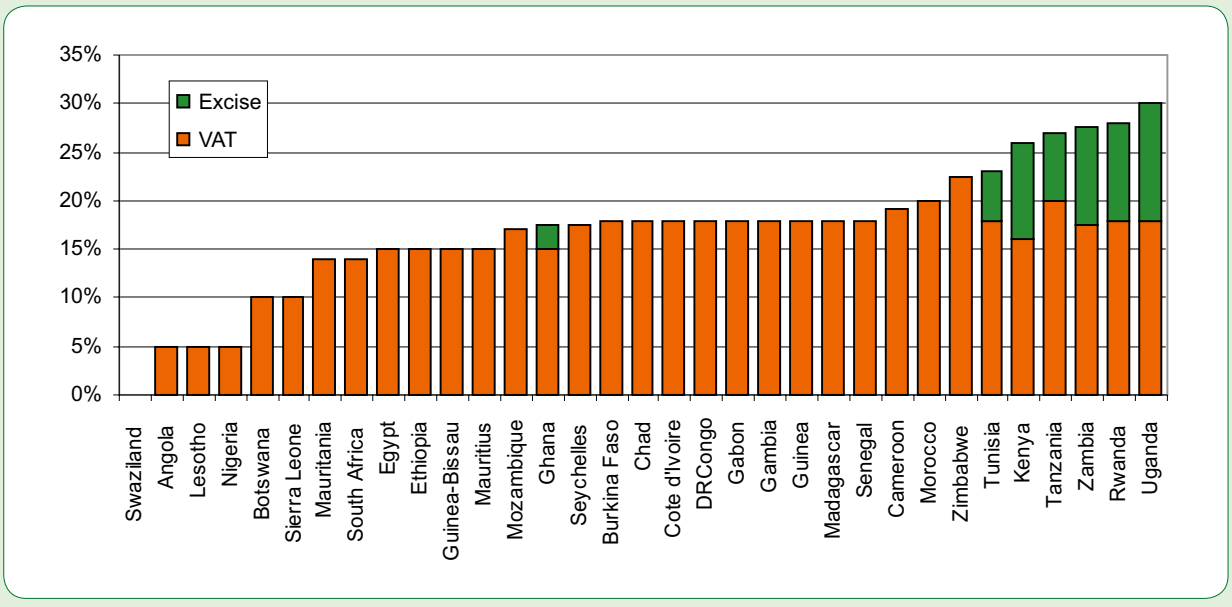
Given the high penetration of mobile communications in the region, roaming agreements–which allow users in one country to use their mobile phones in another–are to be encouraged. A lack of agreements and high prices have discouraged regional roaming. Regional roaming received a big boost with the launch of Celtel's One Network in 2006, allowing mobile users in the East African countries of Kenya, Tanzania and Uganda to use their mobile phones in any of the countries at local rates free from roaming charges, subject to taxes.[14] MTN Uganda, Safaricom in Kenya and Vodacom Tanzania subsequently cooperated to launch a similar service, "Kama Kawaida". Celtel recently extended the One Network to the Central African nations of Congo, DR Congo and Gabon and plans to incorporate it throughout all its African operations by 2010 with the goal of making "Africa one village."[15]

economic competitiveness. Some 70 countries have signed up to the ITA, including three from Africa: Egypt, Mauritius and Morocco. Egypt signed the ITA in 2003 and planned to gradually reduce tariffs to minimize customs duty losses. It accelerated these reductions to zero by 2005 to "promote innovation in ICT, increase demand for ICT products and create more job opportunities."[17]

VAT on communication services range from five to 23 percent across the region. In addition, some countries, particularly in East Africa, add an excise charge on mobile and sometimes fixed calls. The combination of VAT and excise taxes adds significantly to the cost of calls in some countries (Figure 3-6).

The combination of import duties, VAT and excise taxes increases the cost of mobile ownership. The GSM Association has conducted several studies into the impact of taxes on mobile penetration based on the Total Cost of Mobile Ownership (TCMO, which is made up of taxes on handsets, subscription and airtime). In the latest study, two African countries, Tanzania and Uganda, are among the top five in the world in terms of tax as a percentage of TCMO. The GSM Association study found that a reduction in customs duty resulting in a one percent drop in the price of a handset in Africa could boost mobile penetration by 2.4 percent. The GSM Association concluded that a one percent reduction in overall TCMO taxes could lead to an average increase in penetration of 0.5 percent. Moreover, the study

Figure 3-6: Value-Added Tax (VAT) and excise taxes, 2007



Source: GSM Association.

observes that "elasticity of demand is estimated to be higher in Africa than elsewhere, reflecting the potential for further marginal consumers, and hence to increase penetration greatly by a reduction in the TCMO."[18] Another regional study carried out by the GSM Association found that a reduction in the excise taxes would lead to a 4-8 percent increase in penetration, while boosting medium-term tax revenues for governments due to a larger number of users and spillover effects throughout the economy. [19]

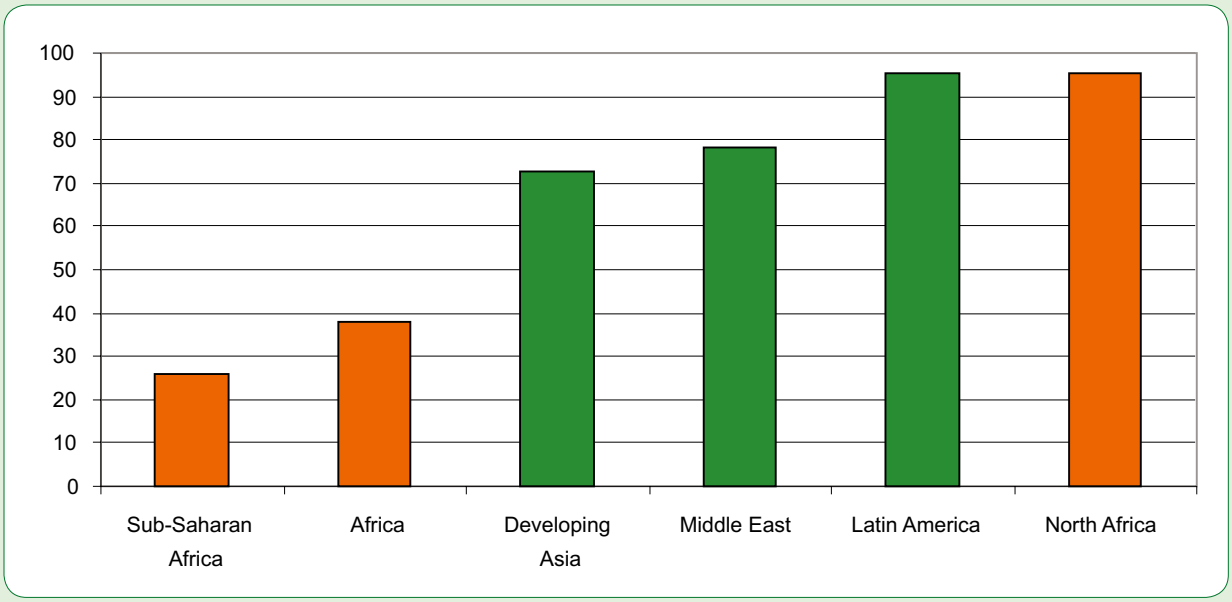
Despite Uganda being one of the most competitive markets in Africa, with five licensed mobile operators, the Uganda Communications Commission has become concerned about low mobile penetration rates and commissioned a study, which concluded that high taxes play a significant role in suppressing mobile penetration: "There has been a slowdown in uptake of mobile phone services over the recent past, suggesting that tax increases result in a significant discouraging effect on uptake and consumption of services."[20] The study also found that consumers are using pay phones more, due to higher taxes on mobile services. Further, the study notes excise taxes have a disproportionate impact on lower income users: "…poorer households bear a higher burden than their higher income counterparts." It concludes that the elimination of the mobile excise tax would result in a more than fifty percent increase in demand between 2007 and 2010.

In Namibia, the incumbent decided to absorb the cost of a recently introduced 15 percent tax on pre-paid communications airtime. Telecom Namibia noted that otherwise, the rise in prices would impact "…ordinary Namibians, mainly students, the elderly and the unemployed as they make up a huge number of pre-paid card users."[21] This suggests that taxes pose a serious barrier to deepening ICT access in Africa, as remaining potential customers originate in the lowest income segments of the population.

3.4 Electricity

The lack of electricity in Sub-Saharan Africa is a serious impediment to the development of ICT markets, as well as to overall development. Fewer than two out of every five African inhabitants have access to electricity, the lowest level of any region in the world (Figure 3-7). There are huge discrepancies between Sub-Saharan Africa and North Africa and between urban and rural areas. North Africa has the highest electrification rate of any developing region, whereas in Sub-Saharan Africa, three out of four people have no access to electricity. The situation is even worse in Sub-Saharan African rural areas, where only eight percent of the population have access to electricity.

Figure 3-7: Percent of population with access to electricity, 2005



Source: Adapted from World Energy Outlook 2006.

This lack of electricity is a major problem for the ICT sector, since telecommunication infrastructure and end-user devices need electrical power. Energy shortages and power failures also affect prices and raise costs, as operators must use and maintain their own generators.[22] It also impacts operator earnings, since mobile subscribers, particularly in rural areas, have difficulty recharging mobile phone batteries, limiting their ability to make and receive calls.

Diesel is the main option for power generation in locations without electricity or where the supply is unstable. According to the GSM Association, Africa uses over 30 million liters of diesel per year to power mobile base stations.[23] This raises costs, has a negative impact on the environment and increases the risk of theft of diesel fuel and generators. Mobile operators have begun to use alternative sources of energy. Safaricom of Kenya is scaling up its use of hybrid power systems, combining a small wind turbine with solar panels and/or a backup generator at more than 20 remote base stations.[24] In Morocco, Ericsson has developed a purely solar-powered micro-base station for rural areas where there is no electricity.[25] In Namibia, MTC is testing a solar/wind powered base station in remote areas.[26] There is a project between Ericsson and MTN to develop biofuel powered base stations using palm and pumpkin seeds.[27]

There are also synergies between ICTs and electrical utilities that could be leveraged. Many electricity companies have fiber optic networks that can be used to provide backhaul communications for telecommunications networks – for example, Kenya Power and Lighting is building fiber optic backbone across the country for leasing to telecommunication operators.[28] Accessing the Internet over power lines is also the subject of much research around the world. In South Africa, Goal Technology Solutions has demonstrated the viability of providing broadband over electricity power lines.[29] Given that most electrical utilities are public enterprises and that much of Africa's ICT development has been driven by private investment, new public private partnerships would be helpful. Private financing from the telecom sector could promote small-scale power generation projects or build-operate-transfer schemes. ICT services delivered over power company assets (such as fiber optic networks and electrical lines) can create alternate revenue streams for reinvestment into additional power generation.

Governments should consider offering tax rebates to offset the high costs of energy for telecommunication operators. For example, import duty waivers and tax reductions could be extended to local companies supplying renewable-based power and equipment to mobile operators. Incentives should be offered to encourage operators to expand coverage to areas with no electricity. The right mix of investment and policy promotion of alternative energy sources could create the enabling environment to raise mobile population coverage.

[1] For more information about the enabling environment in Africa, see ITU. *Creating an Enabling Environment for Investment*. October 17, 2007.

[2] A few operators (e.g. in Sao Tome and Principe) had been historically private. Otherwise, the first privatizations started in 1995.

[3] See "Licensing Information" on the TCRA web site at http://www.tcra.go.tz/licensing/licensing.php.

[4] UNCTAD. 2007. *Blue Book on Best Practice in Investment Promotion and Facilitation: Zambia*. Available from http://www.unctad.org/Templates/webflyer.asp?docid=8183&intItemID=1397&lang=1&mode=downloads.

[5] Vodacom. *Annual Report.* 2007.

[6] Tanzania Communications Regulatory Commission. "Decision on Interconnection Rates in Tanzania." June 30, 2004. *Press Release*. http://www.tcra.go.tz/Publications/Determination%201%20of%202004.pdf.

[7] Nigerian Communications Commission. 2006. *Determination of Interconnection Rate*. http://www.ncc.gov.ng/interconnection/Interconnect%20Rate%20Determination%202006.pdf.

[8] Communications Commission of Kenya. "Implementation of the Telecommunications Network cost study Results". February 23, 2007. *Press Statement*. http://www.cck.go.ke/UserFiles/Image/news23_feb07.jpg.

[9] "Kenya sees 107% rise in mobile users." *TeleGeography's CommsUpdate*. March 7, 2008. http://www.telegeography.com/cu/article.php?article_id=22090&email=html.

[10] Information on infrastructure sharing in this section draws on the following article: "Sharing infrastructure: A growing trend to boost connectivity." *ITU News*. March 2008. http://www.itu.int/itunews/manager/main.asp?lang=en&iYear=2008&iNumber=02.

[11] Malcom Webb: Breaking up is Hard to Do: The Emergence of Functional Seperation as a Regulatory Remedy, Discussion Paper 8th Global Symposium for Regulators, February 2008, ITU, Geneva.

[12] Tracy Cohen and Russell Southwood: Extending Open access to National Fibre Backbones in Developing Countries, Discussion Paper 8th Global Symposium for Regulators, February 2008, ITU, Geneva.

[13] Susan Schorr: What do we mean by 6 Degrees of Sharing?, Discussion Paper 8th Global Symposium for Regulators, February 2008, ITU, Geneva.

[14] Celtel International, September 27, 2006: "Celtel launches One Network: The world's first borderless mobile phone network". *Press Release*. Available at: http://www.celtel.com/en/news/press-release41/index.html.

[15] Leonard Magomba, "Celtel Plans 'One Network' for Continent". *The East African*. August 27, 2007.

[16] http://www.wto.org/english/tratop_e/inftec_e/inftec_e.htm.

[17] See "Trade Agreements" on the Egyptian Ministry of Information and Communications Technology web site at: http://www.mcit.gov.eg/tele_Agreement.aspx#Info.

[18] GSM Association. 2007. *Global Mobile Tax Review 2006-2007*.

[19] GSM Association. 2007. *Taxation and the Growth of Mobile in East Africa*.

[20] Eria Hisali (2007), *"Review of Sector Taxation Policies and Determining the Elasticity of Penetration and Price of the Various Telecommunication Services in Uganda"*.

[21] "Telecom Namibia to absorb 15% VAT cost on pre-paid telecommunication airtime". *Press Release*. Telecom Namibia. January 31, 2008.

[22] "Mainly in Africa, with the exception of Mauritius, the electricity supply is insufficient due to the growth experienced in most of the countries where we operate. We therefore have to rely on diesel-powered generators that we source, install, maintain and refuel. In Chad and Sierra Leone, at March 31, 2007, close to 100% of our radio sites were powered by diesel-powered generators, and in the Democratic Republic of Congo it was the case for about 75% of our sites. This increases our costs and impacts the profitability of our African operations." Millicom International Cellular SA. *Form 20-F*. 2007.

[23] http://www.gsmworld.com/developmentfund/projects/alternative.shtml.

[24] See Winafrique Technologies Ltd first quarter 2008 newsletter, available from: http://www.winafrique.com.

[25] See Ericsson. 2007. "Customer Success Story: Maroc Telecom." http://www.ericsson.com/ericsson/successtories/2008/maroc_telecom.shtml.

[26] John Leyden. "Wind and sun powered base station powers up in Africa." *The Register*. February 14, 2007. http://www.theregister.co.uk/2007/02/14/moto_green_gsm_cell.

[27] Lucas van Grinsven. "African cell networks get pumpkin power: Starting in Nigeria, fuel will come from palm, groundnut, pumpkin seeds." *Reuters*. October 12, 2006. Available from: http://www.msnbc.msn.com/id/15222140/.

[28] Kenya Power and Light Co. "KPLC/ABB Sign Shs 1.8 billion Communications System Upgrade Contract." *Press Release*. August 23, 2007. http://www.kplc.co.ke/UserFiles/File/Press%20Release%20-%20Scada%20Signing%2023.08.07.doc.

[29] See the Goal Technology Solutions web site at: http://www.goal.co.za.

4. Recommendations

As the end of the first decade of the new millennium approaches, Africa stands at a crossroads. African policy-makers can continue with their current partially liberalized regulatory environment in telecommunications, hoping that remarkable growth, particularly in mobile communications, will continue. This is a gamble, as the present environment is unlikely to sustain and deepen ICT growth, which requires extending access to lower income segments of the population.

The upgrade of ICT infrastructure to compete with the rest of the world needs simpler and improved regulation (e.g., through unified licensing regimes) and a stronger voice for industry to lobby for pro-ICT policies (such as lower taxes). Fresh approaches are needed to deal with convergence and the incorporation of wireless technologies into programmes for universal access and broadband promotion. These steps may be politically difficult in some cases, but they are vital for the long-term growth and sustainability of the African ICT sector. The recommendations below highlight actions that can help sustain growth and deepen access to ICTs in the region:

- **Enhance liberalization and privatization and strenghen regulatory agencies:** More than ever, an analysis of the African telecommunication and ICT market confirms the benefits of market liberalization and privatization. Despite the evidence, some countries in the region have yet to take the basic steps of establishing a genuinely independent regulator, allowing unrestrictive private sector investment and introducing unfettered competition. Countries that have not yet privatized incumbent operators should do so, in order to reduce regulatory conflicts, encourage a more level playing-field and attract investment and innovation. Additional competition could be introduced by making an unlimited number of licenses available. Regulatory agencies should be strengthened and allowed to operate independently. Countries that have introduced the basic building blocks of regulatory reform need to pursue deeper liberalization to sustain market growth and extend access, including steps such as the abolition of remaining exclusivities on market entry, introducation of number portability and the simplification of licensing procedures. Regulation needs to take place in a transparent way and regulatory authorities need to carefully monitor markets. Given the need for more investment in ICT infrastructure and lower prices, infrastructure sharing is a good way of minimizing duplication and sharing facilities. Regulators need to create a trusting environment among operators and develop policies that promote infrastructure sharing and allow operators to compete on the service, rather than on the infrastructure level.

- **Lower costs:** Efforts should be made to reduce prices for telecommunications services. Average annual per capita income in Sub-Saharan Africa amounted to US$ 842 in 2006 or just US$ 2.30 per day.[1] Further initiatives to lower prices can boost affordability and access. Lower taxes, interconnection rates and regulatory fees can all help reduce prices, making services more affordable. The lack of electricity in the region is not only a barrier to the spread of ICTs but also affects prices and raises costs. Governments could consider offering tax rebates to offset the high costs of energy for telecommunication operators. Import duty waivers and tax reductions could be extended to local companies supplying renewable-based power and equipment to telecommunications operators. Innovative policies and private-public partnerships could address specific energy needs. These could include private financing from the telecommunications operators to promote small-scale power generation projects or for build-operate-transfer schemes.

- **Promote wireless broadband:** Third-generation mobile networks and WiMAX offer promising solutions for increasing broadband access in Africa. These technologies are beginning to take root in some countries. Governments should

promote wireless broadband through efficient spectrum allocation and liberal licensing. Operators should be encouraged to roll-out coverage of advanced wireless technologies beyond urban areas through tax incentives, license conditions and initiatives to promote infrastructure-sharing. Wireless broadband deployment could be included in universal access policies.

- **Incorporate mobile into universal access policies:** The success of mobile communications should be leveraged to promote universal access across the region. For the most part, mobile operators have not been involved in formal universal access programmes. Yet mobile revenues continue to increase and mobile services has become a very lucrative market to operators. Existing market impediments to new market entry and competition (such as the issues surrounding mobile interconnection and termination rates discussed in this Report) should be removed, so that mobile competition can increase and coverage be improved. Universal access policies could require mobile operators to expand coverage through license conditions or by allowing mobile operators to receive money from universal service funds to expand coverage.

- **Expand public Internet access:** Levels of home computer ownership and Internet access are extremely low in most of Africa and will remain so for years to come. Higher levels of ICT access will only be achieved through public facilities such as Internet cafes and schools. Practical programmes are needed to dramatically boost access through public facilities, including the full liberalization of public access licensing procedures to facilitate the creation of entrepreneurial-operated facilities. Another step is for countries to leverage e-government programmes to ensure that all citizens have access to essential information. In that respect, e-government programmes should have a central component to assist access by citizens.

[1] See: "Sub-Saharan Africa Data Profile" on the World Bank web site at: http://devdata.worldbank.org/external/CPProfile.asp?PTYPE=CP&CCODE=SSA.

AFRICAN TELECOMMUNICATION/ICT INDICATORS

Table of contents

Introduction

This document provides data for 53 African countries and territories classified by the United Nations as being in the African region. Regional totals and averages are provided for *North Africa, South Africa and Sub-Saharan Africa* (see *List of Economies*).

Substantial effort has been made to collect and harmonize the data. Telecommunications data are from the ITU/BDT's World Telecommunication/ICT Indicators database. Data are collected through questionnaires sent to telecommunication ministries, regulatory authorities and operators as well as from annual reports issued by telecommunication entities and reports prepared by ITU staff. Because of differences in national statistical practices, strict comparability is not always possible. Additional explanations and definitions are provided in the *Technical Notes*.

Data generally refer to the end of the calendar year indicated. For exceptions see the individual country pages where the fiscal year period is shown.

The following signs and symbols are used in the document:

italic	Estimate
k	Thousands (e.g., 1’000)
M	Millions (e.g., 1’000’000)
B	Billions (e.g., 1’000’000’000)
US$	United States dollars. See the *Technical notes* for how US$ figures are obtained.
%	Per cent
-	Zero or a quantity less than half the unit shown. Also used for data items that are not applicable.
...	Data not available
CAGR	Compound Annual Growth Rate. See the *Technical notes* for how this is computed.

The absence of any sign or symbol indicates that data are in units.

Comments and suggestions relating to the World Telecommunication/ICT Indicators data should be addressed to:

Market Information and Statistics Division (STAT)
Telecommunication Development Bureau
International Telecommunication Union
Place des Nations
CH-1211 Geneva 20, Switzerland

Fax: +41 22 730 6449
E-mail: indicators@itu.int

Additional information about Telecommunication /ICT Indicators can be found at:
http://www.itu.int/ITU-D/ict.

List of Economies

Designation	Designation in document
Algeria (People's Democratic Republic of)	Algeria
Egypt (Arab Republic of)	Egypt
Libya (Socialist People's Libyan Arab Jamahiriya)	Libya
Morocco (Kingdom of)	Morocco
Tunisia	Tunisia
North Africa	North Africa
South Africa (Republic of)	South Africa
South Africa	South Africa
Angola (People's Republic of)	Angola
Benin (Republic of)	Benin
Botswana (Republic of)	Botswana
Burkina Faso	Burkina Faso
Burundi (Republic of)	Burundi
Cameroon (Republic of)	Cameroon
Cape Verde (Republic of)	Cape Verde
Central African Republic	Central African Rep.
Chad (Republic of)	Chad
Comoros (Islamic Federal Republic of the)	Comoros
Congo (Republic of the)	Congo
Democratic Republic of Congo	Congo (Dem. Rep.)
Côte d'Ivoire (Republic of)	Côte d'Ivoire
Djibouti (Republic of)	Djibouti
Equatorial Guinea (Republic of)	Equatorial Guinea
Eritrea	Eritrea
Ethiopia	Ethiopia
Gabonese Republic	Gabon
Gambia (Republic of the)	Gambia
Ghana	Ghana
Guinea (Republic of)	Guinea
Guinea-Bissau (Republic of)	Guinea-Bissau
Kenya (Republic of)	Kenya
Lesotho (Kingdom of)	Lesotho
Liberia (Republic of)	Liberia
Madagascar (Democratic Republic of)	Madagascar
Malawi	Malawi
Mali (Republic of)	Mali
Mauritania (Islamic Republic of)	Mauritania
Mauritius (Republic of)	Mauritius
Mozambique (Republic of)	Mozambique
Namibia (Republic of)	Namibia
Niger (Republic of the)	Niger
Nigeria (Federal Republic of)	Nigeria
Rwandese Republic	Rwanda
Sao Tome & Principe (Democratic Republic of)	S. Tome & Principe
Senegal (Republic of)	Senegal
Seychelles (Republic of)	Seychelles
Sierra Leone	Sierra Leone
Somali Democratic Republic	Somalia
Sudan (Republic of the)	Sudan
Swaziland (Kingdom of)	Swaziland
Tanzania (United Republic of)	Tanzania
Togolese Republic	Togo
Uganda (Republic of)	Uganda
Zambia (Republic of)\	Zambia
Zimbabwe (Republic of)	Zimbabwe
Sub-Saharan Africa	Sub-Saharan Africa

1. Basic indicators

	Population		GDP	Total Telephone Subscribers		Effective
	Total (M) 2007	Density (per km2) 2007	per capita (US$) 2007	Total (000s) 2007	per 100 inhabitants 2007	tele-density 2007
1 Algeria	33.86	14	*3'463*	24'369	71.97	63.34
2 Egypt	75.50	75	1'736	41'276	54.67	39.80
3 Libya	6.16	4	*7'317*	*1'146*	*19.57*	73.05
4 Morocco	31.22	47	*1'864*	22'423	71.81	64.15
5 Tunisia	10.33	63	*3'024*	9'116	88.27	75.94
North	**157.07**	**26**	**2'426**	**98'329**	**62.73**	**53.39**
6 South Africa	48.58	41	*5'403*	46'942	96.63	87.08
South Africa	**48.58**	**41**	**5'403**	**46'942**	**96.63**	**87.08**
7 Angola	17.02	14	*1'857*	*2'362*	*14.95*	19.43
8 Benin	9.03	80	*540*	2'005	22.20	20.98
9 Botswana	1.88	3	*5'563*	*960*	*54.56*	75.84
10 Burkina Faso	14.78	54	*449*	*1'111*	*8.15*	10.90
11 Burundi	8.51	306	*122*	*235*	*3.00*	2.94
12 Cameroon	18.55	39	*1'079*	*3'267*	*19.68*	24.45
13 Cape Verde	0.53	132	*2'016*	*180*	*34.79*	27.90
14 Central African Rep.	4.34	7	*332*	*122*	*2.98*	2.99
15 Chad	10.78	8	*691*	*479*	*4.78*	8.52
16 Comoros	0.84	451	*466*	*56*	*6.83*	4.77
17 Congo	3.77	11	*1'449*	*506*	*12.65*	35.40
18 Congo (Dem. Rep.)	62.64	27	*118*	*4'425*	*7.46*	10.52
19 Côte d'Ivoire	19.26	60	*951*	*4'326*	*23.44*	36.60
20 Djibouti	0.83	38	*975*	*55*	*7.92*	5.40
21 Equatorial Guinea	0.51	18	*12'755*	*107*	*21.25*	43.35
22 Eritrea	4.85	52	...	*100*	*2.18*	1.44
23 Ethiopia	83.10	68	*139*	2'089	2.51	1.45
24 Gabon	1.33	5	*7'260*	*801*	*56.98*	87.86
25 Gambia	1.71	160	*168*	872	51.05	46.58
26 Ghana	23.48	99	*358*	7'981	33.99	32.39
27 Guinea	9.37	38	...	*215*	*2.69*	*2.36*
28 Guinea-Bissau	1.70	47	*203*	301	17.75	17.48
29 Kenya	37.54	64	*649*	11'705	31.18	30.48
30 Lesotho	2.01	66	*809*	*411*	*22.96*	22.71
31 Liberia	3.75	34	...	...	...	15.01
32 Madagascar	19.68	33	*288*	2'352	11.95	11.27
33 Malawi	13.93	148	*161*	1'226	8.80	7.55
34 Mali	12.34	10	*426*	2'568	20.81	20.13
35 Mauritania	3.12	3	*516*	*1'095*	*34.68*	41.62
36 Mauritius	1.26	676	*5'168*	*1'130*	*89.95*	74.19
37 Mozambique	21.40	27	*339*	*2'406*	*11.94*	15.42
38 Namibia	2.07	3	*2'840*	938	45.24	38.58
39 Niger	14.23	12	*245*	*348*	*2.49*	6.33
40 Nigeria	148.09	160	*844*	46'974	31.72	27.28
41 Rwanda	9.72	369	*320*	*331*	*3.58*	6.98
42 S. Tomé & Principe	0.16	164	...	38	23.95	19.09
43 Senegal	12.38	63	*770*	4'392	35.48	33.31
44 Seychelles	0.09	214	*8'658*	98	113.02	89.23
45 Sierra Leone	5.87	81	*210*	...	...	13.23
46 Somalia	8.70	14	...	700	8.05	6.90
47 Sudan	38.56	15	*801*	7'809	20.25	19.36
48 Swaziland	1.14	66	*2'705*	*294*	*28.56*	33.29
49 Tanzania	40.45	43	...	8'489	20.98	20.40
50 Togo	6.59	116	*346*	*790*	*12.53*	18.08
51 Uganda	30.88	131	*340*	4'358	14.11	13.58
52 Zambia	11.92	16	*623*	2'731	22.91	22.14
53 Zimbabwe	13.35	34	...	1'570	11.76	9.18
Sub-Saharan	**758.04**	**33**	**606**	**135'307**	**18.43**	**18.51**
AFRICA	**963.68**	**32**	**1'220**	**280'578**	**29.87**	**27.76**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

2. Main (fixed) telephone lines

		Main (fixed) telephone lines			*Main (fixed) telephone lines per 100 inhabitants*		
		(000s)		*CAGR (%)*			*CAGR (%)*
		2002	*2007*	*2002 - 07*	*2002*	*2007*	*2002 - 07*
1	Algeria	1'950.0	2'922.7	8.4	6.22	8.63	6.8
2	Egypt	7'736.4	11'228.8	7.7	11.49	14.87	5.3
3	Libya	720.0	852.3	*5.8*	12.96	*14.56*	*4.0*
4	Morocco	1'127.4	2'393.8	16.3	3.88	7.67	14.6
5	Tunisia	1'148.6	1'273.3	2.1	11.74	12.33	1.0
	North	**12'682.4**	**18'671.0**	**8.0**	**8.86**	**11.91**	**4.6**
6	South Africa	4'844.0	4'642.0	-0.8	10.40	9.56	-1.7
	South Africa	**4'844.0**	**4'642.0**	**-0.8**	**10.40**	**9.56**	**-1.7**
7	Angola	80.2	98.2	*5.2*	0.58	*0.62*	*1.9*
8	Benin	62.7	110.3	12.0	0.92	1.22	5.8
9	Botswana	131.7	136.9	*1.0*	7.66	*7.78*	*0.4*
10	Burkina Faso	61.9	94.8	*11.2*	0.52	*0.70*	*7.6*
11	Burundi	22.1	35.0	*12.2*	0.31	*0.45*	*9.2*
12	Cameroon	110.9	130.7	*4.2*	0.70	*0.79*	*3.0*
13	Cape Verde	70.2	71.6	*0.5*	15.58	*13.80*	*-3.0*
14	Central African Rep.	9.0	12.0	*7.5*	0.23	*0.29*	*6.6*
15	Chad	11.8	13.0	*2.4*	0.15	*0.13*	*-3.6*
16	Comoros	10.3	19.1	*16.8*	1.35	*2.33*	*14.7*
17	Congo	22.0	15.9	*-10.2*	0.67	*0.40*	*-15.8*
18	Congo (Dem. Rep.)	10.0	9.7	*-0.8*	0.02	*0.02*	*-3.7*
19	Côte d'Ivoire	324.8	260.9	*-5.3*	1.97	*1.41*	*-8.0*
20	Djibouti	10.1	10.8	*2.1*	1.54	*1.56*	*0.3*
21	Equatorial Guinea	8.8	10.0	*4.4*	1.74	*1.99*	*4.5*
22	Eritrea	35.9	37.5	*1.1*	0.90	*0.82*	*-2.3*
23	Ethiopia	353.8	880.1	20.0	0.53	1.06	15.1
24	Gabon	32.1	36.5	*3.3*	2.47	*2.59*	*1.3*
25	Gambia	38.4	76.4	14.8	2.89	4.47	9.1
26	Ghana	275.0	376.5	6.5	1.33	1.60	3.9
27	Guinea	26.0	26.3	*0.4*	0.34	*0.33*	*-1.0*
28	Guinea-Bissau	11.2	4.6	-16.4	0.89	0.27	-21.3
29	Kenya	321.5	264.8	-3.8	1.02	0.71	-7.1
30	Lesotho	28.6	53.1	*16.7*	1.59	*2.97*	*16.9*
31	Liberia	6.9	...	...	0.21	...	...
32	Madagascar	59.5	133.9	17.6	0.35	0.68	14.4
33	Malawi	73.1	175.2	19.1	0.70	1.26	12.4
34	Mali	56.6	85.0	8.5	0.53	0.69	5.3
35	Mauritania	31.5	34.9	*2.5*	1.18	*1.10*	*-1.5*
36	Mauritius	327.2	357.3	*2.2*	27.03	*28.45*	*1.3*
37	Mozambique	83.7	67.0	*-5.4*	0.46	*0.33*	*-8.0*
38	Namibia	121.4	138.1	2.6	6.48	6.66	0.6
39	Niger	22.4	24.0	*2.3*	0.19	*0.17*	*-3.4*
40	Nigeria	702.0	6'578.3	56.4	0.58	4.44	50.0
41	Rwanda	25.1	16.5	*-9.9*	0.31	*0.18*	*-12.6*
42	S. Tomé & Principe	6.4	7.7	3.8	4.36	4.86	2.2
43	Senegal	224.6	269.1	3.7	2.23	2.17	-0.5
44	Seychelles	21.2	20.6	-0.6	27.10	23.79	-2.6
45	Sierra Leone	24.0	...	...	0.49	...	...
46	Somalia	35.0	100.0	23.4	0.47	1.15	19.6
47	Sudan	671.8	345.2	-12.5	2.04	0.90	-15.2
48	Swaziland	35.1	44.0	*5.8*	3.40	*4.27*	*5.9*
49	Tanzania	161.6	236.5	7.9	0.45	0.58	5.5
50	Togo	51.2	82.1	*12.5*	1.05	*1.30*	*5.5*
51	Uganda	55.0	162.3	24.2	0.21	0.53	19.9
52	Zambia	87.7	91.8	0.9	0.79	0.77	-0.5
53	Zimbabwe	287.9	344.5	3.7	2.47	2.58	0.8
	Sub-Saharan	**5'239.8**	**12'098.3**	**18.4**	**0.83**	**1.65**	**1.1**
	AFRICA	**22'766.3**	**35'411.3**	**9.3**	**2.77**	**3.77**	**1.9**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

3. Waiting list for telephone lines

		Waiting list for telephone lines (000s)		CAGR (%)	Total demand (000s)	Satisfied demand (%)	Waiting time (years)
		2001	2006	2001 - 06	2006	2006	2006
1	Algeria	727.0	-	-100.0	2'841.3	100.0	0
2	Egypt	583.3	48.4	-39.2	10'856.1	99.6	0.1
3	Libya	...	373.5	...	1'225.8	69.5	8.5
4	Morocco	...	-	...	1'266.1	100.0	-
5	Tunisia	106.4	14.4	-33.0	1'282.8	98.9	0.4
	North	**1'416.7**	**436.3**	**-46.4**	**17'472.1**	**97.5**	**0.4**
6	South Africa	...	...	...	...	...	...
	South Africa	**...**	**...**	**...**	**...**	**...**	**...**
7	Angola	...	...	...	...	...	...
8	Benin	7.3	54.3	49.3	131.6	58.8	>10
9	Botswana	*14.8*	...	...	...	...	...
10	Burkina Faso	...	*3.1*	...	97.9	96.8	0.3
11	Burundi	*4.7*	*15.0*	*47.3*	50.0	70.0	4.1
12	Cameroon	...	...	...	...	...	...
13	Cape Verde	2.9	0.4	-32.5	72.0	99.4	>10
14	Central African Rep.	*1.6*	*1.2*	*-25.0*	13.2	90.9	1.4
15	Chad	...	...	...	...	...	...
16	Comoros	*2.1*	*3.4*	*57.5*	22.4	84.9	1.7
17	Congo	...	...	...	...	...	...
18	Congo (Dem. Rep.)	...	...	...	...	...	...
19	Côte d'Ivoire	*22.7*	*1.6*	*-58.7*	262.5	99.4	0.2
20	Djibouti	*0.1*	-	*-51.9*	10.8	99.7	0.1
21	Equatorial Guinea	...	...	...	...	...	...
22	Eritrea	27.0	8.5	-20.6	46.1	81.5	>10
23	Ethiopia	155.2	56.1	-18.4	781.1	92.8	0.5
24	Gabon	2.5	1.7	-7.5	38.2	95.5	>10
25	Gambia	*10.9*	*10.6*	*-2.5*	56.9	81.4	7.4
26	Ghana	154.8	2.3	-56.8	358.7	99.4	0.1
27	Guinea	*1.4*	...	...	...	...	...
28	Guinea-Bissau	...	...	...	...	...	...
29	Kenya	134.0	61.8	-14.3	355.2	82.6	>10
30	Lesotho	*19.3*	*2.2*	*-41.9*	55.3	96.0	0.4
31	Liberia	...	...	...	...	...	...
32	Madagascar	*1.7*	*1.2*	*-16.1*	131.0	99.1	0.1
33	Malawi	*20.1*	*17.4*	*-13.2*	147.4	88.2	1.2
34	Mali	...	...	...	...	...	...
35	Mauritania	...	...	...	...	...	...
36	Mauritius	*9.9*	*3.0*	*-26.0*	360.3	99.2	1.0
37	Mozambique	22.4	2.8	-33.8	69.8	95.9	>10
38	Namibia	*2.9*	*3.5*	*5.2*	139.7	97.5	1.2
39	Niger	...	...	...	...	...	...
40	Nigeria	...	...	...	...	...	...
41	Rwanda	...	...	...	...	...	...
42	S. Tomé & Principe	1.0	0.3	-23.2	7.9	96.5	1.3
43	Senegal	9.8	-	-70.0	282.6	100.0	-
44	Seychelles	1.7	2.2	5.3	22.9	90.4	>10
45	Sierra Leone	...	...	...	...	...	...
46	Somalia	*3.5*	*0.5*	*-62.2*	100.5	99.5	...
47	Sudan	444.0	-	-100.0	767.2	100.0	0
48	Swaziland	*14.6*	*22.6*	*24.5*	66.6	66.0	>10
49	Tanzania	7.3	1.1	-32.0	158.3	99.3	0.3
50	Togo	22.1	9.3	-15.9	91.3	89.8	1.3
51	Uganda	...	...	...	...	...	...
52	Zambia	*12.8*	*11.5*	*-3.6*	104.9	89.0	6.9
53	Zimbabwe	141.7	157.6	2.2	493.2	68.0	>10
	Sub-Saharan	**1'276.9**	**455.3**	**-18.5**	**5'295.5**	**91.4**	**2.6**
	AFRICA	**2'693.6**	**891.5**	**-28.1**	**22'767.7**	**96.1**	**0.7**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.

Source: ITU World Telecommunication/ICT Indicators Database.

4. Local telephone network

		Main (fixed) telephone lines				Faults per 100
		Capacity used (%) 2006	Automatic (%) 2006	Digital (%) 2006	Residential (%) 2006	main (fixed) lines per year 2006
1	Algeria	*67.8*	100.0	100.0	81.0	*0.8*
2	Egypt	80.9	100.0	100.0	91.0	0.1
3	Libya	...	100.0	100.0	79.2	...
4	Morocco	...	100.0	100.0	64.2	*25.0*
5	Tunisia	54.9	100.0	100.0	64.0	20.0
	North	**75.3**	**100.0**	**100.0**	**85.0**	**3.9**
6	South Africa	*94.6*	...	*99.9*	*65.0*	*48.2*
	South Africa	**94.6**	**...**	**99.9**	**65.0**	**48.2**
7	Angola	...	100.0	...	...	...
8	Benin	64.3	100.0	100.0	50.5	7.0
9	Botswana	*55.7*	100.0	100.0	...	...
10	Burkina Faso	75.0	100.0	100.0	...	*18.4*
11	Burundi	*70.9*	100.0	...	...	*6.0*
12	Cameroon	*71.7*	100.0	*76.0*	*51.0*	...
13	Cape Verde	75.3	100.0	100.0	86.0	3.0
14	Central African Rep.	...	100.0	...	*39.5*	*56.0*
15	Chad	*67.5*	100.0	100.0	...	...
16	Comoros	38.8	100.0	100.0	98.0	*55.8*
17	Congo	...	...	...	...	...
18	Congo (Dem. Rep.)	*3.3*	...	*3.3*	*36.4*	...
19	Côte d'Ivoire	71.5	100.0	100.0	82.0	*81.0*
20	Djibouti	*22.2*	100.0	100.0	*60.0*	*136.0*
21	Equatorial Guinea	...	100.0	...	...	...
22	Eritrea	75.9	...	100.0	56.3	63.8
23	Ethiopia	70.9	...	98.2	74.8	*100.0*
24	Gabon	36.2	100.0	100.0	72.0	*13.4*
25	Gambia	...	100.0	100.0	61.0	...
26	Ghana	76.3	100.0	97.0	69.0	3.2
27	Guinea	*69.1*	100.0	*94.0*	*45.0*	*1.6*
28	Guinea-Bissau	...	100.0	100.0	...	...
29	Kenya	56.6	*99.0*	98.0	*36.0*	70.1
30	Lesotho	*97.5*	100.0	100.0	78.0	*60.0*
31	Liberia	...	100.0	...	...	...
32	Madagascar	*72.4*	...	99.0	*48.6*	36.0
33	Malawi	*65.2*	...	*96.0*	*52.3*	...
34	Mali	...	100.0	100.0	36.0	...
35	Mauritania	64.6	100.0	100.0	67.0	*5.5*
36	Mauritius	*90.1*	100.0	100.0	*84.0*	*23.0*
37	Mozambique	53.5	100.0	100.0	...	46.0
38	Namibia	*71.3*	100.0	100.0	*60.0*	*35.0*
39	Niger	...	...	...	...	*71.4*
40	Nigeria	*57.3*	100.0	*91.0*	*56.0*	*20.6*
41	Rwanda	...	100.0	100.0	84.0	*18.2*
42	S. Tomé & Principe	...	100.0	100.0	70.0	14.0
43	Senegal	...	100.0	100.0	69.0	2.0
44	Seychelles	...	100.0	100.0	67.3	6.0
45	Sierra Leone	...	...	...	...	...
46	Somalia	*50.0*	...	...	...	...
47	Sudan	*38.2*	100.0	100.0	...	5.0
48	Swaziland	75.3	100.0	100.0	*43.2*	0.7
49	Tanzania	66.5	...	100.0	65.0	*26.0*
50	Togo	59.5	100.0	100.0	*80.0*	*6.2*
51	Uganda	36.0	...	95.0	...	...
52	Zambia	*65.7*	100.0	*93.0*	*33.0*	*108.0*
53	Zimbabwe	75.9	100.0	81.0	55.0	57.0
	Sub-Saharan	**58.5**	**99.9**	**96.0**	**63.2**	**33.3**
	AFRICA	**73.5**	**100.0**	**99.0**	**77.3**	**18.0**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

5. Teleaccessibility

		Residential (fixed) main lines		*Public telephones*		
		Total (000s) 2006	*per 100 households 2006*	*Total (000s) 2006*	*per 1000 Inhabitants 2006*	*as % of main (fixed) lines 2006*
1	Algeria	2'301.5	42.4	*47.17*	1.43	1.83
2	Egypt	9'832.8	60.0	56.45	0.75	0.52
3	Libya	...	...	4.50	0.75	...
4	Morocco	813.0	13.0	173.19	5.64	13.68
5	Tunisia	811.8	35.2	42.54	4.17	3.35
	North	**13'759.1**	**45.2**	**323.85**	**2.09**	**2.01**
6	South Africa	*3'073.8*	*25.6*	*165.00*	3.48	3.49
	South Africa	**3'073.8**	**25.6**	**165.00**	**3.48**	**3.49**
7	Angola	...	...	0.44	-	0.45
8	Benin	39.1	2.3	0.68	0.08	0.88
9	Botswana	...	...	0.90	0.51	0.66
10	Burkina Faso	...	...	12.49	0.92	13.18
11	Burundi	...	...	*3.28*	0.46	11.81
12	Cameroon	*51.2*	*1.6*	*5.97*	0.37	5.95
13	Cape Verde	61.6	58.1	0.44	0.84	0.61
14	Central African Rep.	*3.7*	*0.5*	*0.10*	-	1.11
15	Chad	...	...	*0.10*	-	0.77
16	Comoros	18.7	10.3	0.55	0.67	2.89
17	Congo	...	...	...	...	...
18	Congo (Dem. Rep.)	*3.9*	*0.1*	26.00	0.44	268.18
19	Côte d'Ivoire	213.9	9.7	1.80	0.10	0.69
20	Djibouti	*6.1*	*5.7*	-	-	0.29
21	Equatorial Guinea	...	...	...	...	...
22	Eritrea	21.1	2.3	0.51	0.11	1.35
23	Ethiopia	542.3	3.8	4.29	0.05	0.59
24	Gabon	26.3	9.3	0.35	0.25	0.96
25	Gambia	28.2	16.1	...	...	...
26	Ghana	245.9	4.9	12.83	0.57	3.60
27	Guinea	*11.7*	*1.0*	*1.24*	0.16	4.78
28	Guinea-Bissau	...	...	...	...	...
29	Kenya	*115.7*	*1.7*	7.91	0.23	2.70
30	Lesotho	41.4	9.5	2.54	1.42	4.79
31	Liberia	...	...	...	...	...
32	Madagascar	*28.9*	*0.9*	1.18	0.06	0.91
33	Malawi	*38.2*	*1.6*	*0.56*	0.05	0.77
34	Mali	29.7	1.3	6.77	0.49	8.21
35	Mauritania	23.4	4.3	5.00	1.58	14.34
36	Mauritius	*300.3*	*95.0*	*1.40*	1.12	0.39
37	Mozambique	...	...	4.24	0.21	6.33
38	Namibia	*72.8*	*20.4*	6.09	2.97	4.47
39	Niger	...	...	*0.07*	-	0.30
40	Nigeria	*497.6*	*2.0*	*4.87*	-	0.69
41	Rwanda	13.9	0.5	*3.29*	0.36	13.94
42	S. Tomé & Principe	5.3	18.3	0.12	0.77	1.62
43	Senegal	195.0	14.7	1.18	0.10	0.42
44	Seychelles	13.9	58.0	0.20	2.47	0.97
45	Sierra Leone	...	...	...	...	...
46	Somalia	...	...	...	...	...
47	Sudan	...	...	3.67	0.10	0.48
48	Swaziland	*20.0*	*12.0*	1.31	1.27	2.97
49	Tanzania	102.2	1.3	5.77	0.15	3.67
50	Togo	*40.9*	*5.0*	21.34	3.38	26.00
51	Uganda	...	...	11.08	0.37	10.25
52	Zambia	*31.2*	*1.4*	*0.75*	0.06	0.79
53	Zimbabwe	184.6	6.3	*0.28*	-	0.08
	Sub-Saharan	**3'028.8**	**3.1**	**161.62**	**0.24**	**2.70**
	AFRICA	**19'861.7**	**14.3**	**650.47**	**0.75**	**2.43**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.

Source: ITU World Telecommunication/ICT Indicators Database.

6. International fixed telephone traffic

		Outgoing (fixed) telephone traffic					*International*
		Total minutes (M) 2006	*As % of bothway 2006*	*CAGR (%) 2001 - 06*	*Minutes per inhab. 2006*	*Minutes per subscriber 2006*	*telephone circuits 2006*
1	Algeria	145.6	...	-7.0	4.37	51.25	...
2	Egypt	501.5	...	17.6	6.65	46.41	25'748
3	Libya	239.0	60.4	39.5	40.04	...	...
4	Morocco	166.4	23.6	-9.2	5.41	131.41	...
5	Tunisia	242.3	33.0	6.9	23.73	191.03	*5'064*
	North	**1'294.8**	**35.2**	**7.1**	**8.32**	**65.24**	**30'812**
6	South Africa	*515.0*	...	*0.2*	*10.86*	*108.90*	...
	South Africa	**515.0**	**...**	**0.2**	**10.86**	**108.90**	**...**
7	Angola	*38.8*	...	*4.3*	*2.49*	*400.99*	...
8	Benin	64.6	...	29.9	7.42	835.04	4'800
9	Botswana	80.0	51.6	8.2	45.46	584.17	...
10	Burkina Faso	46.9	30.3	26.2	3.44	494.69	*1'208*
11	Burundi	*3.2*	...	*-4.1*	*0.42*	*102.89*	...
12	Cameroon	12.3	18.7	-11.1	0.74	94.36	*2'075*
13	Cape Verde	9.5	...	2.5	18.32	132.71	1'788
14	Central African Rep.	*8.0*	...	*14.0*	*1.98*	*800.00*	...
15	Chad	*5.2*	...	*7.6*	*0.53*	*400.75*	...
16	Comoros	2.2	...	-0.6	2.66	114.49	509
17	Congo	*7.8*	...	...	*1.95*	*490.22*	...
18	Congo (Dem. Rep.)	*10.7*	*4.9*	*23.5*	*0.19*	*1'015.51*	...
19	Côte d'Ivoire	*60.0*	...	*-0.9*	*3.31*	*232.09*	3'847
20	Djibouti	*19.7*	...	*51.3*	*28.44*	*1'825.50*	*956*
21	Equatorial Guinea	*7.1*	...	*13.5*	*14.20*	*714.39*	...
22	Eritrea	5.1	...	7.3	1.11	135.13	390
23	Ethiopia	28.7	10.7	16.4	0.36	39.56	2'494
24	Gabon	31.8	...	4.9	22.65	873.03	1'507
25	Gambia	*32.7*	...	*46.5*	*21.56*	*743.18*	*4'899*
26	Ghana	3.0	...	-43.0	0.13	8.41	...
27	Guinea	*6.0*	...	*-24.7*	*0.75*	*228.14*	*663*
28	Guinea-Bissau	*1.9*	...	*11.9*	*1.39*	*193.95*	...
29	Kenya	47.0	32.0	17.4	1.34	160.07	1'289
30	Lesotho	*20.5*	*57.3*	*-8.9*	*11.42*	*427.32*	...
31	Liberia	-	...	...	...	...	...
32	Madagascar	4.8	17.6	-13.0	0.25	36.88	*402*
33	Malawi	*34.2*	*58.2*	*45.5*	*3.28*	*468.10*	*457*
34	Mali	*56.1*	...	*38.3*	*4.95*	*739.62*	...
35	Mauritania	10.4	32.1	1.2	3.30	298.50	1'140
36	Mauritius	59.7	...	10.9	47.57	167.18	*1'302*
37	Mozambique	14.1	...	-8.4	0.70	211.12	...
38	Namibia	*63.0*	...	*1.2*	*31.02*	*453.25*	*1'686*
39	Niger	*2.3*	...	*-23.1*	*0.16*	*94.22*	...
40	Nigeria	*323.1*	...	*51.9*	*2.46*	*264.09*	*6*
41	Rwanda	*1.5*	*25.3*	*-26.6*	*0.17*	*64.98*	...
42	S. Tomé & Principe	2.6	29.1	21.4	16.08	339.00	*60*
43	Senegal	103.0	25.2	8.1	8.63	364.51	2
44	Seychelles	*9.1*	...	*2.6*	*112.70*	*424.69*	...
45	Sierra Leone	-	...	...	...	...	...
46	Somalia	-	...	...	...	...	...
47	Sudan	96.3	17.5	21.7	2.60	125.54	*19'680*
48	Swaziland	29.3	...	2.2	28.43	665.53	*608*
49	Tanzania	*19.0*	...	*19.3*	*0.50*	*123.09*	2'030
50	Togo	10.0	32.2	-16.4	1.59	121.98	*883*
51	Uganda	*39.0*	...	*53.7*	*1.35*	*445.99*	...
52	Zambia	19.3	...	5.8	1.63	207.02	*875*
53	Zimbabwe	70.0	25.2	-4.0	5.35	208.71	...
	Sub-Saharan	**1'519.6**	**23.7**	**12.4**	**2.22**	**230.69**	**55'556**
	AFRICA	**3'329.4**	**28.6**	**6.9**	**3.74**	**112.38**	**86'368**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

7. Fixed telephone tariffs

		Residential		*Business*		*Local call*	*Subscription as % of GDP per capita*	*Price basket for fixed line as a % of GNI per capita*
		Connection	*Monthly subs.*	*Connection*	*Monthly subs.*			
		(US$) 2007	*(US$) 2007*	*(US$) 2007*	*(US$) 2007*	*(US$) 2007*	*(%) 2007*	*(%) 2007*
1	Algeria	-	28.9	-	8.7	-	10.15	11.43
2	Egypt	109	1.4	35.9	...	0.02	1.21	3.36
3	Libya	*38*	*1.3*	*137.0*	*11.4*	-	0.21	0.41
4	Morocco	73	17.6	146.5	17.6	0.24	11.50	14.19
5	Tunisia	16	2.1	15.6	2.1	0.02	0.84	1.23
	North	**47**	**10.2**	**67.0**	**9.9**	**0.06**	**4.78**	**6.12**
6	South Africa	54	15.9	54.4	21.1	0.19	3.60	4.67
	South Africa	**54**	**15.9**	**54.4**	**21.1**	**0.19**	**3.60**	**4.67**
7	Angola	59	11.7	58.7	11.7	0.30	...	12.54
8	Benin	202	5.8	366.6	5.8	0.03	13.37	22.44
9	Botswana	37	9.8	55.0	20.4	0.17	2.25	3.01
10	Burkina Faso	52	5.2	52.2	5.2	0.21	15.13	32.20
11	Burundi	*10*	*0.4*	*58.3*	*0.4*	*0.07*	4.82	32.05
12	Cameroon	83	6.3	208.7	6.3	0.31	7.78	16.33
13	Cape Verde	*34*	*4.5*	*34.1*	*2.8*	*0.05*	2.68	3.97
14	Central African Rep.	74	5.7	73.9	5.7	0.21	21.98	44.10
15	Chad	*102*	*6.8*	*101.6*	*6.8*	*0.14*	13.92	38.30
16	Comoros	113	6.3	112.7	6.3	0.14	...	22.38
17	Congo	...	...	...	...	...	...	...
18	Congo (Dem. Rep.)	*119*	*4.6*	*278.3*	*9.1*	*0.15*	47.81	119.14
19	Côte d'Ivoire	21	14.8	20.9	14.8	0.38	19.46	35.49
20	Djibouti	*56*	*11.3*	*56.3*	*11.3*	*0.08*	...	17.49
21	Equatorial Guinea	...	...	...	...	...	...	...
22	Eritrea	*65*	*2.2*	*65.0*	*2.2*	*0.04*	...	31.20
23	Ethiopia	*35*	*0.9*	*35.1*	*2.0*	*0.02*	7.90	16.45
24	Gabon	*104*	*18.1*	*104.1*	*18.1*	*0.29*	3.58	6.30
25	Gambia	...	...	...	...	...	...	...
26	Ghana	86	2.7	0.7	-	0.16	...	20.56
27	Guinea	*37*	...	...	...	...	...	...
28	Guinea-Bissau	...	...	...	...	...	...	...
29	Kenya	34	7.4	50.4	7.4	0.08	14.69	23.05
30	Lesotho	43	7.6	44.7	8.0	0.24	12.62	17.19
31	Liberia	...	...	...	...	...	...	...
32	Madagascar	31	6.4	31.5	6.4	0.19	27.50	52.33
33	Malawi	*10*	*0.8*	*10.1*	*0.8*	*0.10*	6.86	25.41
34	Mali	81	5.5	41.8	9.4	0.15	13.85	30.89
35	Mauritania	18	4.8	18.5	4.8	0.22	...	19.08
36	Mauritius	32	2.9	63.9	7.2	0.07	0.67	1.18
37	Mozambique	19	8.7	18.8	8.7	0.35	32.57	58.92
38	Namibia	38	8.4	37.8	9.4	0.19	...	4.94
39	Niger	50	7.5	74.5	7.5	0.16	36.08	60.00
40	Nigeria	72	5.6	71.5	5.6	0.14	...	20.05
41	Rwanda	*54*	*1.8*	*54.4*	*1.8*	*0.18*	8.41	42.27
42	S. Tomé & Principe	30	5.9	...	7.4	0.11	...	13.34
43	Senegal	21	10.4	20.9	...	0.21	16.87	27.16
44	Seychelles	78	10.7	78.2	11.7	0.13	...	2.15
45	Sierra Leone	...	...	...	...	...	...	...
46	Somalia	...	...	...	...	...	...	...
47	Sudan	*21*	*2.4*	*20.5*	*2.4*	*0.06*	4.71	10.59
48	Swaziland	30	3.3	50.5	6.0	0.08	1.64	2.81
49	Tanzania	16	4.0	16.1	4.0	0.24	...	39.47
50	Togo	104	7.8	104.3	7.8	0.19	28.30	48.88
51	Uganda	69	5.7	68.7	5.7	0.26	20.88	52.82
52	Zambia	12	5.0	37.5	10.0	0.15	...	17.41
53	Zimbabwe	...	...	...	...	...	...	...
	Sub-Saharan	**55**	**6.3**	**70.2**	**7.1**	**0.16**	**14.86**	**27.47**
	AFRICA	**54**	**7.0**	**69.4**	**7.7**	**0.15**	**12.93**	**24.53**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

8. Mobile cellular subscribers

	Mobile cellular subscribers			Prepaid subscribers	Population coverage	As % of total telephone subscribers
	Total (000s)	per 100 inhabitants	CAGR (%)	(%)	(%)	
	2007	2007	2002 - 07	2007	2007	2007
1 Algeria	21'446	63.34	116.6	*97.1*	93.0	88.0
2 Egypt	30'047	39.80	46.2	*92.6*	99.0	72.8
3 Libya	4'500	73.05	129.9	*98.5*	*70.7*	*25.6*
4 Morocco	20'029	64.15	26.4	*95.7*	*98.0*	89.3
5 Tunisia	7'842	75.94	68.7	*99.0*	100.0	86.0
North	**83'865**	**53.39**	**48.1**	**95.8**	**96.5**	**81.0**
6 South Africa	42'300	87.08	25.3	*81.9*	99.8	90.1
South Africa	**42'300**	**87.08**	**25.3**	**81.9**	**99.8**	**90.1**
7 Angola	3'307	19.43	88.2	*95.0*	*40.0*	*95.8*
8 Benin	1'895	20.98	54.0	*98.2*	70.0	94.5
9 Botswana	1'427	75.84	26.2	*97.1*	*99.0*	*85.7*
10 Burkina Faso	1'611	10.90	70.7	*99.2*	*61.1*	*91.5*
11 Burundi	250	2.94	36.9	...	*82.0*	*85.1*
12 Cameroon	4'536	24.45	45.3	*97.5*	*58.0*	*96.0*
13 Cape Verde	148	27.90	28.1	*99.5*	*87.0*	*60.3*
14 Central African Rep.	130	2.99	59.5	...	*19.3*	*90.2*
15 Chad	918	8.52	93.1	*100.0*	*24.0*	*97.3*
16 Comoros	40	4.77	...	*98.6*	*40.0*	*65.9*
17 Congo	1'334	35.40	43.2	*99.0*	*53.0*	*96.9*
18 Congo (Dem. Rep.)	6'592	10.52	63.7	*98.3*	50.0	*99.8*
19 Côte d'Ivoire	7'050	36.60	47.0	*98.0*	*59.0*	*94.0*
20 Djibouti	45	5.40	24.6	*100.0*	*75.0*	*80.3*
21 Equatorial Guinea	220	43.35	47.0	*97.5*	...	*90.6*
22 Eritrea	70	1.44	...	*100.0*	*50.0*	*62.3*
23 Ethiopia	1'208	1.45	88.8	*87.2*	*10.0*	57.9
24 Gabon	1'169	87.86	33.2	*98.1*	*78.0*	*95.4*
25 Gambia	796	46.58	51.4	...	85.0	91.2
26 Ghana	7'604	32.39	81.4	*99.7*	68.0	95.3
27 Guinea	*189*	*2.36*	*27.7*	...	*80.0*	*87.8*
28 Guinea-Bissau	296	17.48	...	*95.7*	*65.0*	98.5
29 Kenya	11'440	30.48	57.3	*98.3*	*92.0*	97.7
30 Lesotho	456	22.71	27.0	*85.6*	*55.0*	*87.1*
31 Liberia	563	15.01	...	...	*16.4*	...
32 Madagascar	2'218	11.27	68.6	*92.3*	*23.0*	94.3
33 Malawi	1'051	7.55	65.0	*97.2*	*93.0*	85.7
34 Mali	2'483	20.13	122.1	*98.8*	*20.0*	96.7
35 Mauritania	1'300	41.62	39.4	*96.0*	*54.0*	*96.8*
36 Mauritius	936	74.19	21.9	*91.4*	*99.8*	*68.4*
37 Mozambique	3'300	15.42	66.9	*80.0*	*44.0*	*97.2*
38 Namibia	800	38.58	39.8	*87.6*	95.0	85.3
39 Niger	900	6.33	73.3	*92.4*	*45.0*	*93.1*
40 Nigeria	40'396	27.28	91.5	*99.0*	*60.0*	86.0
41 Rwanda	679	6.98	52.5	*98.9*	*80.0*	*95.0*
42 S. Tomé & Principe	30	19.09	72.3	*98.5*	19.0	79.7
43 Senegal	4'123	33.31	49.4	99.2	85.0	93.9
44 Seychelles	77	89.23	11.6	*74.6*	98.0	79.0
45 Sierra Leone	776	13.23	63.2	...	*70.0*	...
46 Somalia	600	6.90	43.1	*100.0*	...	85.7
47 Sudan	7'464	19.36	108.2	100.0	*35.0*	95.6
48 Swaziland	380	33.29	41.1	*95.0*	*90.0*	*85.0*
49 Tanzania	8'252	20.40	68.5	*97.5*	65.0	97.2
50 Togo	1'190	18.08	47.6	*100.0*	86.0	*89.6*
51 Uganda	4'195	13.58	60.5	*95.0*	80.0	96.3
52 Zambia	2'639	22.14	80.1	*99.4*	50.0	96.6
53 Zimbabwe	1'226	9.18	29.3	*79.1*	75.0	78.1
Sub-Saharan	**138'310**	**18.28**	**64.2**	**97.4**	**54.0**	**91.1**
AFRICA	**264'475**	**27.48**	**48.1**	**93.8**	**63.6**	**87.4**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

9. Mobile prepaid cellular tariffs

	Connection charge (US$) 2007	*Average cost per minute (US$)*		*Cost of a local SMS (US$) 2007*	*100 minutes of use*		*OECD low user basket as a % of GNI per capita*
		Peak 2007	*Off-peak 2007*		*(US$) 2007*	*As a % of GNI per capita*	
1 Algeria	7.22	0.14	0.14	0.07	14.43	5.72	2.98
2 Egypt	1.25	0.14	0.12	0.05	12.99	11.55	6.33
3 Libya	3.97	0.15	0.15	0.08	15.08	2.45	1.24
4 Morocco	1.22	0.45	0.45	0.12	44.77	28.28	12.59
5 Tunisia	3.91	0.16	0.13	0.05	14.58	5.89	2.67
North	**3.51**	**0.21**	**0.20**	**0.07**	**20.37**	**10.78**	**5.16**
6 South Africa	28.23	0.40	0.22	0.11	31.21	6.96	3.11
South Africa	**28.23**	**0.40**	**0.22**	**0.11**	**31.21**	**6.96**	**3.11**
7 Angola	23.46	0.31	0.22	0.09	26.59	16.12	7.09
8 Benin	31.30	0.33	0.26	0.05	29.56	65.69	23.65
9 Botswana	3.26	0.29	0.14	0.04	21.38	4.35	1.73
10 Burkina Faso	…	0.45	0.37	0.06	41.10	107.23	41.54
11 Burundi	6.93	0.18	0.18	…	18.49	221.84	…
12 Cameroon	5.22	0.42	0.25	0.10	33.38	37.09	16.41
13 Cape Verde	24.82	0.29	0.22	0.12	25.24	14.22	7.50
14 Central African Rep.	24.62	0.21	0.21	…	20.87	69.55	…
15 Chad	8.35	0.46	0.40	0.05	43.12	107.80	41.24
16 Comoros	69.55	0.26	0.26	0.14	25.50	46.37	24.58
17 Congo	3.00	0.46	0.34	0.10	39.99	50.52	21.34
18 Congo (Dem. Rep.)	3.11	0.09	0.05	0.08	7.04	64.97	2.98
19 Côte d'Ivoire	2.09	0.28	0.28	0.10	27.82	38.37	18.32
20 Djibouti	5.63	0.17	0.11	0.08	14.07	15.92	8.49
21 Equatorial Guinea	20.87	0.41	0.41	0.10	41.03	5.97	2.78
22 Eritrea	…	...	...	…	…	…	…
23 Ethiopia	41.13	0.08	0.06	0.04	7.26	48.42	24.46
24 Gabon	4.17	0.41	0.32	0.05	36.69	8.81	3.38
25 Gambia	…	...	...	…	…	…	…
26 Ghana	1.60	0.15	0.11	0.04	13.40	30.93	13.53
27 Guinea	…	0.06	0.06	0.03	5.76	16.87	8.44
28 Guinea-Bissau	10.13	0.33	0.19	0.10	26.16	165.25	73.31
29 Kenya	4.44	0.42	0.42	0.07	42.34	87.59	37.11
30 Lesotho	7.08	0.41	0.23	0.11	31.91	37.18	16.55
31 Liberia	…	...	...	…	…	…	…
32 Madagascar	1.87	0.37	0.19	0.04	28.12	120.53	44.87
33 Malawi	2.79	0.26	0.18	0.10	22.17	156.52	76.08
34 Mali	6.26	0.30	0.28	0.16	28.79	78.53	41.32
35 Mauritania	1.85	0.25	0.20	0.03	22.17	35.95	14.23
36 Mauritius	3.99	0.10	0.10	0.02	9.84	2.17	0.91
37 Mozambique	0.77	0.24	0.15	0.07	19.49	68.77	31.35
38 Namibia	6.95	0.39	0.27	0.06	33.26	12.36	4.98
39 Niger	3.13	0.38	0.36	0.06	37.21	171.74	71.00
40 Nigeria	3.02	0.50	0.48	0.06	49.15	92.15	36.51
41 Rwanda	3.17	0.27	0.19	0.10	23.32	111.94	56.18
42 S. Tomé & Principe	…	0.18	0.18	0.07	17.73	26.59	13.19
43 Senegal	5.22	0.26	0.22	0.04	23.99	38.39	14.88
44 Seychelles	29.85	0.48	0.20	0.07	34.07	4.73	1.87
45 Sierra Leone	1.67	0.46	0.46	0.06	45.56	227.79	90.93
46 Somalia	…	0.12	0.12	0.02	12.39	…	…
47 Sudan	7.43	0.07	0.07	0.04	7.43	11.00	0.58
48 Swaziland	4.26	0.31	0.23	0.11	26.95	13.31	6.43
49 Tanzania	0.24	0.26	0.22	0.04	24.06	82.50	33.37
50 Togo	…	0.47	0.47	0.09	46.74	160.24	56.47
51 Uganda	2.86	0.28	0.20	0.03	24.00	96.00	36.66
52 Zambia	0.12	0.45	0.29	0.07	37.06	70.59	28.52
53 Zimbabwe	…		…	…		…	…
Sub-Saharan	**10.16**	**0.30**	**0.24**	**0.07**	**26.80**	**67.69**	**26.37**
AFRICA	**9.82**	**0.29**	**0.23**	**0.07**	**26.23**	**60.49**	**23.56**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU.

10. Telecommunication staff

		Total telecommunication staff				*Mobile staff*	
		Total (000s) 2006	*CAGR (%) 2001 - 06*	*female (%) 2006*	*Subscribers per employee 2006*	*Total (000s) 2006*	*Subscribers per employee 2006*
1	Algeria	102.9	41.9	25.0	232	6.97	3'014
2	Egypt	59.5	1.7	23.1	484	5.99	3'007
3	Libya	2.8	...	...	...	1.08	3'637
4	Morocco	*13.0*	*-7.2*	...	*821*	...	...
5	Tunisia	9.4	4.9	28.9	915	...	...
	North	**187.6**	**13.9**	**24.5**	**389**	**14.03**	**3'059**
6	South Africa	*33.8*	*-7.4*	...	*1'145*	*8.20*	*4'141*
	South Africa	**33.8**	**-7.4**	**...**	**1'145**	**8.20**	**4'141**
7	Angola	*2.9*	*7.8*	*27.7*	*586*	...	...
8	Benin	1.4	2.4	22.1	816	0.09	11'231
9	Botswana	1.1	-9.1	33.6	900	0.30	2'707
10	Burkina Faso	*1.6*	*6.3*	*11.3*	*440*	*0.37*	*1'722*
11	Burundi	*0.5*	*1.2*	*31.5*	*234*	*0.20*	*516*
12	Cameroon	3.1	7.0	32.4	1'050	1.06	2'950
13	Cape Verde	0.4	-2.2	30.2	434	-	6'804
14	Central African Rep.	0.4	0.7	17.0	293	...	...
15	Chad	*0.6*	*-3.5*	...	*127*	...	...
16	Comoros	0.5	33.6	...	109	...	...
17	Congo	...	...	...	...	...	...
18	Congo (Dem. Rep.)	*1.9*	...	...	*1'428*	*1.36*	*2'027*
19	Côte d'Ivoire	3.0	-4.8	35.0	1'442	1.69	2'403
20	Djibouti	*0.6*	*2.7*	...	*56*	-	*2'299*
21	Equatorial Guinea	...	...	...	...	...	...
22	Eritrea	1.1	17.9	36.4	92	0.08	765
23	Ethiopia	11.2	8.8	30.9	142	...	...
24	Gabon	*2.2*	*23.4*	*37.6*	*244*	*0.48*	*1'015*
25	Gambia	*1.1*	*16.0*	*24.3*	*124*	...	...
26	Ghana	*5.7*	*9.4*	*15.8*	*563*	*1.26*	*2'280*
27	Guinea	*0.8*	*-3.2*	*32.8*	*150*	*0.05*	*1'681*
28	Guinea-Bissau	...	...	...	...	...	...
29	Kenya	9.3	-13.7	25.1	824	1.74	4'221
30	Lesotho	*0.3*	*-6.4*	...	*1'111*	*0.12*	*2'064*
31	Liberia	...	...	...	...	...	...
32	Madagascar	3.0	3.7	23.8	394	0.68	240
33	Malawi	*3.2*	*1.2*	*10.7*	*49*	*0.53*	*164*
34	Mali	1.8	5.6	...	892	...	...
35	Mauritania	0.9	3.2	...	1'272	0.35	3'046
36	Mauritius	*2.1*	*2.6*	*24.2*	*492*	*1.18*	*393*
37	Mozambique	2.5	1.2	30.0	980	0.71	3'286
38	Namibia	*1.4*	*-5.0*	...	*435*	*0.16*	*938*
39	Niger	*1.1*	*-5.6*	...	*328*	...	...
40	Nigeria	*15.8*	*17.0*	...	*256*	*4.70*	*670*
41	Rwanda	0.6	10.1	26.7	585	0.15	2'054
42	S. Tomé & Principe	0.1	-2.4	21.1	303	...	...
43	Senegal	1.9	4.3	...	1'701	0.31	9'747
44	Seychelles	...	...	...	...	...	...
45	Sierra Leone	...	...	...	...	...	...
46	Somalia	...	...	...	...	...	...
47	Sudan	*3.8*	*6.2*	...	*624*	*0.80*	*2'279*
48	Swaziland	*0.5*	*0.6*	...	*279*	...	...
49	Tanzania	*3.5*	*-1.6*	*30.4*	*219*	...	...
50	Togo	1.2	2.8	...	635	0.34	2'058
51	Uganda	*5.5*	*23.1*	...	*255*	...	...
52	Zambia	*3.2*	*1.2*	*28.6*	*175*	...	...
53	Zimbabwe	3.1	-5.2	17.0	381	0.68	1'247
	Sub-Saharan	**104.7**	**1.4**	**26.1**	**500**	**19.43**	**1'951**
	AFRICA	**326.1**	**6.2**	**25.0**	**504**	**41.66**	**2'755**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

11. Telecommunication revenue

		Total US$ (M) 2006	*Mobile % 2006*	*Per inhabitant (US$) 2006*	*Per telephone subscriber (US$) 2006*	*Per employee (US$) 2006*	*As a % of GDP 2006*
1	Algeria	3'803.9	57.0	114.0	160	36'954	3.3
2	Egypt	4'087.7	59.4	54.2	142	68'719	3.8
3	Libya	...	...	...	...	...	...
4	Morocco	2'958.7	74.6	96.3	171	...	5.2
5	Tunisia	1'341.2	66.1	131.4	156	142'618	4.3
	North	**12'191.5**	**63.1**	**81.4**	**155**	**53'734**	**3.9**
6	South Africa	*15'498.2*	*69.2*	*326.7*	*401*	*458'866*	...
	South Africa	**15'498.2**	**69.2**	**326.7**	**401**	**458'866**	**...**
7	Angola	*620.5*	*82.4*	*39.9*	*363*	*213'086*	*2.1*
8	Benin	74.8	14.3	8.6	66	53'882	1.6
9	Botswana	277.7	54.4	157.8	289	260'273	2.8
10	Burkina Faso	228.8	57.8	16.8	206	...	3.7
11	Burundi	...	...	...	...	...	...
12	Cameroon	565.2	83.8	34.0	173	181'680	3.2
13	Cape Verde	83.2	37.5	160.4	461	199'962	8.0
14	Central African Rep.	*14.8*	...	*3.7*	*134*	*36'969*	...
15	Chad	...	...	...	...	...	...
16	Comoros	29.7	...	36.3	531	57'720	...
17	Congo	*123.9*	...	*32.5*	*312*	...	...
18	Congo (Dem. Rep.)	543.4	99.8	9.2	123	...	...
19	Côte d'Ivoire	956.2	68.1	51.8	221	318'741	5.4
20	Djibouti	*34.1*	*24.1*	*49.3*	*622*	...	...
21	Equatorial Guinea	...	...	...	...	...	...
22	Eritrea	31.0	45.8	6.8	312	28'635	...
23	Ethiopia	337.7	27.9	4.3	212	30'059	3.1
24	Gabon	*146.9*	*36.1*	*106.1*	*212*	...	...
25	Gambia	*29.8*	*43.9*	*22.5*	*216*	*26'786*	...
26	Ghana	*128.0*	*9.6*	*6.2*	*193*	*26'475*	...
27	Guinea	...	...	...	...	...	...
28	Guinea-Bissau	...	...	...	...	...	...
29	Kenya	912.1	70.6	26.0	119	98'495	4.0
30	Lesotho	*13.9*	*57.1*	*7.7*	*84*	*38'849*	...
31	Liberia	...	...	...	...	...	...
32	Madagascar	155.1	70.9	8.1	132	51'949	2.8
33	Malawi	*93.0*	*43.1*	*7.2*	*175*	...	*4.5*
34	Mali	304.3	83.7	21.9	191	170'174	5.1
35	Mauritania	155.9	65.1	49.4	142	181'077	...
36	Mauritius	228.5	44.4	181.9	202	...	3.5
37	Mozambique	86.9	...	4.3	36	35'407	1.3
38	Namibia	*273.8*	...	*136.1*	*661*	...	*4.8*
39	Niger	*74.2*	*62.2*	*5.3*	*213*	*69'860*	...
40	Nigeria	*3'430.3*	*83.3*	*26.1*	*173*	...	*3.1*
41	Rwanda	*48.2*	*59.1*	*5.7*	*309*	...	...
42	S. Tomé & Principe	11.2	50.6	69.8	430	129'964	...
43	Senegal	839.6	46.0	70.3	257	437'273	9.1
44	Seychelles	63.4	...	779.6	696	...	...
45	Sierra Leone	...	...	...	...	...	...
46	Somalia	...	...	...	...	...	...
47	Sudan	2'843.4	29.1	76.9	562	...	...
48	Swaziland	*321.2*	*45.7*	*310.9*	*1'366*	...	...
49	Tanzania	*221.4*	*49.5*	*6.1*	*288*	*63'005*	*2.3*
50	Togo	153.8	59.8	24.4	195	123'668	7.0
51	Uganda	*287.3*	...	*10.0*	*205*	*52'137*	...
52	Zambia	273.5	...	23.1	156	...	...
53	Zimbabwe	...	...	...	...	...	...
	Sub-Saharan	**15'016.6**	**61.0**	**23.2**	**212**	**102'454**	**3.5**
	AFRICA	**42'706.3**	**64.7**	**50.5**	**227**	**116'149**	**3.7**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

12. Telecommunication investment

		Telecommunication investment				
		Total US$ (M) 2006	*Per inhabitant (US$) 2006*	*Per telephone subscriber (US$) 2006*	*As a % of revenue 2006*	*As a % of GFCF 2006*
1	Algeria	...	...	...	...	...
2	Egypt	2'676.2	35.5	92.9	65.5	13.3
3	Libya	...	...	...	...	...
4	Morocco	*463.5*	*15.3*	*33.7*	*16.5*	*3.5*
5	Tunisia	311.8	30.5	36.2	23.2	...
	North	**3'451.5**	**29.8**	**67.5**	**41.9**	**9.4**
6	South Africa	*871.2*	*18.6*	*40.2*	*9.8*	*3.3*
	South Africa	**871.2**	**18.6**	**40.2**	**9.8**	**3.3**
7	Angola	*157.0*	*10.1*	*91.9*	*25.3*	...
8	Benin	3.9	0.4	3.4	5.2	...
9	Botswana	404.0	229.6	420.8	145.5	22.7
10	Burkina Faso	202.6	14.9	182.3	88.6	16.9
11	Burundi	...	...	...	...	...
12	Cameroon	211.4	12.7	64.7	37.4	7.1
13	Cape Verde	15.9	30.7	88.1	19.1	...
14	Central African Rep.	*0.1*	-	*5.3*	*1.1*	*0.1*
15	Chad	...	...	...	...	...
16	Comoros	*4.2*	*5.5*	*408.7*	*42.1*	...
17	Congo	...	...	...	...	...
18	Congo (Dem. Rep.)	...	...	...	...	...
19	Côte d'Ivoire	382.5	20.7	88.4	40.0	...
20	Djibouti	*12.4*	*18.2*	*272.1*	*37.6*	...
21	Equatorial Guinea	...	...	...	...	...
22	Eritrea	16.5	3.6	165.4	53.0	...
23	Ethiopia	60.2	0.8	37.8	17.8	...
24	Gabon	*18.2*	*13.2*	*26.4*	*12.4*	*1.0*
25	Gambia	*3.7*	*2.8*	*26.5*	*12.3*	...
26	Ghana	*59.4*	*2.9*	*89.8*	*46.4*	...
27	Guinea	...	...	...	...	...
28	Guinea-Bissau	...	...	...	...	...
29	Kenya	792.9	22.6	103.9	86.9	18.5
30	Lesotho	*1.7*	*1.0*	*5.9*	...	*0.3*
31	Liberia	...	...	...	...	...
32	Madagascar	50.8	2.7	43.2	32.8	3.5
33	Malawi	...	...	...	...	...
34	Mali	93.9	6.7	58.9	30.9	...
35	Mauritania	29.9	9.5	27.3	19.2	...
36	Mauritius	*35.7*	*28.7*	*35.2*	*12.9*	*2.7*
37	Mozambique	21.4	1.1	8.9	24.6	1.6
38	Namibia	*20.4*	*10.1*	*34.8*	...	...
39	Niger	...	...	...	...	...
40	Nigeria	*386.9*	*3.1*	*95.8*	...	*5.8*
41	Rwanda	...	...	...	...	...
42	S. Tomé & Principe	1.1	6.9	42.6	9.9	...
43	Senegal	183.6	15.4	56.2	21.9	...
44	Seychelles	12.8	158.0	141.1	20.3	...
45	Sierra Leone	...	...	...	...	...
46	Somalia	...	...	...	...	...
47	Sudan	*128.5*	*3.9*	*148.9*	*70.7*	...
48	Swaziland	*27.6*	*26.5*	*210.6*	*13.2*	*11.7*
49	Tanzania	...	...	...	...	...
50	Togo	67.4	10.7	85.4	43.8	...
51	Uganda	*67.3*	*2.3*	*48.0*	*23.4*	*3.2*
52	Zambia	*42.5*	*3.7*	*76.4*	*29.3*	...
53	Zimbabwe	...	...	...	...	...
	Sub-Saharan	**3'516.6**	**7.0**	**81.9**	**42.5**	**8.6**
	AFRICA	**7'839.3**	**11.8**	**67.7**	**30.4**	**7.3**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.

Source: ITU World Telecommunication/ICT Indicators Database.

13. ISDN and DSL

		ISDN subscribers (000s) 2006	*B chanel equivalents (000s)* 2006	*B chanel per 1000 inhabitants* 2006	*B chanel as % of main lines* 2006	*DSL Subscribers* *Total (000)s* 2006	*DSL Subscribers* *As % of subscriber lines* 2006
1	Algeria	...	...	...	...	170.0	...
2	Egypt	25.8	132.7	1.76	1.23	205.7	...
3	Libya	...	...	...	...	9.6	...
4	Morocco	*10.7*	*45.5*	*1.50*	*3.39*	390.8	...
5	Tunisia	2.6	9.5	0.93	0.75	45.5	...
	North	**39.1**	**187.7**	**1.62**	**1.40**	**821.7**	**...**
6	South Africa	...	...	...	...	335.1	...
	South Africa	**...**	**...**	**...**	**...**	**335.1**	**...**
7	Angola	...	...	...	...	...	...
8	Benin	...	...	...	...	*0.2*	*0.21*
9	Botswana	...	...	...	...	...	...
10	Burkina Faso	*0.1*	*1.2*	*0.09*	*1.41*	1.7	...
11	Burundi	...	...	...	...	...	...
12	Cameroon	*0.8*	...	...	...	*0.2*	*0.20*
13	Cape Verde	1.5	4.0	7.77	5.63	1.8	...
14	Central African Rep.	...	...	...	...	...	...
15	Chad	...	...	...	...	...	...
16	Comoros	...	...	...	...	...	...
17	Congo	...	...	...	...	...	...
18	Congo (Dem. Rep.)	...	...	...	...	...	...
19	Côte d'Ivoire	*2.8*	*14.9*	*0.88*	*5.79*	10.0	...
20	Djibouti	...	...	...	...	...	...
21	Equatorial Guinea	...	...	...	...	*0.2*	*1.80*
22	Eritrea	...	...	...	...	...	...
23	Ethiopia	*0.1*	*0.5*	-	*0.11*	*0.1*	-
24	Gabon	-	-	-	-	1.5	...
25	Gambia	-	*0.1*	*0.06*	*0.21*	-	*0.10*
26	Ghana	0.1	0.7	-	0.20	6.2	...
27	Guinea	...	...	...	...	...	...
28	Guinea-Bissau	...	...	...	...	...	...
29	Kenya	2.3	11.4	0.32	3.88	...	...
30	Lesotho	...	...	...	...	...	...
31	Liberia	...	...	...	...	...	...
32	Madagascar	0.4	...	...	...	1.3	...
33	Malawi	...	...	...	...	...	...
34	Mali	-	...	...	...	3.1	...
35	Mauritania	-	...	...	...	0.7	...
36	Mauritius	-	...	...	...	*10.4*	*2.92*
37	Mozambique	*1.1*	*5.6*	*0.28*	*8.08*	...	...
38	Namibia	...	...	...	...	...	...
39	Niger	...	...	...	...	...	...
40	Nigeria	...	...	...	...	*0.5*	-
41	Rwanda	0.1	...	...	...	...	...
42	S. Tomé & Principe	0.1	...	...	...	0.1	...
43	Senegal	...	...	...	...	28.9	...
44	Seychelles	0.3	...	...	...	0.7	...
45	Sierra Leone	...	...	...	...	...	...
46	Somalia	*0.4*	*0.8*	*0.10*	*0.80*	...	...
47	Sudan	...	...	...	...	4.2	...
48	Swaziland	*0.3*	*0.8*	*0.75*	*2.21*	...	...
49	Tanzania	-	0.1	-	0.08	...	...
50	Togo	0.8	2.3	0.36	2.75	...	...
51	Uganda	0.4	...	...	...	0.3	...
52	Zambia	...	...	...	...	*0.1*	*0.07*
53	Zimbabwe	...	...	...	...	0.4	...
	Sub-Saharan	**11.7**	**42.4**	**0.14**	**1.52**	**72.7**	**0.31**
	AFRICA	**50.8**	**230.0**	**0.55**	**1.42**	**1'229.5**	**0.31**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

14. Internet

		Internet				Fixed broadband subscribers	
		Subscribers (000s) 2007	*Subscribers per 100 inhab. 2007*	*Users (000s) 2007*	*Users per 100 inhab. 2007*	*Total (000s) 2007*	*Per 100 inhab. 2007*
1	Algeria	*190.0*	*0.58*	3'500.0	10.34	*170.0*	*0.51*
2	Egypt	1'322.4	1.75	8'620.0	11.42	427.1	0.57
3	Libya	*82.5*	*1.38*	*260.0*	*4.36*	*9.6*	*0.16*
4	Morocco	483.4	1.55	7'300.0	23.38	477.4	1.53
5	Tunisia	253.1	2.45	1'722.2	16.68	114.2	1.11
	North	**2'331.3**	**1.50**	**21'402.2**	**13.64**	**1'198.3**	**0.77**
6	South Africa	*4'279.2*	*9.02*	*5'100.0*	*10.75*	*335.1*	*0.70*
	South Africa	**4'279.2**	**9.02**	**5'100.0**	**10.75**	**335.1**	**0.70**
7	Angola	*45.0*	*0.29*	*95.0*	*0.60*	-	-
8	Benin	8.1	0.09	150.0	1.66	2.0	0.02
9	Botswana	...	...	*80.0*	*4.55*	*1.8*	*0.10*
10	Burkina Faso	*9.2*	*0.07*	*80.0*	*0.59*	*1.7*	*0.01*
11	Burundi	...	...	*60.0*	*0.77*	-	-
12	Cameroon	*15.0*	*0.09*	*370.0*	*2.23*	*0.2*	-
13	Cape Verde	*7.5*	*1.44*	*33.0*	*6.36*	*1.8*	*0.35*
14	Central African Rep.	*2.5*	*0.06*	*13.0*	*0.32*	-	-
15	Chad	*2.5*	*0.03*	*60.0*	*0.60*	-	-
16	Comoros	*1.8*	*0.21*	*21.0*	*2.56*	-	-
17	Congo	*1.0*	*0.03*	*70.0*	*1.70*	-	-
18	Congo (Dem. Rep.)	47.6	0.08	230.4	0.37	1.5	-
19	Côte d'Ivoire	*18.0*	*0.10*	*300.0*	*1.63*	*10.0*	*0.05*
20	Djibouti	*3.5*	*0.50*	*11.0*	*1.36*	-	*0.01*
21	Equatorial Guinea	*1.2*	*0.24*	*8.0*	*1.55*	*0.2*	*0.04*
22	Eritrea	*5.2*	*0.11*	*100.0*	*2.19*	-	-
23	Ethiopia	31.4	0.04	291.0	0.35	0.3	-
24	Gabon	*10.1*	*0.72*	*81.0*	*5.76*	*1.8*	*0.13*
25	Gambia	*2.1*	*0.14*	100.2	5.87	*0.1*	-
26	Ghana	23.4	0.10	650.0	2.77	14.1	0.06
27	Guinea	*11.0*	*0.14*	*50.0*	*0.52*	-	-
28	Guinea-Bissau	...	...	*37.0*	*2.26*	-	-
29	Kenya	*186.8*	*0.53*	*2'770.3*	*7.89*	*17.7*	*0.05*
30	Lesotho	*2.6*	*0.14*	*51.5*	*2.87*	-	-
31	Liberia	...	...	-	...	-	-
32	Madagascar	*19.9*	*0.10*	*110.0*	*0.58*	-	-
33	Malawi	85.0	0.61	139.5	1.00	1.6	0.01
34	Mali	7.0	0.06	100.0	0.81	3.2	0.03
35	Mauritania	*4.0*	*0.13*	*30.0*	*0.95*	*1.0*	*0.03*
36	Mauritius	*137.5*	*10.95*	*320.0*	*25.48*	*21.9*	*1.74*
37	Mozambique	...	...	*178.0*	*0.90*	-	-
38	Namibia	90.0	4.34	101.0	4.87	0.3	0.01
39	Niger	*3.6*	*0.03*	*40.0*	*0.28*	*0.2*	-
40	Nigeria	*2'000.0*	*1.52*	10'000.0	6.75	*0.5*	-
41	Rwanda	*4.3*	*0.05*	*100.0*	*1.08*	*1.7*	*0.02*
42	S. Tomé & Principe	*2.7*	*1.69*	23.0	14.59	2.5	1.60
43	Senegal	39.1	0.32	820.0	6.62	38.1	0.31
44	Seychelles	5.5	6.31	*29.0*	*35.67*	3.0	3.51
45	Sierra Leone	...	...	*10.0*	*0.19*	-	...
46	Somalia	*9.0*	*0.11*	*94.0*	*1.11*	-	-
47	Sudan	...	...	1'500.0	3.89	3.5	0.01
48	Swaziland	*7.0*	*0.68*	*42.0*	*4.08*	-	-
49	Tanzania	*50.0*	*0.14*	*384.3*	*1.00*	-	-
50	Togo	*12.5*	*0.25*	*320.0*	*5.07*	1.2	0.02
51	Uganda	15.5	0.05	2'000.0	6.48	1.9	0.01
52	Zambia	12.6	0.11	500.0	4.19	*2.3*	*0.02*
53	Zimbabwe	99.5	0.75	1'351.0	10.12	15.2	0.11
	Sub-Saharan	**3'039.9**	**0.48**	**23'904.2**	**3.23**	**151.5**	**0.02**
	AFRICA	**9'650.4**	**1.14**	**50'406.4**	**5.34**	**1'684.8**	**0.18**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database (Internet host data: Network Wizards, RIPE).

15. Internet and bandwidth

		Internet subscribers (000s) 2007	*Fixed broadband subscribers*			*International bandwidth*	
			Total (000s) 2007	*As % of total Internet subs. 2007*	*per 100 inhab. 2007*	*Total (Mbps) 2007*	*Bits per inhabitant 2007*
1	Algeria	*190.0*	*170.0*	*71.1*	*0.51*	3'000.0	88.6
2	Egypt	1'322.4	427.1	32.3	0.57	14'866.0	196.9
3	Libya	*82.5*	*9.6*	*11.7*	*0.16*	*124.4*	*20.8*
4	Morocco	483.4	477.4	98.8	1.53	*11'500.0*	*374.2*
5	Tunisia	253.1	114.2	45.1	1.11	3'100.0	300.2
	North	**2'331.3**	**1'198.3**	**49.9**	**0.77**	**32'590.4**	**208.4**
6	South Africa	*4'279.2*	*335.1*	*3.9*	*0.70*	3'380.0	69.6
	South Africa	**4'279.2**	**335.1**	**3.9**	**0.70**	**3'380.0**	**69.6**
7	Angola	*45.0*	-	-	-	*191.0*	*12.1*
8	Benin	8.1	2.0	24.8	0.02	155.0	17.2
9	Botswana	...	*1.8*	...	*0.10*	*30.0*	*17.0*
10	Burkina Faso	*9.2*	*1.7*	*18.6*	*0.01*	*215.0*	*15.8*
11	Burundi	...	-	...	-	*4.0*	*0.5*
12	Cameroon	*15.0*	*0.2*	*1.3*	-	*155.0*	*9.5*
13	Cape Verde	*7.5*	*1.8*	*24.3*	*0.35*	*24.0*	*46.3*
14	Central African Rep.	*2.5*	-	-	-	*1.5*	*0.4*
15	Chad	*2.5*	-	-	-	*5.5*	*0.5*
16	Comoros	*1.8*	-	*0.3*	-	*7.0*	*8.5*
17	Congo	*1.0*	-	-	-	*1.0*	*0.3*
18	Congo (Dem. Rep.)	47.6	1.5	3.2	-	10.0	0.2
19	Côte d'Ivoire	*18.0*	*10.0*	*6.9*	*0.05*	*310.0*	*16.8*
20	Djibouti	*3.5*	-	*1.2*	*0.01*	*45.0*	*65.0*
21	Equatorial Guinea	*1.2*	*0.2*	*15.0*	*0.04*	*16.8*	*33.4*
22	Eritrea	*5.2*	-	-	-	*8.0*	*1.8*
23	Ethiopia	31.4	0.3	1.0	-	*118.0*	*1.5*
24	Gabon	*10.1*	*1.8*	*17.5*	*0.13*	*200.0*	*142.2*
25	Gambia	*2.1*	*0.1*	*3.4*	-	62.0	36.3
26	Ghana	23.4	14.1	60.4	0.06	*510.0*	*22.6*
27	Guinea	*11.0*	-	-	-	*2.0*	*0.2*
28	Guinea-Bissau	...	-	...	-	*2.0*	*1.2*
29	Kenya	*186.8*	*17.7*	*9.5*	*0.05*	*758.6*	*21.6*
30	Lesotho	*2.6*	-	*1.8*	-	*4.3*	*2.4*
31	Liberia	...	-	...	-	...	...
32	Madagascar	*19.9*	-	-	-	150.0	7.6
33	Malawi	85.0	1.6	1.9	0.01	67.0	4.8
34	Mali	7.0	3.2	45.7	0.03	213.0	17.3
35	Mauritania	*4.0*	*1.0*	*24.0*	*0.03*	*90.0*	*28.5*
36	Mauritius	*137.5*	*21.9*	*15.9*	*1.74*	*192.0*	*152.9*
37	Mozambique	...	-	...	-	*72.0*	*3.6*
38	Namibia	90.0	0.3	0.3	0.01	56.0	27.0
39	Niger	*3.6*	*0.2*	*5.9*	-	*30.0*	*2.1*
40	Nigeria	*2'000.0*	*0.5*	-	-	*150.0*	*1.1*
41	Rwanda	*4.3*	*1.7*	*40.0*	*0.02*	*70.0*	*7.6*
42	S. Tomé & Principe	*2.7*	2.5	*71.2*	*1.60*	12.0	76.1
43	Senegal	39.1	38.1	97.5	0.31	1'705.0	137.7
44	Seychelles	5.5	3.0	55.7	3.51	42.0	485.0
45	Sierra Leone	...	...	...	...	...	...
46	Somalia	*9.0*	-	-	-	*3.0*	*0.4*
47	Sudan	...	3.5	...	*0.01*	430.0	11.2
48	Swaziland	*7.0*	-	-	-	*1.0*	*1.0*
49	Tanzania	*50.0*	-	-	-	*100.0*	*2.6*
50	Togo	*12.5*	1.2	-	*0.02*	*14.3*	*2.3*
51	Uganda	15.5	1.9	12.0	0.01	344.4	11.2
52	Zambia	12.6	*2.3*	*25.8*	0.02	37.0	3.1
53	Zimbabwe	99.5	15.2	15.3	0.11	57.0	4.3
	Sub-Saharan	**3'039.9**	**151.5**	**4.5**	**0.02**	**6'671.4**	**9.4**
	AFRICA	**9'650.4**	**1'684.8**	**15.2**	**0.20**	**42'641.8**	**46.6**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

16. Internet tariffs, 20 hours per month

	20 hour monthly Internet access prices, 2007, US$					
			Local call	*Total Internet price*		
	Connection fee	*Internet charges*	*charge*	*US$*	*capita*	*ISP*
1 Algeria	0.00	0.00	23.07	23.07	9.14	Algerie Telecom
2 Egypt		0.00	4.20	4.20	3.73	Telecom Egypt
3 Libya	…	…	…	…	…	…
4 Morocco*	0.00	15.62	0.00	15.62	9.86	Maroc Telecom
5 Tunisia*		11.59	0.00	11.59	4.68	Planet
North	**0.00**	**6.80**	**6.82**	**13.62**	**6.85**	
6 South Africa*	0.00	28.15	0.00	28.15	6.28	Telkom
South Africa	**0.00**	**28.15**	**0.00**	**28.15**	**6.28**	
7 Angola*		63.11	0.00	63.11	38.25	Angola Telecom
8 Benin	30.53	14.22	28.85	43.07	95.71	OPT
9 Botswana*	43.68	29.70	0.00	29.70	6.04	BTC
10 Burkina Faso		11.97	55.86	67.83	176.95	Onatel
11 Burundi		60.00	25.95	85.95	1031.42	USAN
12 Cameroon	50.72	19.27	29.04	48.31	53.68	Camtel
13 Cape Verde	24.67	27.63	20.69	48.32	27.22	CVT
14 Central African Rep.		130.42	0.00	130.42	434.73	SOCATEL
15 Chad		0.00	104.97	104.97	262.44	Sotel
16 Comoros	0.00	6.93	13.85	20.78	37.78	SNPT
17 Congo	…	…	…	…	…	…
18 Congo (Dem. Rep.)	…	…	…	…	…	…
19 Côte d'Ivoire	0.00	20.29	0.00	20.29	27.98	AVISO
20 Djibouti	29.61	41.45	0.00	41.45	46.93	Djibouti Telecom
21 Equatorial Guinea	…	…	…	…	…	…
22 Eritrea	…	…	…	…	…	…
23 Ethiopia	16.92	9.54	5.10	14.64	97.62	ETC
24 Gabon	23.95	0.00	109.60	109.60	26.30	Gabon Telecom
25 Gambia	…	…	…	…	…	…
26 Ghana	0.00	0.00	9.37	9.37	21.62	Ghana Telecom
27 Guinea	…	…	…	…	…	…
28 Guinea-Bissau	…	…	…	…	…	…
29 Kenya		13.18	50.72	63.91	132.22	Wananchi
30 Lesotho	62.70	13.50	64.04	77.54	90.34	ilesotho
31 Liberia	…	…	…	…	…	…
32 Madagascar	0.00	11.64	17.30	28.94	124.02	Wanadoo
33 Malawi		33.29	19.37	52.66	371.72	MalawiNet
34 Mali	0.00	0.00	43.21	43.21	117.86	SOTELMA
35 Mauritania*		37.32	0.00	37.32	60.52	Mauritel
36 Mauritius	0.00	16.43	0.00	16.43	3.62	Mauritius Telecom
37 Mozambique*	0.00	34.43	0.00	34.43	121.51	TDM
38 Namibia*	48.56	55.84	0.00	55.84	20.75	Telecom Namibia
39 Niger	20.29	84.50	0.00	84.50	390.01	Sonitel
40 Nigeria		40.82	0.00	40.82	76.54	Starcomms
41 Rwanda		0.00	79.74	79.74	382.75	Rwandatel
42 S. Tomé & Principe	33.39	0.00	39.44	39.44	59.16	CST
43 Senegal*	42.61	40.37	0.00	40.37	64.60	Sonatel
44 Seychelles*		59.45	0.00	59.45	8.25	Atlas
45 Sierra Leone	…	…	…	…	…	…
46 Somalia	…	…	…	…	…	…
47 Sudan		0.00	28.87	28.87	42.76	Sudatel
48 Swaziland		14.48	24.63	39.11	19.31	SPTC
49 Tanzania*	28.34	19.68	0.00	19.68	67.48	Raha
50 Togo	0.00	14.20	22.74	36.95	126.67	La Poste
51 Uganda	0.00	51.69	0.00	51.69	206.75	MTN
52 Zambia		30.63	47.94	78.57	149.65	Coppernet
53 Zimbabwe	…	…	…	…		…
Sub-Saharan	**20.73**	**27.94**	**23.37**	**51.31**	**139.48**	
AFRICA	**18.24**	**25.89**	**21.18**	**47.07**	**123.29**	

Note: * Tariffs refer to unlimited (usually ADSL) access since it is cheapter than the 20-hour dial-up tariff. For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.

Source: ITU World Telecommunication/ICT Indicators Database.

17. Broadband tariffs

		Lower speed		*Higher speed*		*Lowest sampled cost*		
		Monthly charge US$	*Speed (kbit/s) Down*	*Monthly charge US$*	*Speed (kbit/s) Down*	*US$ per 100 kbit/s*	*as a % of monthly income (GNI) per capita*	
	Type	*2007*	*2007*	*2007*	*2007*	*2007*		*ISP*
1 Algeria	ADSL	360.80	256	3'608.02	8'000	45.10	17.86	Wanadoo/Assila
2 Egypt	ADSL	17.03	256	17.03	256	6.65	5.91	Soficom
3 Libya (1)	ADSL	39.68	500	39.68	500	7.94	1.29	Libya Telecom
4 Morocco	ADSL	20.27	256	101.71	20'000	0.51	0.32	Menara
5 Tunisia	ADSL	33.59	256	92.97	1'024	9.08	3.67	Hexabyte Internet
North		**94.27**	**305**	**771.88**	**5'956**	**13.85**	**5.81**	
6 South Africa (2)	ADSL	28.23	384	58.58	4'096	1.43	0.32	Telkom
South Africa		**28.32**	**384**	**58.58**	**4'096**	**1.43**	**0.32**	
7 Angola	ADSL	116.39	256	175.05	512	34.19	20.72	Angola Telecom
8 Benin	ADSL	93.89	256	93.89	256	36.68	81.50	OPT
9 Botswana	ADSL	30.46	256	62.70	768	8.16	1.66	BTC
10 Burkina Faso	Leased Line	1'017.17	256	2'660.30	2'048	129.90	338.86	Onatel
11 Burundi	Wireless	1'654.64	256	1'654.64	256	646.34	7756.10	CBINET
12 Cameroon	ADSL	164.83	256	164.83	256	64.39	71.54	Camtel
13 Cape Verde (3)	ADSL	57.09	256	356.83	2'048	17.42	9.82	CV Telecom
14 Central African Rep.	Leased line	3'129.76	...	...	...	...	...	...
15 Chad		…	...	...	...	...	...	...
16 Comoros	ADSL	403.39	256	403.39	256	157.58	286.50	Comores Telecom
17 Congo		…	...	...	...	...	...	...
18 Congo (Dem. Rep.)			**...**	**...**	**...**	**...**	**...**	**...**
19 Côte d'Ivoire	ADSL	60.51	256	625.95	4'000	15.65	19.77	Aviso
20 Djibouti (4)	ADSL	225.07	256	337.61	512	65.94	74.65	Djibouti Telecom
21 Equatorial Guinea		…	...	...	...	...	...	...
22 Eritrea		…	...	...	...	...	...	...
23 Ethiopia	ADSL	681.12	256	4'634.53	2'000	231.73	1544.84	ETC
24 Gabon	ADSL	146.06	256	198.22	512	38.71	9.29	Gabon Telecom
25 Gambia	Wireless	150.00	256	250.00	512	48.83	189.01	QuantumNet
26 Ghana	ADSL	63.83	256	63.83	256	24.93	57.54	Ghana Telecom
27 Guinea		…	...	...	...	...	...	...
28 Guinea-Bissau		…	...	...	...	...	...	...
29 Kenya	ADSL	237.79	256	237.79	256	92.89	192.18	Telekom Kenya
30 Lesotho	ADSL	52.48	384	85.11	1'024	8.31	9.68	Telecom Lesotho
31 Liberia	ADSL	454.38	256	558.51	512	109.08	935.01	Libcom
32 Madagascar	ADSL	104.59	512	104.59	512	20.43	87.55	Wanadoo Madagascar
33 Malawi	Wireless	849.09	256	849.09	256	331.68	2341.24	SDNP
34 Mali	ADSL	75.11	256	75.11	256	29.34	80.02	Orange
35 Mauritania	ADSL	55.43	256	55.43	256	21.65	35.11	Mauritel
36 Mauritius	ADSL	38.01	512	38.01	512	7.42	1.63	Servihoo
37 Mozambique (5)	ADSL	93.53	256	210.44	2'000	10.52	37.14	TDM
38 Namibia (6)	Leased Line	49.50	256	155.89	1'024	15.22	5.66	Telecom Namibia
39 Niger			…	…	…	…	…	…
40 Nigeria (7)	ADSL	…	300	166.92	300	55.64	104.32	CyberSpace
41 Rwanda (8)	ADSL	90.63	256	90.63	256	35.40	169.93	Terracom
42 S. Tomé & Principe	ADSL	146.16	256	146.16	256	57.10	85.64	CST
43 Senegal	ADSL	41.52	512	150.23	2'000	7.51	12.02	Orange
44 Seychelles	ADSL	59.55	256	104.33	512	20.38	2.83	Atlas
45 Sierra Leone (9)	ADSL	195.00	1'000	295.00	2'000	14.75	73.75	Limeline
46 Somalia		…	...	...	...	...	...	...
47 Sudan	ADSL	49.50	**...**	**...**	**...**	**...**	**...**	**...**
48 Swaziland	ADSL	2'014.18	256	2'014.18	256	786.79	388.54	Real Image Internet
49 Tanzania (10)	ADSL	49.16	512	49.16	512	9.60	32.92	Raha
50 Togo	ADSL	94.94	256	94.94	256	37.08	127.15	Togo Telecom
51 Uganda	Leased Line	300.00	256	300.00	256	117.19	468.75	Uganda Telecom
52 Zambia	ADSL	224.86	256	224.86	256	87.84	167.31	ZamNet
53 Zimbabwe		…	…	…	…	…	…	…
Sub-Saharan		**368.60**	**311**	**505.38**	**790**	**97.04**	**452.00**	
Africa		**327.84**	**312.39**	**526.98**	**1'500.88**	**84.56**	**386.57**	

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified. (1) Libya Lower speed access has BitCap of 5 Gb. (2) South Africa Lower speed access has BitCap of 1 Gb. (3) Cape Verde Lower speed access has BitCap of 1Gb, High speed access has BitCap of 10 Gb. (4) Djibuti Lower speed access has BitCap of 5 Gb, High speed access has BitCap of 10 Gb. (5) Mozambique Lower speed access has BitCap of 7 Gb. (6) Namibia Lower speed access has BitCap of 1 Gb, High speed access has BitCap of 5 Gb. (7) Nigeria Lower speed access has BitCap of 4 Gb. (8) Rwanda Lower speed access has BitCap of 4 Gb. (9)Sierra Leone Lower speed access has BitCap of 1 Gb, High speed access has BitCap of 10 Gb. (10) Tanzania Lower speed access has BitCap of 1 Gb.

Source: ITU.

18. Network growth

	New fixed telephone lines added 2002 - 2007		*New mobile subscribers added 2002 - 2007*		*New Internet users added 2002 - 2007*	
	Total (000s)	*CAGR (%)*	*Total (000s)*	*CAGR (%)*	*Total (000s)*	*CAGR (%)*
1 Algeria	972.7	8.4	20'995.7	116.6	3'000.0	47.6
2 Egypt	3'492.4	7.7	25'552.3	46.2	6'720.0	35.3
3 Libya	*132.3*	*5.8*	4'430.0	129.9	*135.0*	*20.1*
4 Morocco	1'266.3	16.3	13'830.6	26.4	6'600.0	59.8
5 Tunisia	124.7	2.1	7'268.1	68.7	1'216.7	27.8
North	**5'988.5**	**8.0**	**72'076.7**	**48.1**	**17'671.7**	**41.8**
6 South Africa	-202.0	-0.8	28'598.0	25.3	*2'000.0*	*18.1*
South Africa	**-202.0**	**-0.8**	**28'598.0**	**25.3**	**2'000.0**	**10.5**
7 Angola	*18.0*	*5.2*	3'167.0	88.2	*54.0*	*23.4*
8 Benin	47.6	12.0	1'676.1	54.0	100.0	24.6
9 Botswana	*5.2*	*1.0*	982.0	26.2	*20.0*	*7.5*
10 Burkina Faso	*32.8*	*11.2*	1'500.0	70.7	*55.0*	*33.7*
11 Burundi	*12.9*	*12.2*	198.0	36.9	*52.0*	*65.5*
12 Cameroon	*19.8*	*4.2*	3'834.5	45.3	*310.0*	*57.6*
13 Cape Verde	*1.4*	*0.5*	105.1	28.1	*17.0*	*19.8*
14 Central African Rep.	*3.0*	*7.5*	117.4	59.5	*8.0*	*27.0*
15 Chad	*1.2*	*2.4*	884.2	93.1	*45.0*	*41.4*
16 Comoros	*8.8*	*16.8*	...	...	*17.8*	*60.1*
17 Congo	*-6.1*	*-10.2*	1'112.2	43.2	*65.0*	*93.4*
18 Congo (Dem. Rep.)	*-0.3*	*-0.8*	6'032.0	63.7	180.4	35.7
19 Côte d'Ivoire	*-64.0*	*-5.3*	6'022.9	47.0	*210.0*	*35.1*
20 Djibouti	*0.7*	*2.1*	30.0	24.6	*6.5*	*25.0*
21 Equatorial Guinea	*1.2*	*4.4*	188.0	47.0	*6.2*	*45.2*
22 Eritrea	*1.6*	*1.1*	...	...	*91.0*	*82.6*
23 Ethiopia	526.3	20.0	1'158.1	88.8	241.0	42.2
24 Gabon	*4.4*	*3.3*	889.7	33.2	*56.0*	*34.2*
25 Gambia	38.0	14.8	695.9	51.4	75.2	32.0
26 Ghana	101.5	6.5	7'217.3	81.4	480.0	30.8
27 Guinea	*0.3*	*0.4*	*98.2*	*27.7*	*15.0*	*9.3*
28 Guinea-Bissau	-6.6	-16.4	...	...	*23.0*	*27.5*
29 Kenya	-56.7	-3.8	10'253.0	57.3	*2'370.3*	*62.2*
30 Lesotho	*24.5*	*16.7*	318.0	27.0	*30.5*	*34.8*
31 Liberia	...	...	...	...	...	...
32 Madagascar	74.4	17.6	2'054.6	68.6	*55.0*	*18.9*
33 Malawi	102.1	19.1	964.8	65.0	112.5	38.9
34 Mali	28.4	8.5	2'436.8	122.1	75.0	32.0
35 Mauritania	*3.3*	*2.5*	1'052.8	39.4	*20.0*	*31.6*
36 Mauritius	*30.1*	*2.2*	587.9	21.9	*195.0*	*26.5*
37 Mozambique	*-16.8*	*-5.4*	3'045.2	66.9	*128.0*	*52.7*
38 Namibia	16.7	2.6	650.3	39.8	51.0	15.1
39 Niger	*1.6*	*2.3*	842.5	73.3	*25.0*	*27.8*
40 Nigeria	5'876.3	56.4	38'826.6	91.5	9'580.0	88.5
41 Rwanda	*-8.6*	*-9.9*	596.6	52.5	*75.0*	*41.4*
42 S. Tomé & Principe	1.3	3.8	28.1	72.3	12.0	15.9
43 Senegal	44.5	3.7	3'569.6	49.4	715.0	50.8
44 Seychelles	-0.6	-0.6	32.5	11.6	*17.3*	*25.4*
45 Sierra Leone	...	...	709.0	63.2	*2.0*	*11.8*
46 Somalia	65.0	23.4	500.0	43.1	*85.0*	*79.8*
47 Sudan	-326.6	-12.5	7'273.2	108.2	1'340.0	56.5
48 Swaziland	*8.9*	*5.8*	312.0	41.1	*22.0*	*20.4*
49 Tanzania	74.9	7.9	7'645.4	68.5	*304.3*	*68.7*
50 Togo	*30.9*	*12.5*	1'020.4	47.6	*120.0*	*12.5*
51 Uganda	107.3	24.2	3'802.0	60.5	1'900.0	82.1
52 Zambia	4.1	0.9	2'499.9	80.1	447.6	57.0
53 Zimbabwe	56.6	3.7	886.9	29.3	851.0	22.0
Sub-Saharan	**6'889.4**	**18.4**	**126'222.8**	**64.1**	**20'661.6**	**49.1**
AFRICA	**12'675.9**	**9.3**	**226'897.5**	**48.1**	**40'333.3**	**38.0**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.

Source: ITU World Telecommunication/ICT Indicators Database.

19. Broadcasting

		Radio			Television		
		Households (000s) 2006	*As % of total households 2006*	*Population coverage (%) 2006*	*Households (000s) 2006*	*As % of total households 2006*	*Population coverage (%) 2006*
1	Algeria	*3'600*	*71.0*	...	*4'824*	*90.0*	...
2	Egypt	*13'013*	*84.8*	100	*14'240*	*92.8*	*98*
3	Libya	...	...	100	*442*	*50.0*	*100*
4	Morocco	4'850	77.3	*95*	4'900	78.1	*88*
5	Tunisia	*1'679*	*75.6*	100	2'145	93.1	100
	North	**23'141**	**77.2**	**99**	**26'551**	**80.8**	**96**
6	South Africa	*9'534*	*80.8*	*95*	*7'082*	*59.0*	*91*
	South Africa	**9'534**	**80.8**	**95**	**7'082**	**59.0**	**91**
7	Angola	*500*	*17.9*	...	*279*	*9.0*	...
8	Benin	1'148	68.6	85	219	13.1	49
9	Botswana	*288*	*69.6*	...	*102*	*23.0*	...
10	Burkina Faso	1'170	60.0	95	240	12.3	*70*
11	Burundi	*900*	*63.2*	*99*	*225*	*15.2*	*86*
12	Cameroon	2'100	65.8	100	800	25.1	*70*
13	Cape Verde	*62*	*65.8*	...	*60*	*61.0*	...
14	Central African Rep.	*330*	*51.1*	...	*39*	*5.0*	...
15	Chad	*660*	*34.0*	*95*	70	3.5	*13*
16	Comoros	*90*	*59.2*	100	*23*	*13.0*	...
17	Congo	470	57.1	...	220	26.7	...
18	Congo (Dem. Rep.)	*1'000*	*15.4*	...	*250*	*3.8*	...
19	Côte d'Ivoire	*1'600*	*78.9*	*100*	*750*	*34.9*	*60*
20	Djibouti	*56*	*56.6*	...	*45*	*39.1*	...
21	Equatorial Guinea	...	...	...	...	*25.7*	...
22	Eritrea	490	52.6	100	165	17.7	100
23	Ethiopia	5'000	34.7	...	700	4.9	...
24	Gabon	237	84.4	88	164	58.2	92
25	Gambia	*112*	*72.9*	100	*20*	*12.0*	...
26	Ghana	*2'893*	*71.0*	100	1'300	25.9	...
27	Guinea	1'000	69.4	*96*	150	10.4	*90*
28	Guinea-Bissau	*49*	*27.5*	95	*60*	*31.0*	...
29	Kenya	*5'073*	*73.6*	...	2'000	26.2	...
30	Lesotho	*235*	*54.1*	*80*	*57*	*13.1*	*10*
31	Liberia	...	...	...	...	...	...
32	Madagascar	2'250	58.9	...	687	18.0	...
33	Malawi	1'650	65.2	...	*130*	*5.3*	...
34	Mali	*1'250*	*71.2*	*95*	*320*	*17.1*	*90*
35	Mauritania	*245*	*50.3*	100	*130*	*24.6*	...
36	Mauritius	*279*	*90.0*	100	308	95.7	...
37	Mozambique	*2'346*	*53.2*	*90*	*390*	*8.6*	...
38	Namibia	*318*	*89.1*	*98*	*154*	*41.0*	75
39	Niger	*600*	*32.7*	...	*150*	*7.1*	...
40	Nigeria	*21'112*	*79.4*	*91*	*7'000*	*26.3*	*62*
41	Rwanda	1'300	50.7	...	*58*	*2.3*	*60*
42	S. Tomé & Principe	*15*	*53.8*	*98*	*12*	*42.0*	*70*
43	Senegal	*1'095*	*87.2*	100	550	41.5	*90*
44	Seychelles	*22*	*92.0*	*98*	22	92.5	95
45	Sierra Leone	*400*	*53.3*	100	*50*	*6.7*	...
46	Somalia	*220*	*16.9*	...	*108*	*8.0*	...
47	Sudan	2'240	37.5	100	*920*	*16.2*	*93*
48	Swaziland	*95*	*57.9*	...	*31*	*18.0*	*85*
49	Tanzania	5'000	64.1	...	525	6.7	...
50	Togo	*430*	*51.6*	100	150	14.3	100
51	Uganda	4'219	65.0	98	649	10.0	62
52	Zambia	*1'291*	*61.0*	...	*550*	*26.0*	...
53	Zimbabwe	1'550	53.3	...	924	31.8	...
	Sub-Saharan	**73'392**	**58.6**	**96**	**21'756**	**23.3**	**72**
	AFRICA	**106'067**	**60.5**	**97**	**55'388**	**29.5**	**77**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.

Source: ITU World Telecommunication/ICT Indicators Database.

20. Core indicators on ICT infrastructure and access

		A1 Fixed Telephone lines per 100 inhab.	*A2 Mobile cellular subscribers per 100 inhab.*	*A3 Computers per 100 inhab.*	*A4 Internet subscribers per 100 inhab.*	*A5 Broadband subscribers per 1000 inhab.*	*A6 International Internet bandwidth (bits) per inhab.*
		2006	*2006*	*2006*	*2006*	*2006*	*2006*
1	Algeria	8.52	62.95	*1.06*	*0.58*	5.10	*4.75*
2	Egypt	14.33	23.86	4.19	1.62	2.73	124.25
3	Libya	*14.56*	65.81	*2.22*	1.38	1.62	20.84
4	Morocco	4.12	52.07	2.99	1.30	12.75	374.17
5	Tunisia	12.42	71.88	6.22	1.76	4.46	125.36
	North	**10.79**	**42.56**	**3.34**	**1.33**	**5.28**	**144.49**
6	South Africa	*9.97*	83.33	*8.36*	*9.02*	7.04	*18.58*
	South Africa	**9.97**	**83.33**	**8.36**	**9.02**	**7.04**	**18.58**
7	Angola	0.62	14.33	0.70	*0.29*	-	12.09
8	Benin	0.89	12.13	0.57	0.09	0.17	5.40
9	Botswana	7.78	46.78	5.11	...	1.02	17.05
10	Burkina Faso	0.70	7.46	0.66	0.07	0.13	15.77
11	Burundi	0.45	2.55	0.83	...	-	*0.53*
12	Cameroon	0.79	18.89	*1.23*	*0.09*	*0.01*	*9.50*
13	Cape Verde	13.80	20.99	11.96	1.44	3.50	46.28
14	Central African Rep.	0.29	2.69	*0.30*	*0.06*	-	*0.38*
15	Chad	0.13	4.65	*0.16*	*0.03*	-	0.55
16	Comoros	2.33	4.50	*0.68*	0.21	-	8.55
17	Congo	*0.40*	19.43	*0.48*	*0.03*	-	*0.25*
18	Congo (Dem. Rep.)	0.02	7.44	*0.02*	0.06	0.03	0.08
19	Côte d'Ivoire	1.41	22.03	*1.78*	*0.10*	0.54	16.80
20	Djibouti	*1.56*	5.47	*2.75*	*0.50*	*0.05*	*65.03*
21	Equatorial Guinea	*1.99*	27.18	*1.79*	*0.24*	*0.35*	*33.40*
22	Eritrea	0.82	1.36	0.66	0.11	-	1.75
23	Ethiopia	0.91	1.09	0.55	0.03	-	1.49
24	Gabon	2.59	54.39	3.34	0.72	1.25	142.24
25	Gambia	2.98	25.99	2.02	*0.14*	*0.05*	28.92
26	Ghana	1.58	23.09	*0.58*	0.10	0.57	22.61
27	Guinea	*0.33*	*2.36*	*0.56*	*0.14*	-	*0.25*
28	Guinea-Bissau	0.42	9.63	*0.22*	*0.02*	-	1.22
29	Kenya	0.84	20.91	*1.44*	0.53	0.50	21.61
30	Lesotho	2.97	19.99	*0.08*	*0.14*	*0.03*	*2.39*
31	Liberia	*0.21*	8.34	...	...	-	*0.08*
32	Madagascar	0.68	5.47	*0.55*	0.10	-	5.23
33	Malawi	0.99	5.32	*0.19*	*0.12*	*0.03*	*1.51*
34	Mali	0.59	10.87	*0.40*	0.04	0.22	15.30
35	Mauritania	1.10	33.57	*2.56*	0.13	0.31	28.50
36	Mauritius	28.45	61.50	17.52	10.95	17.43	152.88
37	Mozambique	0.33	11.60	*1.43*	...	-	3.57
38	Namibia	6.63	29.67	19.49	3.65	0.10	22.41
39	Niger	*0.17*	3.35	*0.07*	*0.03*	*0.01*	*2.15*
40	Nigeria	1.26	24.05	*0.91*	*1.52*	-	*1.14*
41	Rwanda	0.18	3.40	0.30	0.05	0.18	7.58
42	S. Tomé & Principe	4.74	11.51	*3.83*	*1.69*	13.60	24.98
43	Senegal	2.37	24.99	*2.14*	0.25	2.42	103.89
44	Seychelles	25.44	86.52	20.91	6.14	30.44	430.50
45	Sierra Leone	*0.49*	*2.21*	...	...	-	*0.10*
46	Somalia	1.18	6.47	*0.91*	*0.11*	-	*0.36*
47	Sudan	2.07	11.59	11.45	...	0.06	5.46
48	Swaziland	4.27	24.29	*4.07*	0.68	-	*0.97*
49	Tanzania	0.40	14.78	*0.93*	*0.14*	-	*2.61*
50	Togo	1.30	11.23	*3.63*	*0.25*	-	2.26
51	Uganda	0.36	6.73	1.67	0.04	0.04	4.45
52	Zambia	0.79	14.02	*1.12*	0.08	0.20	10.79
53	Zimbabwe	2.56	6.49	6.61	0.74	0.78	4.20
	Sub-Saharan	**2.83**	**13.21**	**3.09**	**0.46**	**0.18**	**7.88**
	AFRICA	**3.72**	**21.80**	**3.22**	**1.11**	**1.40**	**31.64**

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

20. Core indicators on ICT infrastructure and access

A7	*A8*		*A9*		*A11*	*A12*		
% population covered by mobile telephony	*Internet access tariffs (20 hours per month)*		*Mobile cellular tariffs (100 minutes of use per month)*		*Radio sets per 100 inhab.*	*Television sets per 100 inhab.*		
2006	*US$ 2006*	*as % of GNI per capita 2006*	*US$ 2006*	*as % of GNI per capita 2006*	*2006*	*2006*		
85.0	9.4	5.0	15.60	6.9	*23.0*	*18.8*	Algeria	1
99.0	5.0	4.8	6.98	6.6	...	*25.2*	Egypt	2
70.7	22.0	6.0	12.48	2.7	...	*14.9*	Libya	3
98.0	26.8	20.5	37.86	26.1	...	17.4	Morocco	4
100.0	12.4	5.6	12.02	5.0	...	22.5	Tunisia	5
94.8	**15.1**	**8.4**	**17.1**	**8.0**	**23.0**	**19.8**	**North**	
97.1	63.2	20.9	34.64	8.7	*24.2*	*19.5*	South Africa	6
97.1	**63.2**	**20.9**	**34.6**	**8.7**	**24.2**	**19.5**	**South Africa**	
40.0	34.3	44.2	26.88	22.9	*8.5*	14.0	Angola	7
70.0	20.7	55.3	19.12	45.0	*35.8*	4.5	Benin	8
99.0	21.3	5.9	19.27	4.1	*75.6*	*4.4*	Botswana	9
61.1	90.6	310.5	31.72	95.2	*10.6*	1.5	Burkina Faso	10
82.0	52.0	693.3	19.45	233.4	*16.2*	*3.6*	Burundi	11
58.0	44.6	66.0	36.34	43.6	*12.8*	5.1	Cameroon	12
87.0	40.3	28.1	35.46	22.0	*18.4*	*10.5*	Cape Verde	13
19.3	147.8	572.1	19.12	65.6	*10.9*	*1.0*	Central African Rep.	14
24.0	86.4	414.5	31.56	94.7	*11.6*	0.9	Chad	15
40.0	37.9	81.3	19.12	35.3	*15.4*	*3.1*	Comoros	16
53.0	84.5	133.4	24.76	31.3	...	*5.0*	Congo	17
50.0	93.2	1'017.2	29.82	298.2	*37.9*	*0.5*	Congo (Dem. Rep.)	18
59.0	67.1	105.9	56.42	77.8	*14.6*	*4.4*	Côte d'Ivoire	19
75.0	41.1	51.9	14.07	16.7	*10.7*	*7.7*	Djibouti	20
...	32.7	55.3	1.43	0.3	...	...	Equatorial Guinea	21
50.0	28.6	180.8	9.43	66.6	*46.6*	6.7	Eritrea	22
10.0	23.3	254.4	6.78	50.9	...	*0.8*	Ethiopia	23
78.0	40.1	11.8	24.86	6.0	*21.7*	16.1	Gabon	24
70.0	17.8	76.2	...	...	...	*1.5*	Gambia	25
65.3	23.6	74.4	14.61	39.0	...	*5.2*	Ghana	26
80.0	24.7	72.4	*17.63*	*55.7*	*9.3*	1.8	Guinea	27
65.0	75.0	562.1	56.42	376.1	*4.7*	*4.5*	Guinea-Bissau	28
92.0	75.9	189.8	39.53	87.8	*21.8*	*4.8*	Kenya	29
55.0	38.6	63.4	33.23	42.0	*7.5*	*4.4*	Lesotho	30
16.4	...	...	...	...	...	...	Liberia	31
23.0	45.9	190.1	20.00	82.8	*12.1*	3.7	Madagascar	32
93.0	41.9	314.4	22.30	167.2	*31.0*	*0.7*	Malawi	33
20.0	28.4	103.4	28.27	89.3	*15.3*	*3.6*	Mali	34
54.0	54.2	122.8	16.63	34.4	*13.8*	*4.1*	Mauritania	35
99.8	17.5	4.5	1.76	0.4	...	37.0	Mauritius	36
44.0	32.9	146.1	10.53	40.8	...	*2.1*	Mozambique	37
90.0	48.7	24.6	32.14	12.9	*21.2*	*8.1*	Namibia	38
45.0	101.8	581.8	41.12	205.6	*6.6*	*1.2*	Niger	39
60.0	50.4	140.7	20.47	43.9	*23.5*	*6.8*	Nigeria	40
80.0	30.1	172.2	24.65	128.6	*15.1*	*0.8*	Rwanda	41
12.0	53.2	163.7	20.25	...	*31.2*	*12.7*	S. Tomé & Principe	42
83.0	25.6	48.7	22.79	39.1	*11.7*	4.4	Senegal	43
98.0	31.4	4.6	40.67	6.0	*53.6*	*27.8*	Seychelles	44
70.0	10.6	60.4	32.07	174.9	...	*1.3*	Sierra Leone	45
...	...	...	11.67	...	...	*2.6*	Somalia	46
35.0	65.5	148.3	10.44	19.6	*46.1*	*38.7*	Sudan	47
90.0	51.7	37.4	38.39	20.2	*17.2*	*3.6*	Swaziland	48
56.0	93.6	351.0	24.70	87.2	*39.8*	*4.1*	Tanzania	49
85.0	44.7	173.0	23.43	80.3	*41.0*	2.6	Togo	50
80.0	99.6	478.0	20.75	88.9	*15.5*	2.2	Uganda	51
46.0	68.4	205.3	*16.53*	*49.6*	*14.5*	*6.4*	Zambia	52
72.0	24.6	47.6	...	...	*14.8*	7.1	Zimbabwe	53
53.1	**50.3**	**192.0**	**18.9**	**46.2**	**22.0**	**6.5**	**Sub-Saharan**	
62.5	**47.1**	**170.6**	**18.9**	**45.7**	**22.1**	**8.1**	**AFRICA**	

21. Core indicators on access to, and use of, ICT by households and individuals, latest available data

		Year	*Proportion of households with*						*Proportion of individuals who used ICTs in the last 12 months*	
			(HH1) Radio	*(HH2) TV*	*(HH3) Fixed line telephone*	*(HH4) Mobile cellular telephone*	*(HH5) Computer*	*(HH7) Internet access at home*	*(HH6) Computer*	*(HH8) Internet*
1	Algeria		...	...	...	...	...	...	...	...
2	Egypt	*2005*	*84.8*	*92.8*	*56.0*	...	*13.5*	...	...	...
3	Libya		...	...	...	...	...	...	...	...
4	Morocco	*2005*	*79.4*	*77.2*	*18.3*	*59.0*	*13.2*	*4.3*	*63.9*	*45.4*
5	Tunisia	*2005*	...	...	*36.1*	...	...	...	...	...
	North									
6	South Africa	*2004*	*80.8*	*59.2*	*54.6*	*49.6*	...	...	...	...
	South Africa									
7	Angola		...	...	...	...	...	...	...	...
8	Benin		...	...	...	...	...	...	...	...
9	Botswana	*2004*	*69.7*	...	*22.3*	...	*6.1*	*1.2*	...	*4.3*
10	Burkina Faso	*2003*	*62.9*	*11.9*	*3.8*	...	*3.0*	...	...	...
11	Burundi		...	...	...	...	...	...	...	...
12	Cameroon	*2004*	*62.5*	*22.9*	*1.8*	*21.6*	...	*1.0*	...	...
13	Cape Verde		...	...	...	...	...	...	...	...
14	Central African Rep.		...	...	...	...	...	...	...	...
15	Chad	*2004*	*36.6*	*2.9*	*0.7*	...	...	...	...	...
16	Comoros		...	...	...	...	...	...	...	...
17	Congo	*2005*	*57.3*	*25.1*	*1.2*	...	...	...	...	...
18	Congo (Dem. Rep.)		...	...	...	...	...	...	...	...
19	Côte d'Ivoire	*2002*	...	...	...	*60.7*	...	...	...	...
20	Djibouti		...	...	...	...	...	...	...	...
21	Equatorial Guinea		...	...	...	...	...	...	...	...
22	Eritrea	*2005*	*57.8*	*13.2*	*4.4*	...	*0.2*	...	...	...
23	Ethiopia	*2005*	*33.7*	*4.9*	*4.2*	...	...	*0.1*	...	...
24	Gabon		...	...	...	...	...	...	...	...
25	Gambia		...	...	...	...	...	...	...	...
26	Ghana	*2003*	*71.0*	*26.0*	*6.9*	*4.9*	...	...	...	...
27	Guinea	*2005*	*63.8*	*11.2*	*6.0*	...	*1.9*	...	...	...
28	Guinea-Bissau		...	...	...	...	...	...	...	...
29	Kenya	*2003*	*73.6*	*19.4*	*12.8*	...	...	...	...	...
30	Lesotho	*2004*	*54.1*	*13.1*	*17.8*	...	...	...	...	...
31	Liberia		...	...	...	...	...	...	...	...
32	Madagascar	*2004*	*59.0*	*17.5*	*5.4*	...	*9.0*	*1.0*	...	...
33	Malawi	*2004*	*61.9*	*5.3*	*5.1*	...	...	...	...	...
34	Mali		...	...	...	...	...	...	...	...
35	Mauritania		...	...	...	...	...	...	...	...
36	Mauritius	2006	...	95.7	77.4	68.7	24.2	16.6	29.5	16.7
37	Mozambique	*2003*	*53.2*	*8.6*	*1.6*	...	...	...	...	...
38	Namibia		...	...	...	...	...	...	...	...
39	Niger		...	...	...	...	...	...	...	...
40	Nigeria	*2004*	*77.0*	*25.0*	*5.5*	...	...	...	...	...
41	Rwanda	*2005*	*45.8*	*2.3*	*0.8*	...	...	...	...	...
42	S. Tomé & Principe		...	...	...	...	...	...	...	...
43	Senegal	*2005*	*87.2*	*40.1*	*16.2*	...	...	...	...	...
44	Seychelles	*2005*	...	*92.0*	...	...	*12.1*	...	...	...
45	Sierra Leone		...	...	...	...	...	...	...	...
46	Somalia		...	...	...	...	...	...	...	...
47	Sudan	*2005*	*39.1*	*16.2*	...	...	*16.2*	...	...	...
48	Swaziland		...	...	...	...	...	...	...	...
49	Tanzania	*2004*	*58.4*	*6.1*	*9.3*	...	...	...	...	...
50	Togo	*2002*	...	...	...	...	*0.8*	...	...	...
51	Uganda	*2004*	*48.6*	*4.5*	*0.5*	*5.0*	*5.5*	...	...	...
52	Zambia		...	...	...	...	...	...	...	...
53	Zimbabwe	*2005*	...	...	...	...	*24.0*	...	...	...
	Sub-Saharan									

Note: For data comparability and coverage, see the technical notes. Figures in italics are estimates or refer to years other than those specified.
Source: ITU World Telecommunication/ICT Indicators Database.

Algeria

Land area(km2):	*2'381'745*						
Local currency:	*Dinar*				*Year Ending 31.12*		
Capital:	*Algiers*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	31'848	32'364	32'906	33'354	33'858
Households	(2)	10x3	5'147	5'241	5'360	5'432	5'514
Gross Domestic Product (GDP) (US$)		10x6	68'047	85'033	102'334	115'504	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	16'346	20'495	22'862	26'319	...
Average annual exchange rate per US$	(3)		77.40	72.06	73.28	72.65	69.29
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	2'147	2'487	2'572	2'841	2'923
Main telephone lines per 100 inhabitants			6.74	7.68	7.82	8.52	8.63
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines		10x3	901	554	373	-	...
Public payphones	(4)	10x3	22	31	47	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	1'447	4'882	13'661	20'998	21'446
Cellular subscribers per 100 inhabitants			4.54	15.09	41.52	62.95	63.34
Percent coverage of mobile cellular network (population)		%	73.00	74.00	75.00	85.00	93.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	513'000	329'400	176'459	145'605	...
International incoming fixed telephone traffic (minutes)	(7)	10x3	736'000	957'000	379'061	...	...
STAFF							
Total full-time telecommunication staff		10x3	22	24	...	103	...
Subscribers per employee			165.04	302.29	...	231.60	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	1'679	3'578	4'830	3'804	...
Telecommunication revenues as a % of GDP		%	2.47	4.21	4.72	3.29	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(8)		89.99	89.98	90.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers		10x3	...	...	190	...	...
Total fixed broadband Internet subscribers	(9)	10x3	18	36	135	170	...
Estimated Internet users		10x3	700	1'500	1'920	2'460	3'500
Internet users per 100 inhabitants			2.20	4.63	5.83	7.38	10.34
International Internet bandwidth (Mbit/s)	(10)		156.30	156.30	156.30	...	3'000.00

Notes: Ministère des Postes et Télécommunications (MPT). From 2004: Autorité de Régulation de la Poste et des Télécommunications (ARPT).
(1) UN. Last census: 1987. Since 1990: Algeria Statistical Office.
(2) ITU estimates.
(3) IMF.
(4) Public phones and multiservice kiosks.
(5) 2007: ITU estimate.
(6) 2005: ITU estimate.
(7) 1993-1997: ITU estimates.
(8) 2005: ITU estimate.
(9) 2003: ITU estimate.
(10) 2003-05: ITU estimates.
Source: ITU.

Angola

Land area(km2):	*1'246'700*						
Local currency:	*New Kwanza*				*Year Ending 31.12*		
Capital:	*Luanda*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	14'358	14'078	15'566	15'802	17'024
Households	(2)	10x3	2'878	2'972	3'100	3'160	3'405
Gross Domestic Product (GDP) (US$)		10x6	13'824	20'272	28'900	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		74.61	83.54	87.16	80.37	76.71
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		85'043	94'280	96'760	98'165	...
Main telephone lines per 100 inhabitants			0.59	0.67	0.62	0.62	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	439	439	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	350	740	1'611	2'264	3'307
Cellular subscribers per 100 inhabitants			2.44	5.26	10.35	14.33	19.43
Percent coverage of mobile cellular network (population)		%	...	...	...	40.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	35'800	37'300	38'800	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	2'912.00	...	...
Subscribers per employee			...	...	586.50	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	...	...	620'506	...	...
Telecommunication revenues as a % of GDP		%	...	...	2.15	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	...	157'012	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		9.00	9.00	9.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	40'863	45'000	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users			58'000	75'000	85'000	95'000	...
Internet users per 100 inhabitants			0.40	0.53	0.55	0.60	...
International Internet bandwidth (Mbit/s)	(8)		7.00	7.00	68.00	191.00	...

Notes: Empresa de Telecommunicações de Angola.
(1) Source: UN.
(2) ITU estimate.
(3) Source: IMF.
(4) From 2000: INACOM. 2006: June.
(5) From 2001: INACOM. 2006: June.
(6) 2003-05: ITU estimates.
(7) 2003-05: ITU estimates.
(8) 2003-04: ITU estimates.
Source: ITU.

Benin

Land area(km2):	*112'622*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Porto Novo*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	7'025	7'257	7'497	8'703	9'033
Households	(2)	10x3	1'351	1'396	1'442	1'674	1'737
Gross Domestic Product (GDP) (US$)		10x6	3'557	4'051	4'358	4'703	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	695	786	843	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	67	73	76	77	110
Main telephone lines per 100 inhabitants			0.95	1.00	1.02	0.89	1.22
Percent of main (fixed) lines connected to digital exchanges		%	87	100	100	100	100
Waiting list for main (fixed) lines			14'205	32'805	29'724	54'268	...
Public payphones			804.00	797.00	704.00	680.00	676.00
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)	10x3	236	459	596	1'056	1'895
Cellular subscribers per 100 inhabitants			3.36	6.33	7.95	12.13	20.98
Percent coverage of mobile cellular network (population)		%	36.00	40.00	43.00	70.00	70.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	27'532	44'285	26'903	64'584	...
International incoming fixed telephone traffic (minutes)		10x3	20'918	16'550	27'458	...	...
STAFF							
Total full-time telecommunication staff	(6)		1'214	1'264	1'331	1'388	...
Subscribers per employee			249.33	420.97	505.28	816.33	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	84'133	62'038	54'619	74'788	...
Telecommunication revenues as a % of GDP		%	2.37	1.53	1.25	1.59	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	280'049	35'395	20'966	3'879	...
Telecommunication investment as a % of GFCF		%	40.28	4.50	2.49	...	...
BROADCASTING							
Per cent of households with a television	(7)		17.63	14.97	13.98	13.10	...
Per cent of households with a radio			69.83	69.06	69.31	68.60	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			5'606	6'670	6'969	7'505	8'092
Total fixed broadband Internet subscribers			21	291	508	1'498	2'003
Estimated Internet users			70'000	90'000	100'000	125'000	150'000
Internet users per 100 inhabitants			1.00	1.24	1.33	1.44	1.66
International Internet bandwidth (Mbit/s)			47.00	47.00	47.00	47.00	155.00

Notes: Office des Postes et Télécommunications (OPT).
(1) UN. 1992: Latest census. ITU estimates.
(2) ITU estimates.
(3) IMF.
(4) 2001: ITU estimate.
(5) 1987: ITU estimate.
(6) Bénin télécoms S.A and Libercom.
(7) 2003-05: ITU estimates.
Source: ITU.

Botswana

Land area(km2):	*575'000*						
Local currency:	*Pula*			*Year Beginning 01.04*			
Capital:	*Gaborone*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'772	1'769	1'765	1'760	1'882
Households	(2)	10x3	424	414	444	442	473
Gross Domestic Product (GDP) (US$)		10x6	7'959	9'077	9'711	9'789	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'765	1'923	1'945	1'782	...
Average annual exchange rate per US$	(3)		4.95	4.69	5.11	5.84	6.14
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	132	136	...	137	...
Main telephone lines per 100 inhabitants			7.44	7.71	...	7.78	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines		10x3	...	...	...	...	...
Public payphones		10x3	2	2	2	1	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	523	523	564	823	1'427
Cellular subscribers per 100 inhabitants			29.51	29.55	31.94	46.78	75.84
Percent coverage of mobile cellular network (population)	(6)	%	99.00	99.00	99.00	99.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(7)	10x3	63'700	66'800	74'800	80'000	...
International incoming fixed telephone traffic (minutes)		10x3	...	67'700	...	75'000	...
STAFF							
Total full-time telecommunication staff	(8)		985	1'064	1'079	1'067	...
Subscribers per employee			664.58	619.65	...	899.73	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	235	289	306	278	...
Telecommunication revenues as a % of GDP		%	2.95	3.18	3.15	2.84	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	19'030	...	...	403'975	...
Telecommunication investment as a % of GFCF		%	1.08	...	...	22.67	...
BROADCASTING							
Per cent of households with a television	(9)		10.00	10.00	22.97	...	...
Per cent of households with a radio			66.04	69.64	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	...	...
Total fixed broadband Internet subscribers			-	-	1'600	1'800	...
Estimated Internet users	(10)		60'000	60'000	60'000	80'000	...
Internet users per 100 inhabitants			3.39	3.39	3.40	4.55	...
International Internet bandwidth (Mbit/s)	(11)		23.00	26.00	30.00	30.00	...

Notes: Botswana Telecommunications Authority (BTA).
(1) Source: Botswana Central Statistics Office. 2001: Latest census. From 2002: UN.
(2) Source: Botswana Central Statistics Office. 2001: Latest census. Other years: ITU estimate.
(3) Source: IMF.
(4) 1965: ITU estimatee.
(5) 2006-07: ITU estimates.
(6) 2002: Mascom.
(7) 2002: Telegeography.
(8) BTC.
(9) 2002-05: ITU estimates.
(10) 2005: ITU estimate.
(11) 2001: ITU estimate.
Source: ITU.

Burkina Faso

Land area(km2):	*274'122*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Ouagadougou*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	12'258	13'393	13'228	13'634	14'784
Households	(2)	10x3	1'802	1'847	1'893	1'951	2'115
Gross Domestic Product (GDP) (US$)		10x6	4'270	5'109	5'611	6'118	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	861	956	1'153	1'197	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	67	85	91	95	...
Main telephone lines per 100 inhabitants			0.54	0.64	0.69	0.70	...
Percent of main (fixed) lines connected to digital exchanges		%	96	100	100	100	100
Waiting list for main (fixed) lines			8'376	3'096	...	...	...
Public payphones			5'672	5'834	12'000	12'491	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)	10x3	238	396	634	1'017	1'611
Cellular subscribers per 100 inhabitants			1.94	2.96	4.79	7.46	10.90
Percent coverage of mobile cellular network (population)		%	24.00	25.00	26.00	61.10	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	29'502	34'063	42'981	46'876	...
International incoming fixed telephone traffic (minutes)		10x3	40'277	40'277	60'588	107'983	...
STAFF							
Total full-time telecommunication staff			1'433	1'501	1'647	...	...
Subscribers per employee			212.65	320.56	440.04	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	116'370	165'964	191'790	228'788	...
Telecommunication revenues as a % of GDP		%	2.73	3.25	3.42	3.74	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	80'382	169'982	107'002	202'639	...
Telecommunication investment as a % of GFCF		%	9.34	17.78	9.28	16.93	...
BROADCASTING							
Per cent of households with a television	(6)		11.90	11.91	12.15	12.30	...
Per cent of households with a radio			62.90	62.26	61.28	59.97	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			7'351	7'258	8'315	9'198	...
Total fixed broadband Internet subscribers			145	154	384	1'715	...
Estimated Internet users			48'000	53'200	64'600	80'000	...
Internet users per 100 inhabitants			0.39	0.40	0.49	0.59	...
International Internet bandwidth (Mbit/s)			12.00	64.00	72.00	215.00	...

Notes: Office National des Télécommunications (ONATEL).
(1) UN. 1996: Latest census. ITU estimates.
(2) ITU estimates.
(3) IMF.
(4) From 2001: Including Celtel subsribers; 2007: ITU estimate.
(5) 1983: ITU estimate.
(6) 2003-05: ITU estimates.
Source: ITU.

Burundi

Land area(km2):	*27'834*						
Local currency:	*Franc*			*Year Ending 31.12*			
Capital:	*Bujumbura*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	7'211	7'068	7'547	7'834	8'508
Households	(2)	10x3	1'424	1'450	1'477	1'536	1'668
Gross Domestic Product (GDP) (US$)		10x6	595	680	797	959	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	64	76	124	239	...
Average annual exchange rate per US$	(3)		1'082.62	1'100.91	1'081.58	1'028.43	1'081.87
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		23'895	27'744	31'100	35'000	...
Main telephone lines per 100 inhabitants			0.33	0.39	0.41	0.45	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines	(5)		10'000	15'000	...	...	...
Public payphones			10	3'277	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(6)		64'000	100'560	153'000	200'000	250'000
Cellular subscribers per 100 inhabitants			0.89	1.42	2.03	2.55	2.94
Percent coverage of mobile cellular network (population)		%	...	...	...	82.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(7)	10x3	3'000	3'100	3'200	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff	(8)		548.00	549.00	...	...	...
Subscribers per employee			160.39	233.70	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(9)		14.05	14.14	15.23	...	...
Per cent of households with a radio			63.22	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users			14'000	25'000	40'000	60'000	...
Internet users per 100 inhabitants			0.19	0.35	0.53	0.77	...
International Internet bandwidth (Mbit/s)	(10)		4.00	4.00	4.00	...	...

Notes: Agence de Régulation et de Contrôle des Télécommunications.
(1) UN; ITU estimate. 1990: Latest census.
(2) ITU estimates.
(3) IMF.
(4) 2005-06: ITU estimate.
(5) 1984: ITU estimate.
(6) 2006-07: ITU estimates.
(7) 2003-05: ITU estimates.
(8) 1998: ITU estimate.
(9) 2003-05: ITU estimates.
(10) 2003-05: ITU estimates.
Source: ITU.

Cameroon

Land area(km2):	*475'500*						
Local currency:	*CFA Franc*				*Year Ending 31.12*		
Capital:	*Yaounde*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	16'258	16'296	16'322	16'600	18'549
Households	(2)	10x3	2'960	3'042	3'126	3'192	3'567
Gross Domestic Product (GDP) (US$)		10x6	13'622	15'775	16'588	17'920	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	2'462	2'879	2'933	2'992	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		97'393	99'439	100'331	130'694	...
Main telephone lines per 100 inhabitants			0.60	0.61	0.61	0.79	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	76	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			6'855	6'510	5'969	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	1'077.0	1'530.9	2'252.5	3'135.9	4'536.0
Cellular subscribers per 100 inhabitants			6.62	9.39	13.80	18.89	24.45
Percent coverage of mobile cellular network (population)		%	45.00	49.00	54.00	58.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	43'928	52'391	51'000	12'332	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	105'077	53'626	...
STAFF							
Total full-time telecommunication staff	(7)		2'821	3'130	3'223	3'111	...
Subscribers per employee			416.30	520.86	730.02	1'050.03	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	387	477	516	565	...
Telecommunication revenues as a % of GDP		%	2.84	3.02	3.11	3.15	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	111	129	146	211	...
Telecommunication investment as a % of GFCF		%	4.52	4.49	4.98	7.06	...
BROADCASTING							
Per cent of households with a television			20.27	22.88	23.99	25.06	...
Per cent of households with a radio			59.12	62.46	63.98	65.79	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			7'000	11'000	15'000	...	...
Total fixed broadband Internet subscribers			-	-	202	...	...
Estimated Internet users			100'000	170'000	250'000	370'000	...
Internet users per 100 inhabitants			0.62	1.04	1.53	2.23	...
International Internet bandwidth (Mbit/s)	(8)		45.00	100.00	155.00	...	...

Notes: Ministère des Postes et Télécommunications. Agence de Régulation des Télécommunications.
(1) UN. 1987: Latest census. ITU estimates.
(2) ITU estimates.
(3) IMF.
(4) 2001: ITU estimate.
(5) 2007: ITU estimate.
(6) 2004: ITU estimate.
(7) 1992: Not including INTELCAM.
(8) 2003-04: ITU estimates.
Source: ITU.

Cape Verde

Land area(km2):	*4'033*						
Local currency:	*Escudo*				*Year Ending 31.12*		
Capital:	*Praia*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	459	467	476	519	530
Households	(2)	10x3	96	97	98	106	108
Gross Domestic Product (GDP) (US$)		10x6	814	948	1'036	1'045	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		97.70	88.81	88.67	87.90	80.57
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		71'716	71'700	71'600	71'578	...
Main telephone lines per 100 inhabitants			15.63	15.35	15.04	13.80	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			789	675	315	409	...
Public payphones			458	431	432	435	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)		53'342	65'780	81'721	108'858	148'000
Cellular subscribers per 100 inhabitants			11.63	14.08	17.17	20.99	27.90
Percent coverage of mobile cellular network (population)		%	...	86.00	85.00	87.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	8'504	8'789	9'182	9'499	...
International incoming fixed telephone traffic (minutes)		10x3	49'346	56'821	61'511	...	...
STAFF							
Total full-time telecommunication staff			459.00	454.00	442.00	416.00	...
Subscribers per employee			272.46	...	...	433.74	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	59'570	...	...	83'184	...
Telecommunication revenues as a % of GDP		%	7.32	...	...	7.96	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	7'852	8'864	8'637	15'902	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television			54.00	57.00	61.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			5'011	5'654	6'518	7'475	...
Total fixed broadband Internet subscribers			-	...	...	1'814	...
Estimated Internet users	(7)		20'000	25'000	29'000	33'000	...
Internet users per 100 inhabitants			4.36	5.35	6.09	6.36	...
International Internet bandwidth (Mbit/s)			8.00	10.00	14.00	24.00	...

Notes: Cabo Verde Telecom. From 2004: Instituto das Comunicações e das Tecnologias de Informação.
(1) Source: UN, INE. 2000-03: INE. 2000: Latest census.
(2) ITU estimates.
(3) Source: IMF.
(4) 1990: ITU estimate.
(5) 2007: ITU estimate.
(6) 1984: ITU estimate.
(7) 2002: ITU estimate.
Source: ITU.

Central African Rep.

Land area(km2):	*624'977*						
Local currency:	*Franc CFA*			*Year Ending 31.12*			
Capital:	*Bangui*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	4'140	3'912	4'038	4'093	4'343
Households	(2)	10x3	690	737	787	802	987
Gross Domestic Product (GDP) (US$)		10x6	1'139	1'269	1'348	1'360	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	73	87	132	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			9'500	10'000	10'000	12'000	...
Main telephone lines per 100 inhabitants			0.23	0.26	0.25	0.29	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)		40'000	60'000	100'000	110'000	130'000
Cellular subscribers per 100 inhabitants			0.97	1.53	2.48	2.69	2.99
Percent coverage of mobile cellular network (population)		%	...	...	19.30	19.30	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	5'000	6'000	8'000	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff	(6)		370	390	400	416	...
Subscribers per employee			133.78	179.49	275.00	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	13'248	14'765	14'788	...	...
Telecommunication revenues as a % of GDP		%	1.16	1.16	1.10	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		4.64	4.75	5.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			1'500	2'000	2'500	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users			6'000	9'000	11'000	13'000	...
Internet users per 100 inhabitants			0.14	0.23	0.27	0.32	...
International Internet bandwidth (Mbit/s)			1.00	1.54	1.54	...	...

Notes: Société Centrafricaine de Télécommunications (SOCATEL).
(1) UN; ITU estimates.
(2) ITU estimates.
(3) IMF.
(4) 2006-07: ITU estimates.
(5) 1984: ITU estimate.
(6) 1983: ITU estimate.
(7) 2003-05: ITU estimates.
Source: ITU.

Chad

Land area(km2):	*1'284'000*						
Local currency:	*CFA Franc*				*Year Ending 31.12*		
Capital:	*N'Djamena*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	8'084	8'854	9'749	10'032	10'781
Households	(2)	10x3	1'617	1'771	1'939	1'998	2'147
Gross Domestic Product (GDP) (US$)		10x6	2'722	4'413	5'854	6'934	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		12'450	13'000	13'000	13'000	...
Main telephone lines per 100 inhabitants			0.15	0.15	0.13	0.13	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines		10x3	...	...	...	...	...
Public payphones		10x3	-	-	-	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)		65'000	123'000	210'000	466'088	918'356
Cellular subscribers per 100 inhabitants			0.80	1.39	2.15	4.65	8.52
Percent coverage of mobile cellular network (population)		%	...	...	23.80	24.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	4'628	4'514	5'210	...	...
International incoming fixed telephone traffic (minutes)		10x3	14'653	...	...	...	...
STAFF							
Total full-time telecommunication staff	(7)		610	...	...	...	...
Subscribers per employee			126.97	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)			...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(8)		2.78	2.90	3.09	3.50	...
Per cent of households with a radio			39.58	36.71	34.04	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			2'317	2'484	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users			30'000	35'000	40'000	60'000	...
Internet users per 100 inhabitants			0.37	0.40	0.41	0.60	...
International Internet bandwidth (Mbit/s)			0.51	3.50	3.50	5.50	...

Notes: Until 2003: SOTEL. Office Tchadien de Régulation des Télécommunications.
(1) 1993: census. ITU estimates.
(2) 1993: census. ITU estimates.
(3) IMF.
(4) 2000-2001: ITU estimates.
(5) 2007: ITU estimates.
(6) 2002: ITU estimate.
(7) 1999: ITU estimate.
(8) 2003-05: ITU estimates.
Source: ITU.

Comoros

Land area(km2):	*1'862*						
Local currency:	*Franc CFA*				*Year Ending 31.12*		
Capital:	*Moroni*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	799	790	798	819	839
Households	(2)	10x3	160	168	177	182	186
Gross Domestic Product (GDP) (US$)		10x6	318	368	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$			435.90	396.21	395.60	392.17	359.45
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			13'245	15'083	16'939	19'061	...
Main telephone lines per 100 inhabitants			1.66	1.91	2.12	2.33	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	551	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(3)		2'000	8'378	15'523	36'877	40'000
Cellular subscribers per 100 inhabitants			0.25	1.06	1.95	4.50	4.77
Percent coverage of mobile cellular network (population)		%	...	...	...	40.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	2'485	2'687	2'435	2'182	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff	(4)		172.00	...	606.00	515.00	...
Subscribers per employee			88.63	...	53.57	108.62	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	13'024	17'655	18'890	29'726	...
Telecommunication revenues as a % of GDP		%	4.10	4.80	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(5)		11.89	13.10	12.99	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			859	910	1'241	1'750	...
Total fixed broadband Internet subscribers			-	1	4	...	...
Estimated Internet users			5'000	8'000	20'000	21'000	...
Internet users per 100 inhabitants			0.63	1.01	2.51	2.56	...
International Internet bandwidth (Mbit/s)			0.13	0.26	2.00	7.00	...

Notes: Société Nationale des Postes et Telecommunications (SNPT). Since 2005: Comores Télécom.
(1) UN; ITU estimates. 1991: Latest census.
(2) ITU estimates.
(3) 2007: ITU estimate.
(4) 2002: Estimate.
(5) 2003-05: ITU estimates.
Source: ITU.

Congo

Land area(km2):	*342'000*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Brazzaville*			**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY								
Population		(1)	10x3	3'500	3'818	3'999	4'117	3'768
Households		(2)	10x3	673	731	794	823	754
Gross Domestic Product (GDP) (US$)			10x6	3'565	4'350	5'794	...	...
Gross Fixed Capital Formation (GFCF) (US$)			10x6	956	1'232	1'524	...	...
Average annual exchange rate per US$				581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK								
Main (fixed) telephone lines in operation		(3)		7'000	13'820	15'907	...	...
Main telephone lines per 100 inhabitants				0.20	0.36	0.40	...	...
Percent of main (fixed) lines connected to digital exchanges			%	...	...	...	...	...
Waiting list for main (fixed) lines				...	...	...	...	...
Public payphones				...	...	...	...	...
MOBILE SERVICES								
Mobile cellular telephone subscribers (post-paid + prepaid)		(4)		330'000	383'653	490'000	800'000	1'334'000
Cellular subscribers per 100 inhabitants				9.43	10.05	12.25	19.43	35.40
Percent coverage of mobile cellular network (population)			%	21.00	28.00	39.00	53.00	...
TRAFFIC								
International outgoing fixed telephone traffic (minutes)		(5)	10x3	...	6'781	7'798	...	...
International incoming fixed telephone traffic (minutes)			10x3	...	...	...	...	...
STAFF								
Total full-time telecommunication staff				...	...	...	...	...
Subscribers per employee				...	...	...	...	...
REVENUE AND EXPENSE								
Telecommunication revenues (US$)			10x3	...	123'902	...	...	...
Telecommunication revenues as a % of GDP			%	...	2.85	...	...	...
CAPITAL EXPENDITURE								
Total annual investment in telecommunication (US$)				...	...	...	...	...
Telecommunication investment as a % of GFCF			%	...	...	...	...	...
BROADCASTING								
Per cent of households with a television				16.34	20.52	25.19	26.73	...
Per cent of households with a radio				32.69	41.04	57.30	57.11	...
INFORMATION TECHNOLOGY								
Total (fixed) Internet subscribers				650	1'000	...	...	...
Total fixed broadband Internet subscribers				-	-	-	...	...
Estimated Internet users				15'000	36'000	50'000	70'000	...
Internet users per 100 inhabitants				0.43	0.94	1.25	1.70	...
International Internet bandwidth (Mbit/s)		(6)		0.56	1.00	1.00	...	...

Notes: Direction Générale de l'Administsration Centrale des Postes et Télécommunications.
(1) UN.
(2) ITU estimates.
(3) 2000: ITU estimate.
(4) 2007: ITU estimate.
(5) 2003: ITU estimate.
(6) 2003, 2005: ITU estimates.
Source: ITU.

Congo (Dem. Rep.)

Land area(km2):	*2'345'410*						
Local currency:	*Congolese Franc*			*Year Ending 31.12*			
Capital:	*Kinshasa*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	54'231	55'853	57'549	59'320	62'636
Households	(2)	10x3	6'500	6'500	6'500	6'740	7'830
Gross Domestic Product (GDP) (US$)		10x6	5'636	6'591	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	708	1'215	...	...	...
Average annual exchange rate per US$	(3)		405.18	395.93	473.91	468.28	...
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		9'733	10'524	10'579	9'695	...
Main telephone lines per 100 inhabitants			0.02	0.02	0.02	0.02	...
Percent of main (fixed) lines connected to digital exchanges		%	3	3	3	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	1'483	18'543	26'000	65'000
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	1'246	1'991	2'746	4'415	6'592
Cellular subscribers per 100 inhabitants			2.30	3.56	4.77	7.44	10.52
Percent coverage of mobile cellular network (population)		%	...	40.00	50.00	50.00	50.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	22'173	12'856	10'743	...	...
International incoming fixed telephone traffic (minutes)		10x3	115'455	177'366	206'427	...	...
STAFF							
Total full-time telecommunication staff	(7)		3'900	1'779	1'931	...	...
Subscribers per employee			322.04	1'124.93	1'427.59	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	183	386	396	543	...
Telecommunication revenues as a % of GDP		%	3.25	5.86	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(8)		2.31	3.08	3.85	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(9)		12'000	17'000	24'000	33'800	47'590
Total fixed broadband Internet subscribers			1'000	1'450	1'500	1'500	1'500
Estimated Internet users			75'000	112'500	140'625	180'000	230'400
Internet users per 100 inhabitants			0.14	0.20	0.24	0.30	0.37
International Internet bandwidth (Mbit/s)			5.00	5.00	5.00	5.00	10.00

Notes: Autorité de Régulation de la Poste et des Télécommunications.
(1) Source: UN. ITU estimates.
(2) ITU estimates.
(3) Source: IMF.
(4) ITU estimates.
(5) ITU estimates.
(6) 2001-03: ITU estimates.
(7) 1983: ITU estimate.
(8) 2003-05: ITU estimates.
(9) 2002: Includes 3'950 subscribers of fixed wireless access
Source: ITU.

Côte d'Ivoire

Land area(km2):	*322'463*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Abidjan*			**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY								
Population		(1)	10x3	16'632	16'897	18'154	18'454	19'262
Households		(2)	10x3	2'079	2'112	2'146	2'196	2'293
Gross Domestic Product (GDP) (US$)			10x6	14'045	15'481	16'354	17'551	...
Gross Fixed Capital Formation (GFCF) (US$)			10x6	1'288	...	...	...	...
Average annual exchange rate per US$		(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK								
Main (fixed) telephone lines in operation			10x3	238	258	259	261	...
Main telephone lines per 100 inhabitants				1.43	1.53	1.42	1.41	...
Percent of main (fixed) lines connected to digital exchanges			%	100	100	100	100	100
Waiting list for main (fixed) lines				3'400	1'600	...	...	...
Public payphones		(4)		2'701	2'380	1'833	1'803	...
MOBILE SERVICES								
Mobile cellular telephone subscribers (post-paid + prepaid)		(5)	10x3	1'281	1'674	2'349	4'065	7'050
Cellular subscribers per 100 inhabitants				7.70	9.91	12.94	22.03	36.60
Percent coverage of mobile cellular network (population)			%	50.00	55.00	55.00	59.00	...
TRAFFIC								
International outgoing fixed telephone traffic (minutes)		(6)	10x3	65'122	59'617	60'000	...	...
International incoming fixed telephone traffic (minutes)			10x3	192'879	249'436	...	...	...
STAFF								
Total full-time telecommunication staff				3'408	2'850	2'950	3'000	...
Subscribers per employee				445.63	677.99	884.05	1'442.10	...
REVENUE AND EXPENSE								
Telecommunication revenues (US$)			10x3	539'503	667'594	815'215	956'224	...
Telecommunication revenues as a % of GDP			%	3.84	4.31	4.98	5.45	...
CAPITAL EXPENDITURE								
Total annual investment in telecommunication (US$)			10x3	76'925	95'161	236'981	382'490	...
Telecommunication investment as a % of GFCF			%	5.97	...	...	...	...
BROADCASTING								
Per cent of households with a television		(7)		35.11	35.04	34.95	...	...
Per cent of households with a radio				...	...	...	...	...
INFORMATION TECHNOLOGY								
Total (fixed) Internet subscribers		(8)		12'213	13'747	18'000	...	...
Total fixed broadband Internet subscribers		(9)		413	826	1'239	10'000	...
Estimated Internet users				140'000	160'000	200'000	300'000	...
Internet users per 100 inhabitants				0.84	0.95	1.10	1.63	...
International Internet bandwidth (Mbit/s)				40.48	55.42	55.42	310.00	...

Notes: Agence des Télécommunications de Côte d'Ivoire.
(1) Source: UN; ITU estimates. 1988: Latest census.
(2) 1995: ITU estimate.
(3) Source: IMF.
(4) In service. CI-Telecom only.
(5) 2007: ITU estimate.
(6) 2005: ITU estimate.
(7) 2003-05: ITU estimates.
(8) 2002: ITU estimate.
(9) 2003, 2005: ITU estimates.
Source: ITU.

Djibouti

Land area(km2):	*22'000*						
Local currency:	*Franc*			*Year Ending 31.12*			
Capital:	*Djibouti*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	668	680	692	807	833
Households	(2)	10x3	107	106	115	134	138
Gross Domestic Product (GDP) (US$)		10x6	625	663	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		177.72	177.72	177.72	177.72	177.72
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			10'169	11'103	10'779	...	...
Main telephone lines per 100 inhabitants			1.52	1.63	1.56	...	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines	(4)		31	...	...	...	...
Public payphones			29	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)		23'000	34'482	44'053	44'100	45'000
Cellular subscribers per 100 inhabitants			3.44	5.07	6.37	5.47	5.40
Percent coverage of mobile cellular network (population)		%	75.00	75.00	75.00	75.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	6'091	10'000	19'677	...	...
International incoming fixed telephone traffic (minutes)		10x3	14'678	...	...	...	...
STAFF							
Total full-time telecommunication staff			588	...	...	...	...
Subscribers per employee			56.41	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	33'173	32'979	34'086	...	...
Telecommunication revenues as a % of GDP		%	5.31	4.97	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	13'533	12'402	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(6)		37.38	38.68	39.13	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			2'100	3'885	3'491	...	...
Total fixed broadband Internet subscribers			-	-	42	...	...
Estimated Internet users			6'500	9'000	10'000	11'000	...
Internet users per 100 inhabitants			0.97	1.32	1.45	1.36	...
International Internet bandwidth (Mbit/s)			2.05	45.00	45.00	...	...

Notes: Djibouti Telecom S.A.
(1) Source: UN, 1993: census. ITU estimates.
(2) ITU estimates.
(3) Source: IMF.
(4) 1984: ITU estimate.
(5) 2006-07: ITU estimates.
(6) 2003-05: ITU estimates.
Source: ITU.

Egypt

Land area(km2):	*1'000'250*						
Local currency:	*Pound*				*Year Ending 31.12*		
Capital:	*Cairo*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	68'648	69'997	71'348	75'437	75'498
Households	(2)	10x3	14'785	15'086	15'345	16'399	16'412
Gross Domestic Product (GDP) (US$)		10x6	71'355	78'274	93'182	107'745	131'096
Gross Fixed Capital Formation (GFCF) (US$)		10x6	11'639	12'839	16'698	20'181	27'844
Average annual exchange rate per US$	(3)		5.85	6.20	5.78	5.73	5.58
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	8'736	9'464	10'396	10'808	11'229
Main telephone lines per 100 inhabitants			12.73	13.52	14.57	14.33	14.87
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines	(5)	10x3	100	66	65	48	...
Public payphones	(6)	10x3	49	53	56	56	58
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(7)	10x3	5'798	7'643	13'630	18'001	30'047
Cellular subscribers per 100 inhabitants			8.45	10.92	19.10	23.86	39.80
Percent coverage of mobile cellular network (population)	(8)	%	98.00	98.00	98.00	99.01	99.01
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(9)	10x6	289	397	449	502	...
International incoming fixed telephone traffic (minutes)		10x6	1'082	1'288	1'743	...	...
STAFF							
Total full-time telecommunication staff		10x3	53	55	54	59	...
Subscribers per employee			273.65	312.41	443.13	484.30	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	2'417	2'647	3'364	4'088	...
Telecommunication revenues as a % of GDP		%	3.39	3.38	3.61	3.79	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	445	1'675	2'307	2'676	...
Telecommunication investment as a % of GFCF		%	3.82	13.05	13.82	13.26	...
BROADCASTING							
Per cent of households with a television	(10)		93.34	92.80	92.80	...	...
Per cent of households with a radio			86.57	85.51	84.80	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(11)	10x3	900	1'300	1'237	1'221	1'322
Total fixed broadband Internet subscribers		10x3	5	29	91	206	427
Estimated Internet users	(12)	10x3	3'000	3'900	5'100	6'000	8'620
Internet users per 100 inhabitants			4.37	5.57	7.15	7.95	11.42
International Internet bandwidth (Mbit/s)	(13)		925.00	1'595.00	4'432.00	9'373.00	14'866.00

Notes: Ministry of Communications and Information Technology.
(1) UN.
(2) ITU estimates.
(3) IMF.
(4) Until 2000: June.
(5) 1996: ITU estimate.
(6) 2001: Incl. data from Menatel Company and Nile Company.
(7) Until 2000: June.
(8) Misrfone.
(9) 1984: Estimate.
(10) 2003-05: ITU estimates.
(11) Egypt has a subscription-free Internet model that offers Internet access at a price of local call.
(12) Until 1999: June.
(13) 2000-2002: Telegeography.
Source: ITU.

Equatorial Guinea

Land area(km2):	*28'051*						
Local currency:	*CFA Franc*				*Year Ending 31.12*		
Capital:	*Malabo*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	543	507	503	515	507
Households		10x3	...	...	...	...	...
Gross Domestic Product (GDP) (US$)		10x6	2'613	4'474	6'416	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'449	1'226	608	...	...
Average annual exchange rate per US$			581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(2)		9'600	10'500	10'000	...	...
Main telephone lines per 100 inhabitants			1.77	2.07	1.99	...	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(3)	10x3	42	62	97	140	220
Cellular subscribers per 100 inhabitants			7.64	12.21	19.26	27.18	43.35
Percent coverage of mobile cellular network (population)		%	...	...	...	...	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(4)	10x3	5'824	6'593	7'144	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)			...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(5)		25.70	25.70	25.70	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			1'000	...	1'200	...	...
Total fixed broadband Internet subscribers			-	-	180	...	...
Estimated Internet users			3'000	5'000	7'000	8'000	...
Internet users per 100 inhabitants			0.55	0.99	1.39	1.55	...
International Internet bandwidth (Mbit/s)			1.00	8.40	16.80	...	...

Notes: La Société Anonyme de Télécommunications de la République de Guinée Equatoriale (GETESA).
(1) Source: UN.
(2) ITU estimates.
(3) 2006-07: ITU estimates.
(4) 2002: ITU estimate.
(5) 2003-05: ITU estimates.
Source: ITU.

Eritrea

Land area(km2):	*93'679*						
Local currency:	*Nakfa*				*Year Ending 31.12*		
Capital:	*Asmara*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	4'099	4'224	4'402	4'560	4'851
Households	(2)	10x3	816	840	897	931	992
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		13.88	13.79	15.37	15.38	15.38
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	38	39	38	38	...
Main telephone lines per 100 inhabitants			0.93	0.93	0.86	0.82	...
Percent of main (fixed) lines connected to digital exchanges		%	81	81	84	100	100
Waiting list for main (fixed) lines		10x3	46	44	76	9	...
Public payphones		10x3	-	-	-	1	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)	10x3	-	20	40	62	70
Cellular subscribers per 100 inhabitants			-	0.47	0.92	1.36	1.44
Percent coverage of mobile cellular network (population)		%	-	...	...	50.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	4'823	5'167	5'594	5'073	...
International incoming fixed telephone traffic (minutes)		10x3	31'393	37'044	33'671	...	...
STAFF							
Total full-time telecommunication staff			638	832	977	1'084	...
Subscribers per employee			59.68	71.24	79.99	91.82	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	19'020	28'354	34'097	31'040	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	2'788	17'447	19'651	16'464	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(5)		14.55	15.47	14.93	17.72	...
Per cent of households with a radio			56.39	55.94	53.51	52.63	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			3'000	3'500	4'800	5'200	...
Total fixed broadband Internet subscribers			-	-	-	-	...
Estimated Internet users			30'000	50'000	80'000	100'000	...
Internet users per 100 inhabitants			0.73	1.18	1.82	2.19	...
International Internet bandwidth (Mbit/s)			2.00	6.00	6.00	8.00	...

Notes: Eritrea Telecommunication Services Corporation (Eritel).
(1) Source: UN.
(2) 2001: Estimate.
(3) From 1997, UN operational rate of exchange, end of period.
(4) 2007: ITU estimate.
(5) 2004-05: ITU estimates.
Source: ITU.

Ethiopia

Land area(km2):	*1'223'500*						
Local currency:	*Birr*			*Year Ending 30.06*			
Capital:	*Addis Ababa*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	69'363	72'420	77'431	79'289	83'099
Households	(2)	10x3	13'259	13'656	14'065	14'416	15'109
Gross Domestic Product (GDP) (US$)		10x6	7'943	9'722	11'079	11'037	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		8.60	8.64	8.67	8.70	8.95
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	405	484	610	725	880
Main telephone lines per 100 inhabitants			0.58	0.67	0.79	0.91	1.06
Percent of main (fixed) lines connected to digital exchanges		%	90	98	94	98	...
Waiting list for main (fixed) lines		10x3	146	157	59	56	...
Public payphones			1'759	1'813	2'585	4'294	4'718
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	51	156	411	867	1'208
Cellular subscribers per 100 inhabitants			0.07	0.21	0.53	1.09	1.45
Percent coverage of mobile cellular network (population)		%	...	9.70	10.00	10.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	14'312	17'700	20'588	28'679	...
International incoming fixed telephone traffic (minutes)		10x3	54'887	133'679	200'373	240'015	...
STAFF							
Total full-time telecommunication staff			7'913	8'619	9'778	11'234	...
Subscribers per employee			57.64	74.24	104.42	141.69	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	143'344	143'722	209'300	337'686	...
Telecommunication revenues as a % of GDP		%	1.80	1.48	1.89	3.06	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	132'887	94'365	217'743	60'199	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(4)		3.02	3.66	4.90	4.86	...
Per cent of households with a radio			22.63	25.63	33.70	34.68	36.40
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			9'534	12'155	17'710	25'724	31'400
Total fixed broadband Internet subscribers	(5)		57	35	61	261	307
Estimated Internet users			75'000	113'000	164'000	238'000	291'000
Internet users per 100 inhabitants			0.11	0.16	0.21	0.30	0.35
International Internet bandwidth (Mbit/s)	(6)		10.00	42.00	58.00	118.00	...

Notes: Ethiopian Telecommunications Corporation (ETC). Ethiopian Telecommunication Agency.
(1) Source: UN.
(2) 2000: UNCHS.
(3) Source: IMF.
(4) 2003-05: ITU estimates.
(5) 2004-05: ITU estimates.
(6) 2003-05: ITU estimates.
Source: ITU.

Gabon

Land area(km2):	*267'667*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Libreville*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'337	1'352	1'384	1'406	1'331
Households	(2)	10x3	267	270	273	281	...
Gross Domestic Product (GDP) (US$)		10x6	5'942	7'098	8'546	10'209	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'447	1'836	1'798	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		38'415.00	38'654.00	39'128.00	36'476.00	...
Main telephone lines per 100 inhabitants			2.87	2.86	2.83	2.59	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines	(5)		3'622	5'345	741	1'713	...
Public payphones			121	685	283	350	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(6)		300'000	489'367	652'282	764'728	1'169'000
Cellular subscribers per 100 inhabitants			22.44	36.20	47.13	54.39	87.86
Percent coverage of mobile cellular network (population)	(7)	%	23.70	74.00	78.00	78.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(8)	10x3	32'882	47'959	45'526	31'844	...
International incoming fixed telephone traffic (minutes)		10x3	40'092	35'809	50'002	...	...
STAFF							
Total full-time telecommunication staff	(9)		2'101	2'165	...	...	...
Subscribers per employee			161.07	243.89	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	142'614	192'120	146'850	...	...
Telecommunication revenues as a % of GDP		%	2.40	2.71	1.72	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	44'209	53'028	18'223	...	...
Telecommunication investment as a % of GFCF		%	3.05	2.89	1.01	...	...
BROADCASTING							
Per cent of households with a television	(10)		56.10	59.17	59.71	58.19	...
Per cent of households with a radio			82.27	86.91	86.70	84.41	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			7'800	7'850	8'660	10'077	...
Total fixed broadband Internet subscribers			170	650	1'530	1'763	...
Estimated Internet users			35'000	40'000	67'000	81'000	...
Internet users per 100 inhabitants			2.62	2.96	4.84	5.76	...
International Internet bandwidth (Mbit/s)			45.00	155.00	200.00	200.00	...

Notes: Gabon Telecom S.A.
(1) Source: UN; ITU estimate. 1993: Latest census.
(2) ITU estimates.
(3) Source: IMF.
(4) 1988: ITU estimate.
(5) 1984: ITU estimate.
(6) 2007: ITU estimate.
(7) 2001: Celtel.
(8) 1984: ITU estimate.
(9) 1984: ITU estimate.
(10) 2003-05: ITU estimates.
Source: ITU.

Gambia

Land area(km2):	*10'689*						
Local currency:	*Dalasis*			*Year Beginning 01.04*			
Capital:	*Banjul*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'365	1'462	1'517	1'556	1'709
Households	(2)	10x3	158	164	170	175	...
Gross Domestic Product (GDP) (US$)		10x6	196	226	254	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		27.31	30.03	28.58	28.07	24.88
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		41'986	42'993	44'000	46'302	76'367
Main telephone lines per 100 inhabitants			3.08	2.94	2.90	2.98	4.47
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	...	3'298
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)		149'300	175'000	247'478	404'345	795'880
Cellular subscribers per 100 inhabitants			10.94	11.97	16.31	25.99	46.58
Percent coverage of mobile cellular network (population)		%	...	...	...	70.00	85.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	19'900	26'300	32'700	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)			...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		12.00	12.00	12.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	2'060	...	...
Total fixed broadband Internet subscribers	(8)		-	36	71	...	...
Estimated Internet users	(9)		35'000	49'000	57'978	82'278	100'243
Internet users per 100 inhabitants			2.57	3.35	3.82	5.29	5.87
International Internet bandwidth (Mbit/s)	(10)		2.05	2.05	9.00	45.00	62.00

Notes: Gambia Telecommunications Co. Ltd. (GAMTEL). From 2005: The Gambia Public Utilities Regulatory Authority.
(1) Source: UN; ITU estimate. 1993,2003: census.
(2) 1990-92: World Bank. 1993,2003: Census. Others years: ITU estimates.
(3) Source: IMF.
(4) Excluding public call offices. 2003-04: ITU estimates.
(5) 2000: ITU estimate.
(6) 2003-05: ITU estimates.
(7) 2003-05: ITU estimates.
(8) 2004: ITU estimate.
(9) 2005: ITU estimate.
(10) 2003-05: ITU estimates.
Source: ITU.

Ghana

Land area(km2):	*238'305*						
Local currency:	*Cedi*			*Year Ending 31.12*			
Capital:	*Accra*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	21'284	21'377	22'112	22'556	23'478
Households	(2)	10x3	4'075	4'785	4'955	5'012	5'217
Gross Domestic Product (GDP) (US$)		10x6	7'624	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		8'677.37	9'004.63	9'072.54	9'242.00	0.94
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	291	313	322	356	377
Main telephone lines per 100 inhabitants			1.37	1.47	1.45	1.58	1.60
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	97	...
Waiting list for main (fixed) lines		10x3	...	...	5	2	...
Public payphones		10x3	7	...	17	13	10
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	796	1'695	2'875	5'207	7'604
Cellular subscribers per 100 inhabitants			3.74	7.93	13.00	23.09	32.39
Percent coverage of mobile cellular network (population)		%	...	...	59.00	65.30	68.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	61'751	...	65'521	2'997	...
International incoming fixed telephone traffic (minutes)		10x3	247'612	...	387'348	...	...
STAFF							
Total full-time telecommunication staff	(6)		4'885.00	...	5'678.00	...	...
Subscribers per employee			222.43	...	562.89	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		26.00	31.00	26.00	25.94	25.49
Per cent of households with a radio			71.00	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	10'720	21'843	23'400
Total fixed broadband Internet subscribers	(8)		-	900	1'904	12'749	14'142
Estimated Internet users	(9)		250'000	368'000	401'310	609'810	650'000
Internet users per 100 inhabitants			1.17	1.72	1.81	2.70	2.77
International Internet bandwidth (Mbit/s)	(10)		28.90	...	210.00	510.00	...

Notes: National Communications Authority (NCA).
(1) Source: UN.
(2) ITU estimate.
(3) Source: IMF.
(4) 2002: NCA.
(5) 2000: GT figures only.
(6) 1996: only Ghana Telecom Company staff.
(7) 2004-05: ITU estimates.
(8) 2004: ITU estimate.
(9) 2001: Ghana Telecom estimate.
(10) 2003: ITU estimate.
Source: ITU.

Guinea

Land area(km2):	*245'855*						
Local currency:	*Franc*			*Year Ending 31.12*			
Capital:	*Conakry*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	7'751	7'800	8'000	9'603	9'370
Households	(2)	10x3	1'174	1'187	1'200	1'440	1'405
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		1'984.93	2'225.03	3'644.33	5'900.00	...
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		26'165	26'200	26'300	...	...
Main telephone lines per 100 inhabitants			0.34	0.34	0.33	...	...
Percent of main (fixed) lines connected to digital exchanges		%	93	94	...	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)			111'500	154'900	189'000	...	...
Cellular subscribers per 100 inhabitants			1.44	1.99	2.36	...	...
Percent coverage of mobile cellular network (population)		%	...	...	...	80.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	5'273	6'000	6'000	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)			...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(6)		9.80	10.11	11.20	10.42	...
Per cent of households with a radio			57.07	60.66	63.33	69.44	71.17
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			11'000	...	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users			40'000	46'000	50'000	50'000	...
Internet users per 100 inhabitants			0.52	0.59	0.62	0.52	...
International Internet bandwidth (Mbit/s)	(7)		2.00	2.00	2.00	...	...

Notes: Société des Télécommunications de Guinée (SOTELGUI).
(1) Source: UN. SOTELGUI. ITU estimates.
(2) ITU estimates.
(3) Source: IMF.
(4) 2005: ITU estimate.
(5) 2003-05: ITU estimates.
(6) 2003-05: ITU estimates.
(7) 2003-05: ITU estimates.
Source: ITU.

Guinea-Bissau

Land area(km2):	*36'125*						
Local currency:	*Peso*				*Year Ending 31.12*		
Capital:	*Bissau*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'280	1'308	1'338	1'634	1'695
Households	(2)	10x3	183	187	192	233	242
Gross Domestic Product (GDP) (US$)		10x6	239	289	311	331	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	11	10	10	7	5
Main telephone lines per 100 inhabitants			0.82	0.74	0.72	0.42	0.27
Percent of main (fixed) lines connected to digital exchanges	(4)	%	100	100	100	100	100
Waiting list for main (fixed) lines		10x3	...	...	...	...	...
Public payphones		10x3	...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)			1'275	39'451	98'825	157'330	296'223
Cellular subscribers per 100 inhabitants			0.10	3.02	7.39	9.63	17.48
Percent coverage of mobile cellular network (population)		%	...	...	...	65.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x6	2	2	2	...	...
International incoming fixed telephone traffic (minutes)		10x6	...	...	...	...	...
STAFF							
Total full-time telecommunication staff		10x3	...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(6)		25.19	30.00	31.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers		10x3	...	...	...	...	...
Total fixed broadband Internet subscribers		10x3	-	-	-	-	...
Estimated Internet users		10x3	19	26	31	37	...
Internet users per 100 inhabitants			1.48	1.99	2.32	2.26	...
International Internet bandwidth (Mbit/s)	(7)		0.06	0.06	0.06	2.00	...

Notes: Instituto das Comunicações da Guiné-Bissau.
(1) Source: UN; 1991: Latest census.
(2) ITU estimates.
(3) From 1997, UN operational rate of exchange, end of period.
(4) 1992: AICEP.
(5) 2001-05: ITU estimates.
(6) 2003-05: ITU estimates.
(7) 2003-05: ITU estimates.
Source: ITU.

Kenya

Land area(km2):	*582'644*						
Local currency:	*Shilling*			*Year Ending 30.06*			
Capital:	*Nairobi*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	31'708	32'808	34'256	35'106	37'538
Households	(2)	10x3	6'893	7'286	7'447	7'632	8'161
Gross Domestic Product (GDP) (US$)		10x6	14'986	16'249	19'132	22'779	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	2'360	2'617	3'506	4'291	...
Average annual exchange rate per US$	(3)		75.94	79.17	75.55	72.10	67.32
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		328'358	299'255	281'764	293'364	264'822
Main telephone lines per 100 inhabitants			1.04	0.91	0.82	0.84	0.71
Percent of main (fixed) lines connected to digital exchanges		%	77	82	98	98	...
Waiting list for main (fixed) lines			107'938	107'260	85'177	61'798	...
Public payphones			9'964	9'798	8'967	7'913	5'805
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	1'591	2'546	4'612	7'340	11'440
Cellular subscribers per 100 inhabitants			5.02	7.76	13.46	20.91	30.48
Percent coverage of mobile cellular network (population)		%	...	78.00	86.00	92.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	26'496	29'635	42'558	46'957	...
International incoming fixed telephone traffic (minutes)	(7)	10x3	121'832	146'946	157'836	99'683	...
STAFF							
Total full-time telecommunication staff	(8)		18'756	20'162	22'197	9'260	...
Subscribers per employee			102.32	141.13	220.47	824.37	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	651'830	698'107	889'067	912'064	...
Telecommunication revenues as a % of GDP		%	4.35	4.30	4.65	4.00	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	791'309	443'855	678'150	792'895	...
Telecommunication investment as a % of GFCF		%	33.52	16.96	19.34	18.48	...
BROADCASTING							
Per cent of households with a television	(9)		19.40	19.21	21.49	26.21	39.21
Per cent of households with a radio			73.60	...	...	...	91.90
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			60'000	70'000	80'000	186'801	...
Total fixed broadband Internet subscribers			-	...	...	17'723	...
Estimated Internet users			1'000'000	1'054'920	1'111'000	2'770'296	...
Internet users per 100 inhabitants			3.15	3.22	3.24	7.89	...
International Internet bandwidth (Mbit/s)			26.00	34.00	113.39	758.59	...

Notes: Communications Commission of Kenya (CCK).
(1) Source: UN; ITU estimate. 1999: Latest census.
(2) ITU estimate.
(3) Source: IMF.
(4) 1999: ITU estimate.
(5) 2002: Dec.
(6) 2002: Dec.
(7) 2002: Dec.
(8) 2000: Estimates for the fixed telecom operator and two cellular operators.
(9) 2003-05: ITU estimates.
Source: ITU.

Lesotho

Land area(km2):	*30'344*						
Local currency:	*Loti*			*Year Beginning 01.04*			
Capital:	*Maseru*			**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY								
Population		(1)	10x3	1'800	1'800	1'795	1'791	2'008
Households		(2)	10x3	434	435	436	437	490
Gross Domestic Product (GDP) (US$)			10x6	1'039	1'319	1'457	1'448	...
Gross Fixed Capital Formation (GFCF) (US$)			10x6	421	471	509	592	...
Average annual exchange rate per US$		(3)		7.56	6.46	6.36	6.77	7.05
TELEPHONE NETWORK								
Main (fixed) telephone lines in operation		(4)	10x3	35	37	48	53	...
Main telephone lines per 100 inhabitants				1.95	2.07	2.67	2.97	...
Percent of main (fixed) lines connected to digital exchanges			%	100	100	100	100	100
Waiting list for main (fixed) lines		(5)		25'600	5'086	2'209	...	...
Public payphones		(6)		1'242	1'286	1'277	2'543	...
MOBILE SERVICES								
Mobile cellular telephone subscribers (post-paid + prepaid)		(7)	10x3	126	196	250	358	456
Cellular subscribers per 100 inhabitants				7.00	10.90	13.92	19.99	22.71
Percent coverage of mobile cellular network (population)			%	22.00	22.50	29.00	55.00	...
TRAFFIC								
International outgoing fixed telephone traffic (minutes)			10x3	23'414	24'529	20'496	...	...
International incoming fixed telephone traffic (minutes)			10x3	26'345	21'289	15'264	...	...
STAFF								
Total full-time telecommunication staff		(8)		359	274	268	...	...
Subscribers per employee				448.61	851.98	1'111.01	...	...
REVENUE AND EXPENSE								
Telecommunication revenues (US$)				...	...	...	...	...
Telecommunication revenues as a % of GDP			%	...	...	...	...	...
CAPITAL EXPENDITURE								
Total annual investment in telecommunication (US$)			10x3	10'117	1'305	1'745	...	...
Telecommunication investment as a % of GFCF			%	2.40	0.28	0.34	...	...
BROADCASTING								
Per cent of households with a television		(9)		13.00	13.10	...	...	...
Per cent of households with a radio				31.11	54.10	...	...	...
INFORMATION TECHNOLOGY								
Total (fixed) Internet subscribers		(10)		2'046	2'439	2'562	...	...
Total fixed broadband Internet subscribers		(11)		-	22	45	...	...
Estimated Internet users		(12)		30'000	43'000	51'480	...	...
Internet users per 100 inhabitants				1.67	2.39	2.87	...	...
International Internet bandwidth (Mbit/s)		(13)		1.00	2.64	4.29	...	...

Notes : Lesotho Telecommunications Authority (LTA).
(1) Source: UN.
(2) ITU estimates.
(3) Source: IMF.
(4) From 2001: December.
(5) From 2001: Dec. LTA.
(6) From 2001: Dec.
(7) 2007: ITU estimate.
(8) 1983: ITU estimate.
(9) 2003-05: ITU estimates.
(10) 2002: Dec.
(11) 2004-05: ITU estimates.
(12) 2005: ITU estimate.
(13) 2004: ITU estimate.
Source: ITU.

Liberia

Land area(km2):	*111'370*						
Local currency:	*Dollar*			*Year Ending 31.12*			
Capital:	*Monrovia*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	3'372	3'487	3'283	3'356	3'750
Households		10x3	495	506	517	524	486
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$			59.38	54.91	57.10	58.01	61.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	...	...	...	...	...
Main telephone lines per 100 inhabitants			...	...	...	...	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines		10x3	...	...	...	...	...
Public payphones		10x3	...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(2)	10x3	47	94	160	280	563
Cellular subscribers per 100 inhabitants			1.40	2.71	4.87	8.34	15.01
Percent coverage of mobile cellular network (population)		%	16.35	...	...	...	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)			...	...	...	...	...
International incoming fixed telephone traffic (minutes)			...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)			...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television			...	...	...	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	...	...
Total fixed broadband Internet subscribers			-	...	...	...	...
Estimated Internet users			...	...	...	...	...
Internet users per 100 inhabitants			...	...	...	...	...
International Internet bandwidth (Mbit/s)			...	...	...	...	...

Notes: Liberia Telecommunications Corporation (LTC).
(1) Source: UN.
(2) 2003, 2006, 2007: ITU estimates.
Source: ITU.

Libya

Land area(km2):	*1'759'540*						
Local currency:	*Dinar*				*Year Ending 31.12*		
Capital:	*Tripoli*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	5'530	5'659	5'854	5'968	6'160
Households	(2)	10x3	845	864	883	904	933
Gross Domestic Product (GDP) (US$)		10x6	24'598	31'790	42'833	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	2'582	3'056	3'675	...	...
Average annual exchange rate per US$	(3)		1.29	1.30	1.31	1.31	1.26
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	750	800	852	...	...
Main telephone lines per 100 inhabitants			13.56	14.13	14.56	...	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	100	100
Waiting list for main (fixed) lines		10x3	...	...	...	374	...
Public payphones		10x3	...	...	...	4	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	127	235	294	3'928	4'500
Cellular subscribers per 100 inhabitants			2.30	4.15	5.02	65.81	73.05
Percent coverage of mobile cellular network (population)		%	...	...	...	70.70	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	182'000	184'000	186'000	238'998	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	156'926	...
STAFF							
Total full-time telecommunication staff			...	...	...	2'817	...
Subscribers per employee			...	...	...	1'565.69	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)			...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		95.03	95.14	50.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	82'475	...
Total fixed broadband Internet subscribers			...	...	...	9'648	...
Estimated Internet users	(8)		160'000	205'000	232'044	260'000	...
Internet users per 100 inhabitants			2.89	3.62	3.96	4.36	...
International Internet bandwidth (Mbit/s)	(9)		6.00	40.00	100.00	124.40	...

Notes: General Post and Telecommunication Company (GDPT).
(1) Source: UN; ITU estimates.
(2) ITU estimates.
(3) Source: IMF.
(4) 2003-05: ITU estimates.
(5) 2007: ITU estimates.
(6) 2003-05: ITU estimates.
(7) 2003-05: ITU estimates.
(8) 2005-06: ITU estimate.
(9) 2003-05: ITU estimates.
Source: ITU.

Madagascar

Land area(km2):	*594'180*						
Local currency:	*Ariary*			*Year Ending 31.12*			
Capital:	*Antananarivo*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	17'626	18'113	18'606	19'105	19'683
Households	(2)	10x3	3'268	3'580	3'721	3'821	3'937
Gross Domestic Product (GDP) (US$)		10x6	1'092	873	5'040	5'499	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	177	210	1'309	1'468	...
Average annual exchange rate per US$	(3)		6'210.00	9'344.30	2'003.03	2'142.30	1'873.94
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	60	59	92	130	134
Main telephone lines per 100 inhabitants			0.34	0.32	0.50	0.68	0.68
Percent of main (fixed) lines connected to digital exchanges		%	...	...	96	99	...
Waiting list for main (fixed) lines	(4)		1'213	...	...	...	...
Public payphones	(5)		930	905	959	1'183	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	284	334	510	1'046	2'218
Cellular subscribers per 100 inhabitants			1.61	1.84	2.74	5.47	11.27
Percent coverage of mobile cellular network (population)	(6)	%	23.00	23.00	23.00	23.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(7)	10x3	6'573	6'150	4'528	4'787	...
International incoming fixed telephone traffic (minutes)		10x3	15'838	18'205	...	22'404	...
STAFF							
Total full-time telecommunication staff	(8)		2'313	...	...	2'985	...
Subscribers per employee			148.41	...	...	393.87	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	120'229	111'298	131'162	155'068	...
Telecommunication revenues as a % of GDP		%	11.01	12.75	2.60	2.82	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	14'761	...	...	50'816	...
Telecommunication investment as a % of GFCF		%	8.35	...	...	3.46	...
BROADCASTING							
Per cent of households with a television	(9)		17.50	17.50	17.98	17.98	...
Per cent of households with a radio			59.00	58.99	59.12	58.89	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(10)		15'000	10'473	9'579	19'870	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users			70'500	90'000	100'000	110'000	...
Internet users per 100 inhabitants			0.40	0.50	0.54	0.58	...
International Internet bandwidth (Mbit/s)			20.00	34.00	34.00	100.00	150.00

Notes: Office Malagasy d'Etudes et de Regulation des Télécommunications.
(1) UN.
(2) ITU estimates.
(3) Source: IMF.
(4) Waiting list in largest city.
(5) Public call offices.
(6) GSMA.
(7) 2005: ITU estimate.
(8) 1983: ITU estimate.
(9) 2003-05: ITU estimates.
(10) 2004: drop in subscribers number due to increased public Internet access.
Source: ITU.

Malawi

Land area(km2):	*94'081*						
Local currency:	*Kwacha*			*Year Ending 31.12*			
Capital:	*Lilongwe*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	10'488	12'337	12'884	13'166	13'925
Households	(2)	10x3	2'438	2'450	2'462	2'532	2'678
Gross Domestic Product (GDP) (US$)		10x6	1'765	1'903	2'075	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	182	174	185	...	...
Average annual exchange rate per US$	(3)		97.43	108.90	118.42	136.01	139.96
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	85	93	103	130	175
Main telephone lines per 100 inhabitants			0.81	0.75	0.80	0.99	1.26
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	135	222	429	700	1'051
Cellular subscribers per 100 inhabitants			1.29	1.80	3.33	5.32	7.55
Percent coverage of mobile cellular network (population)		%	28.00	49.00	70.00	93.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)			...	...	...	...	...
International incoming fixed telephone traffic (minutes)			...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	70'991	91'057	92'995	...	...
Telecommunication revenues as a % of GDP		%	4.02	4.79	4.48	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(6)		4.00	5.30	...	...	...
Per cent of households with a radio			57.42	61.90	64.99	65.17	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			12'600	16'182	15'000	...	85'029
Total fixed broadband Internet subscribers			69	138	404	...	1'589
Estimated Internet users			36'000	46'140	52'500	59'700	139'466
Internet users per 100 inhabitants			0.34	0.37	0.41	0.45	1.00
International Internet bandwidth (Mbit/s)	(7)		3.48	4.60	19.49	...	67.00

Notes: Malawi Communications Regulatory Authority (MACRA).
(1) Source: UN; ITU estimates. 1998: Latest census.
(2) ITU estimates.
(3) Source: IMF.
(4) 2006: ITU estimate.
(5) 2006: ITU estimate.
(6) 2003-05: ITU estimates.
(7) 2002-03: ITU estimates.
Source: ITU.

Mali

Land area(km2):	*1'240'142*						
Local currency:	*CFA franc*				*Year Ending 31.12*		
Capital:	*Bamako*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	10'863	11'101	11'345	13'918	12'337
Households	(2)	10x3	1'795	1'835	1'875	2'319	2'056
Gross Domestic Product (GDP) (US$)		10x6	4'222	4'982	5'304	5'923	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	769	...	...	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			60'925	65'834	75'904	82'521	85'000
Main telephone lines per 100 inhabitants			0.56	0.59	0.67	0.59	0.69
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			4'500	5'986	7'239	6'773	6'300
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	247	407	762	1'513	2'483
Cellular subscribers per 100 inhabitants			2.28	3.67	6.72	10.87	20.13
Percent coverage of mobile cellular network (population)		%	...	...	...	20.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	22'041	30'160	56'140	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			1'600	1'684	1'713	1'788	...
Subscribers per employee			192.59	280.70	489.14	892.32	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	137'545	214'365	248'356	304'270	...
Telecommunication revenues as a % of GDP		%	3.26	4.30	4.68	5.14	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	87'333	64'197	93'913	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(4)		15.04	16.35	17.07	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	5'897	7'000
Total fixed broadband Internet subscribers			-	-	-	3'085	3'200
Estimated Internet users			35'000	50'000	60'000	88'417	100'000
Internet users per 100 inhabitants			0.32	0.45	0.53	0.64	0.81
International Internet bandwidth (Mbit/s)			6.00	18.00	26.00	213.00	213.00

Notes: Comité de Régulation des Télécommunications.
(1) Source: UN; 1987: Latest census. Other years: ITU estimate.
(2) ITU estimates.
(3) Source: IMF.
(4) 2003-05: ITU estimates.
Source: ITU.

Mauritania

Land area(km2):	*1'030'700*						
Local currency:	*Ouguiya*			*Year Ending 31.12*			
Capital:	*Nouakchott*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	2'752	2'980	3'069	3'158	3'124
Households	(2)	10x3	500	514	528	544	538
Gross Domestic Product (GDP) (US$)		10x6	1'281	1'537	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	353	697	...	...	...
Average annual exchange rate per US$	(3)		263.03	257.19	265.53	270.61	270.61
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			38'178	39'000	41'000	34'870	...
Main telephone lines per 100 inhabitants			1.39	1.31	1.34	1.10	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			6'629	...	...	5'000	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)	10x3	351	522	746	1'060	1'300
Cellular subscribers per 100 inhabitants			12.75	17.53	24.30	33.57	41.62
Percent coverage of mobile cellular network (population)		%	...	38.00	46.00	54.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	15'000	21'000	26'934	10'409	...
International incoming fixed telephone traffic (minutes)		10x3	42'000	...	...	21'999	...
STAFF							
Total full-time telecommunication staff	(6)		730	773	784	861	...
Subscribers per employee			533.06	726.26	1'003.34	1'271.77	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	92'366	117'839	126'529	155'907	...
Telecommunication revenues as a % of GDP		%	7.21	7.67	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	84'667	...	...	29'930	...
Telecommunication investment as a % of GFCF		%	23.96	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		21.98	23.35	24.62	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			1'981	2'000	2'285	4'050	...
Total fixed broadband Internet subscribers			-	-	164	973	...
Estimated Internet users			12'000	14'000	20'000	30'000	...
Internet users per 100 inhabitants			0.44	0.47	0.65	0.95	...
International Internet bandwidth (Mbit/s)	(8)		9.50	27.00	45.00	90.00	...

Notes: Autorité de Régulation.
(1) 1988 and 2000: census results.Other years: ITU estimates.
(2) Since 2000: ARE.
(3) IMF.
(4) 2007: ITU estimate.
(5) 2004: ITU estimate.
(6) 1984: ITU estimate.
(7) 2003-04: ITU estimates.
(8) 2004: ITU estimate.
Source: ITU.

Mauritius

Land area(km2):	*1'865*						
Local currency:	*Rupee*			*Year Ending 31.12*			
Capital:	*Port Louis*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'221	1'233	1'245	1'256	1'262
Households	(2)	10x3	312	314	316	322	324
Gross Domestic Product (GDP) (US$)		10x6	5'641	6'385	6'284	6'490	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'274	1'382	1'340	1'557	...
Average annual exchange rate per US$	(3)		27.90	27.50	29.50	31.71	31.31
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			348'202	353'808	357'490	357'340	...
Main telephone lines per 100 inhabitants			28.52	28.69	28.71	28.45	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	2'973	...	...
Public payphones			2'768	...	1'400	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)	10x3	462	548	657	772	936
Cellular subscribers per 100 inhabitants			37.87	44.42	52.76	61.50	74.19
Percent coverage of mobile cellular network (population)		%	95.00	96.00	99.80	99.80	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	43'416	60'976	66'469	59'741	...
International incoming fixed telephone traffic (minutes)		10x3	68'549	100'369	119'781	...	...
STAFF							
Total full-time telecommunication staff			1'592	1'997	2'061	...	...
Subscribers per employee			509.18	451.45	492.15	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	179'928	194'578	277'766	228'486	...
Telecommunication revenues as a % of GDP		%	3.19	3.05	4.42	3.52	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	37'276	29'673	35'700	...	...
Telecommunication investment as a % of GFCF		%	2.93	2.15	2.66	...	...
BROADCASTING							
Per cent of households with a television	(5)		93.00	93.00	93.00	95.70	95.68
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			61'236	80'122	128'555	137'479	...
Total fixed broadband Internet subscribers			1'184	2'564	3'146	21'895	...
Estimated Internet users	(6)		150'000	240'000	300'000	320'000	...
Internet users per 100 inhabitants			12.29	19.46	24.10	25.48	...
International Internet bandwidth (Mbit/s)			63.00	71.00	153.00	192.00	...

Notes: Mauritius Telecom.
(1) Source: UN; Mauritius Statistics.
(2) ITU estimates.
(3) Source: IMF.
(4) 2007: ITU estimate.
(5) 2003-05: ITU estimates.
(6) Age 12+.
Source: ITU.

Morocco

Land area(km2):	*659'970*						
Local currency:	*Dirham*			*Year Ending 31.12*			
Capital:	*Rabat*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	29'486	29'892	30'310	30'735	31'224
Households	(2)	10x3	5'637	5'895	6'165	6'272	6'372
Gross Domestic Product (GDP) (US$)		10x6	43'834	50'019	51'621	57'286	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	10'501	12'298	13'076	...	...
Average annual exchange rate per US$	(3)		9.57	8.87	8.86	8.80	8.19
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	1'219	1'309	1'341	1'266	2'394
Main telephone lines per 100 inhabitants			4.13	4.38	4.42	4.12	7.67
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines	(5)	10x3	-	-	-	...	...
Public payphones	(6)	10x3	92	140	...	173	176
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(7)	10x3	7'360	9'337	12'393	16'005	20'029
Cellular subscribers per 100 inhabitants			24.96	31.24	40.89	52.07	64.15
Percent coverage of mobile cellular network (population)		%	95.00	96.00	97.50	98.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(8)	10x3	177'774	173'851	168'834	166'377	...
International incoming fixed telephone traffic (minutes)	(9)	10x3	1'254'864	557'380	593'285	539'909	...
STAFF							
Total full-time telecommunication staff			12'910	12'963	...	...	...
Subscribers per employee			664.53	821.22	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	1'971	2'819	2'809	2'959	...
Telecommunication revenues as a % of GDP		%	4.50	5.64	5.44	5.16	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	278	304	464	...	...
Telecommunication investment as a % of GFCF		%	2.65	2.48	3.54	...	...
BROADCASTING							
Per cent of households with a television	(10)		76.99	77.01	76.24	78.12	...
Per cent of households with a radio			81.60	79.73	77.20	77.33	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(11)		60'812	113'170	262'325	399'720	483'351
Total fixed broadband Internet subscribers	(12)		2'712	64'660	249'138	391'857	477'360
Estimated Internet users	(13)	10x3	1'000	3'500	4'600	6'100	7'300
Internet users per 100 inhabitants			3.39	11.71	15.18	19.85	23.38
International Internet bandwidth (Mbit/s)			310.00	1'240.00	7'100.00	11'500.00	...

Notes: Agence nationale de réglementation des télécommunications.
(1) 2004: Census data. Other years: ITU estimates.
(2) ITU estimates.
(3) IMF.
(4) From 2007: Includes fixed wireless subscribers.
(5) Pourcentage de demandes en instance.
(6) Including public call offices and privately-operated telephone centres. Inclut également le publiphones GSM et satelllitaires.
(7) It consists of both fixed and mobile international traffic
(8) 2003-05: data for Maroc Télécom and Médi Telecom.
(9) 2003-05: data for Maroc Télécom and Médi Telecom.
(10) Direction de la Statistique.
(11) 2004: does not include subscribers who have a subscription-free access
(12) From 2006: 128kbit/s or more.
(13) From 2004: persons who have used the Internet at least once during the last month, no matter of location.
Source: ITU.

Mozambique

Land area(km2):	*784'754*						
Local currency:	*Metical*			*Year Ending 31.12*			
Capital:	*Maputo*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	18'514	18'962	19'792	20'158	21'397
Households	(2)	10x3	4'409	4'553	4'702	4'800	5'095
Gross Domestic Product (GDP) (US$)		10x6	4'666	5'698	6'579	6'833	...
Gross Fixed Capital Formation (GFCF) (US$)		10x3	1'039'471	1'062'693	1'229'825	1'320'932	...
Average annual exchange rate per US$	(3)		23'782.30	22'581.30	23'061.00	25.40	25.84
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		77'576	69'676	69'735	66'968	...
Main telephone lines per 100 inhabitants			0.42	0.37	0.35	0.33	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			7'829	6'731	4'471	2'845	...
Public payphones			6'322	7'042	6'287	4'239	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	436	708	1'504	2'339	3'300
Cellular subscribers per 100 inhabitants			2.35	3.73	7.60	11.60	15.42
Percent coverage of mobile cellular network (population)		%	38.00	41.00	43.00	44.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	22'357	18'868	16'344	14'138	...
International incoming fixed telephone traffic (minutes)		10x3	589'521	311'828	243'906	...	...
STAFF							
Total full-time telecommunication staff			2'078	1'982	2'599	2'455	...
Subscribers per employee			247.03	392.37	605.49	980.16	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	95'116	103'472	95'745	86'925	...
Telecommunication revenues as a % of GDP		%	2.04	1.82	1.46	1.27	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	28	20	24	21	...
Telecommunication investment as a % of GFCF		%	2.67	1.86	1.92	1.62	...
BROADCASTING							
Per cent of households with a television	(6)		8.60	8.57	...	...	...
Per cent of households with a radio			53.20	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users	(7)		83'000	138'000	178'000	...	...
Internet users per 100 inhabitants			0.45	0.73	0.90	...	...
International Internet bandwidth (Mbit/s)	(8)		18.50	18.50	19.00	72.00	...

Notes: Telecomunicaçoes de Moçambique (TDM). Instituto Nacional das Comunicações de Moçambique (INCM).
(1) Source: UN, INE, ITU estimates.
(2) Source: INE, ITU estimates.
(3) Source: IMF.
(4) 1980: estimates.
(5) Not including mobile generated traffic.
(6) 2003-05: ITU estimates.
(7) 2005: ITU estimate.
(8) 2004-05: ITU estimates.
Source: ITU.

Namibia

Land area(km2):	*824'293*						
Local currency:	*Rand*			*Year Ending 30.09*			
Capital:	*Windhoek*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'924	2'011	2'031	2'052	2'074
Households	(2)	10x3	366	375	384	387	391
Gross Domestic Product (GDP) (US$)		10x6	4'473	5'712	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'304	1'437	...	...	...
Average annual exchange rate per US$	(3)		7.56	6.46	6.36	6.77	7.05
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	127	128	139	136	138
Main telephone lines per 100 inhabitants			6.62	6.36	6.84	6.63	6.66
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	3'521	...	...
Public payphones			...	...	4'930	6'086	4'200
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	224	286	449	609	800
Cellular subscribers per 100 inhabitants			11.63	14.23	22.10	29.67	38.58
Percent coverage of mobile cellular network (population)		%	...	88.00	88.00	90.00	95.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	61'400	62'200	63'000	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	1'350	...	...
Subscribers per employee			...	...	469.54	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	196'243	273'776	...	...	...
Telecommunication revenues as a % of GDP		%	4.39	4.79	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	17'304	20'536	20'443	...	...
Telecommunication investment as a % of GFCF		%	1.33	1.43	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		40.00	41.00	...	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			15'500	19'000	60'000	75'000	90'000
Total fixed broadband Internet subscribers			-	-	134	198	256
Estimated Internet users	(8)		65'000	75'000	80'563	90'100	101'000
Internet users per 100 inhabitants			3.38	3.73	3.97	4.39	4.87
International Internet bandwidth (Mbit/s)	(9)		8.80	9.00	36.00	46.00	56.00

Notes: Namibian Communications Commission (NCC).
(1) Source: UN; ITU estimate. 2001: Latest census.
(2) ITU estimates.
(3) Source: IMF.
(4) Before 1988 estimates.
(5) 2002: Dec.
(6) 2005: ITU estimate.
(7) 2003-05: ITU estimates.
(8) 2005: ITU estimate.
(9) 2003: ITU estimate.
Source: ITU.

Niger

Land area(km2):	*1'186'408*						
Local currency:	*CFA Franc*				*Year Ending 31.12*		
Capital:	*Niamey*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	12'291	12'415	13'957	14'426	14'226
Households	(2)	10x3	1'920	2'008	2'100	2'190	2'160
Gross Domestic Product (GDP) (US$)		10x6	2'640	2'897	3'328	3'538	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	288	...	...	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	23	24	24	...	...
Main telephone lines per 100 inhabitants			0.19	0.19	0.17	...	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones	(5)		69	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(6)	10x3	82	172	324	483	900
Cellular subscribers per 100 inhabitants			0.67	1.39	2.32	3.35	6.33
Percent coverage of mobile cellular network (population)		%	14.00	14.00	15.00	45.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(7)	10x6	2	2	2	...	...
International incoming fixed telephone traffic (minutes)		10x6	23	...	...	...	...
STAFF							
Total full-time telecommunication staff	(8)		1'005	...	1'062	...	...
Subscribers per employee			104.82	...	327.50	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	42'361	58'127	74'191	...	...
Telecommunication revenues as a % of GDP		%	1.60	2.01	2.23	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)			...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(9)		6.25	6.97	7.14	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(10)		3'000	3'117	3'599	...	...
Total fixed broadband Internet subscribers			-	77	212	...	...
Estimated Internet users			19'000	24'000	29'000	40'000	...
Internet users per 100 inhabitants			0.15	0.19	0.21	0.28	...
International Internet bandwidth (Mbit/s)			2.00	2.00	30.00	...	...

Notes: Until 2004: Ministère de la Communication and Societe Nigerienne des Télécommunications (SONITEL). Institut National de la Statistique.
(1) UN; ITU estimates. 1988: Latest census.
(2) ITU estimates.
(3) IMF.
(4) 1999: ITU estimate.
(5) Not including Public Call Offices.
(6) 2007: ITU estimate based on Celtel's Annual Report.
(7) 2003-05: ITU estimates.
(8) 1983: ITU estimate.
(9) 2003-05: ITU estimates.
(10) 2003: ITU estimate.
Source: ITU.

Nigeria

Land area(km2):	*923'850*						
Local currency:	*Naira*				*Year Ending 31.12*		
Capital:	*Lagos*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	123'314	127'117	131'529	134'375	148'093
Households	(2)	10x3	25'215	25'894	26'591	27'423	30'226
Gross Domestic Product (GDP) (US$)		10x6	55'650	64'364	111'006	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	6'701	10'396	...	...	...
Average annual exchange rate per US$	(3)		129.22	132.89	131.27	128.65	125.81
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	889	1'028	1'223	1'688	6'578
Main telephone lines per 100 inhabitants			0.72	0.81	0.93	1.26	4.44
Percent of main (fixed) lines connected to digital exchanges		%	91	...	91	...	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	3'149	9'147	18'587	32'322	40'396
Cellular subscribers per 100 inhabitants			2.55	7.20	14.13	24.05	27.28
Percent coverage of mobile cellular network (population)	(6)	%	45.00	55.00	58.00	60.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(7)	10x3	113'000	218'000	323'051	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff	(8)		15'792	...	...	...	...
Subscribers per employee			255.70	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	2'780	3'430	...	...
Telecommunication revenues as a % of GDP		%	...	4.32	3.09	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	387	...	...	...	...
Telecommunication investment as a % of GFCF		%	5.77	...	...	...	...
BROADCASTING							
Per cent of households with a television	(9)		26.00	25.00	26.32	...	...
Per cent of households with a radio			67.42	77.00	79.40	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers		10x3	...	...	2'000	...	...
Total fixed broadband Internet subscribers			-	-	500	...	...
Estimated Internet users	(10)	10x3	750	1'800	5'000	8'000	10'000
Internet users per 100 inhabitants			0.61	1.42	3.80	5.95	6.75
International Internet bandwidth (Mbit/s)	(11)		92.00	117.45	150.00	...	...

Notes: Nigerian Communications Commission (NCC).
(1) Source: UN.
(2) World Bank, ITU estimates.
(3) Source: IMF.
(4) From 2003: NCC, 2007: Break in comparability: Includes active Fixed Wired/ Wireless lines.
(5) 2007: Break in comparability: Includes active GSM & CDMA mobile lines.
(6) 2002: MTN.
(7) 2003-04: ITU estimates. 2005: NCC estimation.
(8) 1984: ITU estimates.
(9) 2003-04: ITU estimates.
(10) 2005: NCC estimation.
(11) 2003-04: ITU estimates. 2005: NCC estimation.
Source: ITU.

Rwanda

Land area(km2):	*26'330*						
Local currency:	*Franc*				*Year Ending 31.12*		
Capital:	*Kigali*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	8'399	8'481	9'037	9'230	9'725
Households	(2)	10x3	2'400	2'467	2'536	2'564	2'720
Gross Domestic Product (GDP) (US$)		10x6	1'777	1'971	2'387	2'957	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	323	296	375	454	...
Average annual exchange rate per US$	(3)		537.66	577.45	557.82	551.71	...
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		25'565	22'972	23'601	16'521	...
Main telephone lines per 100 inhabitants			0.30	0.27	0.26	0.18	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones			4'000	5'390	3'290	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)		130'720	137'271	222'978	314'201	679'000
Cellular subscribers per 100 inhabitants			1.56	1.62	2.47	3.40	6.98
Percent coverage of mobile cellular network (population)		%	...	70.00	75.00	80.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	...	2'261	1'533	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	4'516	...	...
STAFF							
Total full-time telecommunication staff			...	...	559	565	...
Subscribers per employee			...	...	435.17	585.35	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	48'233	...	...	...	...
Telecommunication revenues as a % of GDP		%	2.72	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television			2.42	2.36	2.30	...	...
Per cent of households with a radio			41.67	44.59	45.78	50.70	53.31
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			2'504	2'875	2'949	4'260	...
Total fixed broadband Internet subscribers			-	1'148	1'180	1'704	...
Estimated Internet users			31'000	38'000	50'000	100'000	...
Internet users per 100 inhabitants			0.37	0.45	0.55	1.08	...
International Internet bandwidth (Mbit/s)	(6)		10.00	45.00	54.00	70.00	...

Notes: Rwanda Information Technology Authority.
(1) Source: UN; ITU estimates.
(2) ITU estimates.
(3) Source: IMF.
(4) 2005: ITU estimate.
(5) 2007: ITU estimate.
(6) 2003-04
Source: ITU.

S. Tomé & Principe

Land area(km2):	*964*						
Local currency:	*Dobra*			*Year Ending 31.12*			
Capital:	*Sao Tome*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	149	153	157	160	158
Households	(2)	10x3	28	28	28	29	29
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		9'347.58	9'902.32	10'558.00	12'445.40	13'536.76
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		6'970	7'050	7'112	7'593	7'654
Main telephone lines per 100 inhabitants			4.66	4.61	4.54	4.74	4.86
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			595	578	714	273	...
Public payphones			103	117	118	123	130
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)			4'819	7'745	11'953	18'424	30'099
Cellular subscribers per 100 inhabitants			3.22	5.06	7.64	11.51	19.09
Percent coverage of mobile cellular network (population)		%	...	...	8.00	12.00	19.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x3	1'463	1'910	2'185	2'574	...
International incoming fixed telephone traffic (minutes)		10x3	4'158	5'119	5'644	6'261	...
STAFF							
Total full-time telecommunication staff			93	89	87	86	...
Subscribers per employee			126.76	166.24	219.14	302.52	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	8'179	10'055	10'382	11'177	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	1'543	2'249	1'551	1'109	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television			39.00	42.00	...	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			1'113	2'241	2'653	...	...
Total fixed broadband Internet subscribers			-	1'548	1'888	2'178	2'526
Estimated Internet users	(6)		15'000	20'000	21'000	22'000	23'000
Internet users per 100 inhabitants			10.04	13.07	13.42	13.74	14.59
International Internet bandwidth (Mbit/s)			2.00	2.00	4.00	4.00	12.00

Notes: Companhia Santomense de Telecomuniçaões s.a.r.l. (CST).
(1) Source: UN.
(2) ITU estimates.
(3) Source: IMF.
(4) 2005: ITU estimate.
(5) 2005: ITU estimate.
(6) 2003-2007: ITU estimates.
Source: ITU.

Senegal

Land area(km2):	*196'722*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Dakar*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	10'359	10'339	11'658	11'936	12'379
Households	(2)	10x3	1'189	1'222	1'256	1'326	1'375
Gross Domestic Product (GDP) (US$)		10x6	6'859	8'014	8'651	9'185	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'450	1'821	...	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	229	245	267	283	269
Main telephone lines per 100 inhabitants			2.21	2.37	2.29	2.37	2.17
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			8'836	27	29	24	...
Public payphones	(5)		476	505	696	1'175	17'765
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	782	1'121	1'730	2'983	4'123
Cellular subscribers per 100 inhabitants			7.55	10.85	14.84	24.99	33.31
Percent coverage of mobile cellular network (population)		%	85.00	85.00	85.00	83.00	85.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	76'000	84'000	98'000	103'000	...
International incoming fixed telephone traffic (minutes)		10x3	409'000	540'000	306'000	306'000	...
STAFF							
Total full-time telecommunication staff			1'647	1'761	1'815	1'920	...
Subscribers per employee			614.01	775.84	1'100.12	1'700.62	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	400'895	548'941	678'714	839'565	...
Telecommunication revenues as a % of GDP		%	5.84	6.85	7.85	9.14	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	94'645	149'772	183'595	...
Telecommunication investment as a % of GFCF		%	...	5.20	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		33.64	36.82	39.81	41.48	...
Per cent of households with a radio			68.26	73.65	87.18	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(8)		15'275	19'361	20'777	30'360	39'113
Total fixed broadband Internet subscribers			2'383	7'665	18'028	28'926	38'132
Estimated Internet users	(9)		225'000	482'000	540'000	650'000	820'000
Internet users per 100 inhabitants			2.17	4.66	4.63	5.45	6.62
International Internet bandwidth (Mbit/s)			310.00	465.00	775.00	1'240.00	1'705.00

Notes: Agence de Régulation des Télécommunications.
(1) Source: UN; ITU estimates.
(2) ITU estimate.
(3) Source: IMF.
(4) 2002: ITU estimate.
(5) From 1994 including private telecentres.
(6) 1984: ITU estimate.
(7) 2003-05: ITU estimates.
(8) From 2000: ART.
(9) From 2000: Sonatel and Sentel.
Source: ITU.

Seychelles

Land area(km2):	*404*						
Local currency:	*Rupee*			*Year Beginning 01.04*			
Capital:	*Victoria*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	79	80	81	81	87
Households	(2)	10x3	22	23	24	24	26
Gross Domestic Product (GDP) (US$)		10x6	703	703	698	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		5.40	5.50	5.50	5.52	6.70
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			21'191	21'268	21'404	20'679	20'603
Main telephone lines per 100 inhabitants			26.77	26.61	26.54	25.44	23.79
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			1'900	1'881	2'031	2'202	...
Public payphones			177	165	166	201	199
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)			49'229	54'369	58'806	70'340	77'278
Cellular subscribers per 100 inhabitants			62.19	68.04	72.91	86.52	89.23
Percent coverage of mobile cellular network (population)		%	90.00	95.00	98.00	98.00	98.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(4)	10x3	17'100	10'900	9'090	...	...
International incoming fixed telephone traffic (minutes)		10x3	...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	...	56'125	58'660	63'383	...
Telecommunication revenues as a % of GDP		%	...	7.98	8.40	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	11'891	14'600	12'844	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(5)		92.00	92.00	92.00	92.50	86.15
Per cent of households with a radio			92.00	92.00	92.00	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(6)		2'811	3'309	3'874	4'990	5'467
Total fixed broadband Internet subscribers			-	349	948	2'475	3'044
Estimated Internet users	(7)		12'000	20'000	21'000	29'000	...
Internet users per 100 inhabitants			15.16	25.03	26.04	35.67	...
International Internet bandwidth (Mbit/s)			6.00	14.00	23.50	35.00	42.00

Notes: Ministry of Information Technology and Communication.
(1) Source: UN; 2002: Latest census.
(2) 1995: Cable and Wireless (Seychelles) LTD.
(3) Source: IMF.
(4) 2003-05: ITU estimates.
(5) 2003-05: ITU estimates.
(6) 2001: Data at 31st December 2001.
(7) 2001: Data at 31st December 2001.
Source: ITU.

Sierra Leone

Land area(km2):	*72'326*						
Local currency:	*Leone*			*Year Ending 31.12*			
Capital:	*Freetown*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	5'119	5'336	5'526	5'679	5'866
Households	(2)	10x3	753	756	759	778	804
Gross Domestic Product (GDP) (US$)		10x6	990	1'071	1'162	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	138	...	...	...	...
Average annual exchange rate per US$	(3)		2'347.94	2'701.30	2'889.59	2'961.91	2'985.19
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	...	...	...	...	...
Main telephone lines per 100 inhabitants			...	...	...	...	...
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines		10x3	...	...	...	...	...
Public payphones		10x3	...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(4)	10x3	113	...	...	...	776
Cellular subscribers per 100 inhabitants			2.21	...	...	...	13.23
Percent coverage of mobile cellular network (population)		%	...	...	...	70.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x6	...	...	...	...	...
International incoming fixed telephone traffic (minutes)		10x6	...	...	...	...	...
STAFF							
Total full-time telecommunication staff		10x3	...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television			...	...	...	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	...	...	...	...
Total fixed broadband Internet subscribers			...	...	...	...	...
Estimated Internet users			9'000	10'000	...	...	...
Internet users per 100 inhabitants			0.18	0.19	...	...	...
International Internet bandwidth (Mbit/s)			...	...	...	...	...

Notes: Sierra Leone Telecommunications Company (SIERRATEL).
(1) Source: UN.
(2) ITU estimates.
(3) Source: IMF.
(4) 2003, 2007: ITU estimates.
Source: ITU.

Somalia

Land area(km2):	*630'000*						
Local currency:	*Shilling*			*Year Ending 31.12*			
Capital:	*Mogadiscio*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	7'708	7'964	8'228	8'496	8'699
Households	(2)	10x3	1'320	1'338	1'356	1'393	1'426
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		31'820.00	14'896.00	15'484.00	14'406.00	...
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)	10x3	100	100	100	100	100
Main telephone lines per 100 inhabitants			1.30	1.26	1.22	1.18	1.15
Percent of main (fixed) lines connected to digital exchanges		%	...	...	...	...	...
Waiting list for main (fixed) lines		10x3	-	...	...	...	...
Public payphones		10x3	...	...	...	...	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	200	500	500	550	600
Cellular subscribers per 100 inhabitants			2.59	6.28	6.08	6.47	6.90
Percent coverage of mobile cellular network (population)		%	...	...	...	...	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x6	...	...	...	...	...
International incoming fixed telephone traffic (minutes)		10x6	...	...	...	...	...
STAFF							
Total full-time telecommunication staff		10x3	...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(6)		7.58	10.00	8.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			2'000	9'000	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users	(7)		30'000	86'000	90'000	94'000	...
Internet users per 100 inhabitants			0.39	1.08	1.09	1.11	...
International Internet bandwidth (Mbit/s)			3.00	3.00	3.00	...	...

Notes: Ministry of Posts and Telecommunications.
(1) Source: UN.
(2) ITU estimate.
(3) From 1997, UN operational rate of exchange, end of period.
(4) ITU estimates.
(5) 2003, 2006-07: ITU estimates.
(6) 2003-05: ITU estimates.
(7) 2003: ITU estimate.
Source: ITU.

South Africa

Land area(km2):	*1'184'827*						
Local currency:	*Rand*			*Year Beginning 01.04*			
Capital:	*Pretoria*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	46'919	47'208	47'432	47'594	48'577
Households	(2)	10x3	11'598	11'799	12'003	12'000	12'248
Gross Domestic Product (GDP) (US$)		10x6	166'758	216'002	242'345	257'173	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	26'522	34'893	41'105	47'760	...
Average annual exchange rate per US$	(3)		7.56	6.46	6.36	6.77	7.05
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	4'821	4'850	4'729	...	4'642
Main telephone lines per 100 inhabitants			10.28	10.27	9.97	...	9.56
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	...	...
Waiting list for main (fixed) lines		10x3	...	...	...	...	...
Public payphones	(4)	10x3	175	169	165	...	158
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	16'860	20'839	33'960	39'662	42'300
Cellular subscribers per 100 inhabitants			35.93	44.14	71.60	83.33	87.08
Percent coverage of mobile cellular network (population)		%	96.00	96.00	96.00	97.10	99.79
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	427'000	415'000	515'000	...	...
International incoming fixed telephone traffic (minutes)			...	...	...	...	...
STAFF							
Total full-time telecommunication staff			38'492	35'416	33'775	...	...
Subscribers per employee			563.26	725.35	1'145.49	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	8'917	11'172	15'498	...	...
Telecommunication revenues as a % of GDP		%	5.35	5.17	6.40	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	871'164	...	...	...	...
Telecommunication investment as a % of GFCF		%	3.28	...	...	...	...
BROADCASTING							
Per cent of households with a television	(7)		57.90	59.20	59.00	...	...
Per cent of households with a radio			80.60	80.80	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers	(8)		3'138'800	3'566'000	4'279'200	...	...
Total fixed broadband Internet subscribers			20'313	60'000	165'290	335'112	...
Estimated Internet users	(9)		3'283'000	4'000'000	5'100'000	...	...
Internet users per 100 inhabitants			7.00	8.47	10.75	...	...
International Internet bandwidth (Mbit/s)	(10)		625.50	881.50	881.50	...	3'380.00

Notes: Telkom SA Limited (Telkom), Independent Communications Authority of South Africa (ICASA).
(1) UN.
(2) Source: Statistics South Africa, ITU estimate.
(3) Source: IMF.
(4) Coinphones, cardphones & table-mounted renter's payphone (Chatterboxes).
(5) 2007: Estimation based on Annual Reports of Vodacom, MTN and Cell C
(6) 1995: ITU estimate.
(7) 2005: ITU estimate.
(8) 2003: ITU estimate.
(9) 2003-2004: World Wide Worx.
(10) 2005: ITU estimate.
Source: ITU.

Sudan

Land area(km2):	*2'505'815*						
Local currency:	*Pound*				*Year Ending 31.12*		
Capital:	*Khartoum*			**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY								
Population		(1)	10x3	33'286	34'512	35'080	36'992	38'560
Households		(2)	10x3	5'457	5'566	5'677	5'967	6'220
Gross Domestic Product (GDP) (US$)			10x6	17'549	21'481	28'112	...	...
Gross Fixed Capital Formation (GFCF) (US$)			10x6	...	...	...	...	...
Average annual exchange rate per US$		(3)		260.98	257.91	243.61	217.20	2.02
TELEPHONE NETWORK								
Main (fixed) telephone lines in operation		(4)		936'756	1'028'899	570'000	767'218	345'194
Main telephone lines per 100 inhabitants				2.81	2.98	1.62	2.07	0.90
Percent of main (fixed) lines connected to digital exchanges			%	100	100	100	100	100
Waiting list for main (fixed) lines				...	...	-	-	...
Public payphones				...	...	3'669	3'669	3'669
MOBILE SERVICES								
Mobile cellular telephone subscribers (post-paid + prepaid)		(5)	10x3	527	1'049	1'828	4'288	7'464
Cellular subscribers per 100 inhabitants				1.58	3.04	5.21	11.59	19.36
Percent coverage of mobile cellular network (population)		(6)	%	27.00	33.00	34.00	35.00	...
TRAFFIC								
International outgoing fixed telephone traffic (minutes)		(7)	10x3	56'600	81'000	100'000	96'316	...
International incoming fixed telephone traffic (minutes)			10x3	290'300	306'100	350'000	452'714	...
STAFF								
Total full-time telecommunication staff				3'006	2'974	3'840	...	...
Subscribers per employee				487.02	698.54	624.46	...	...
REVENUE AND EXPENSE								
Telecommunication revenues (US$)			10x6	332	449	1'037	2'843	...
Telecommunication revenues as a % of GDP			%	1.89	2.09	3.69	...	...
CAPITAL EXPENDITURE								
Total annual investment in telecommunication (US$)				...	...	...	...	...
Telecommunication investment as a % of GFCF			%	...	...	...	...	...
BROADCASTING								
Per cent of households with a television				16.31	16.17	16.20	...	...
Per cent of households with a radio		(8)		40.32	39.53	39.10	37.54	36.66
INFORMATION TECHNOLOGY								
Total (fixed) Internet subscribers				...	...	...	...	...
Total fixed broadband Internet subscribers				-	793	1'269	2'065	3'500
Estimated Internet users				200'000	300'000	500'000	850'000	1'500'000
Internet users per 100 inhabitants				0.60	0.87	1.43	2.30	3.89
International Internet bandwidth (Mbit/s)				90.00	202.00	202.00	202.00	430.00

Notes: National Telecommunication Corporation (NTC).
(1) Source: UN; ITU estimates; 1993: Latest census.
(2) 1995: ITU estimate.
(3) Source: FMI.
(4) 1993: ITU estimate.
(5) ITU estimate: Without Canar. Canar counted as fixed line.
(6) 2001: Celtel.
(7) 1984: ITU estimate.
(8) 2005: % of households that has at least one radio set.
Source: ITU.

Swaziland

Land area(km2):	*17'366*						
Local currency:	*Lilangeni*			*Year Beginning 01.04*			
Capital:	*Mbabane*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	1'044	1'083	1'033	1'029	1'141
Households	(2)	10x3	166	168	170	169	183
Gross Domestic Product (GDP) (US$)		10x6	1'821	2'377	2'613	2'784	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	237	370	389	378	...
Average annual exchange rate per US$	(3)		7.56	6.46	6.36	6.77	7.05
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		46'199	44'507	35'042	43'970	...
Main telephone lines per 100 inhabitants			4.43	4.11	3.39	4.27	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			22'616	...	...	...	...
Public payphones			1'368	1'458	1'458	1'308	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)		85'000	145'000	200'000	250'000	380'000
Cellular subscribers per 100 inhabitants			8.14	13.39	19.36	24.29	33.29
Percent coverage of mobile cellular network (population)		%	...	...	...	90.00	...
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	27'845	23'914	25'273	29'263	...
International incoming fixed telephone traffic (minutes)	(6)	10x3	24'664	...	...	...	...
STAFF							
Total full-time telecommunication staff			471	...	...	...	...
Subscribers per employee			278.55	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	209'963	275'033	321'151	...	...
Telecommunication revenues as a % of GDP		%	11.53	11.57	12.29	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	28	...	...	...	...
Telecommunication investment as a % of GFCF		%	11.66	...	...	...	...
BROADCASTING							
Per cent of households with a television			19.00	20.00	18.00	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			19'000	5'600	7'000	7'000	...
Total fixed broadband Internet subscribers			-	-	-	-	...
Estimated Internet users	(7)		27'000	36'000	41'569	42'019	...
Internet users per 100 inhabitants			2.59	3.32	4.02	4.08	...
International Internet bandwidth (Mbit/s)	(8)		1.00	1.00	1.00	...	...

Notes: Swaziland Posts and Telecommunications Corporation (STPC).
(1) Source: UN; ITU estimates.
(2) ITU estimates.
(3) Source: IMF.
(4) 1965: SPTC estimate.
(5) 2003, 2007: ITU estimates.
(6) ITU estimates.
(7) 2005: ITU estimate.
(8) 2003-05: ITU estimates.
Source: ITU.

Tanzania

Land area(km2):	*939'762*						
Local currency:	*Shillings*			*Year Ending 31.12*			
Capital:	*Dodoma*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	36'919	37'627	38'329	39'025	40'454
Households	(2)	10x3	7'224	7'459	7'702	7'805	8'090
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	2'156	2'360	2'762	...	...
Average annual exchange rate per US$	(3)		1'038.42	1'089.33	1'128.93	1'251.90	1'245.04
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation			147'006	148'360	154'360	157'287	236'493
Main telephone lines per 100 inhabitants			0.40	0.39	0.40	0.40	0.58
Percent of main (fixed) lines connected to digital exchanges		%	...	100	100	100	100
Waiting list for main (fixed) lines			...	...	...	1'062	...
Public payphones			...	...	5'000	5'773	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	1'942	1'942	3'390	5'767	8'252
Cellular subscribers per 100 inhabitants			5.26	5.16	8.84	14.78	20.40
Percent coverage of mobile cellular network (population)		%	25.00	...	...	56.00	65.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(4)	10x3	14'000	17'000	19'000	...	...
International incoming fixed telephone traffic (minutes)			...	...	...	...	...
STAFF							
Total full-time telecommunication staff			...	...	...	...	...
Subscribers per employee			...	...	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x6	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television			4.15	6.15	6.62	6.73	6.80
Per cent of households with a radio			55.37	58.40	62.32	64.06	64.28
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			50'000	...	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	...
Estimated Internet users	(5)		250'000	333'000	384'323	...	...
Internet users per 100 inhabitants			0.68	0.89	1.00	...	...
International Internet bandwidth (Mbit/s)	(6)		16.00	16.00	100.00	...	...

Notes: Tanzania Telecommunications Company Ltd (TTCL).
(1) Source: UN.
(2) ITU estimates.
(3) Source: IMF.
(4) 1983: Estimate.
(5) 2005: ITU estimate.
(6) 2003-05: ITU estimates.
Source: ITU.

Togo

Land area(km2):	*56'785*						
Local currency:	*CFA Franc*			*Year Ending 31.12*			
Capital:	*Lome*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	5'000	5'017	5'100	6'306	6'585
Households	(2)	10x3	833	836	839	1'051	1'098
Gross Domestic Product (GDP) (US$)		10x6	1'797	2'028	2'110	2'185	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	342	...	...	...	...
Average annual exchange rate per US$	(3)		581.20	528.29	527.47	522.89	479.27
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		61'099	65'949	62'831	82'057	...
Main telephone lines per 100 inhabitants			1.22	1.31	1.23	1.30	...
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			29'000	30'000	...	9'276	...
Public payphones	(5)		13'207	22'300	26'161	21'338	...
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	244	333	434	708	1'190
Cellular subscribers per 100 inhabitants			4.87	6.63	8.50	11.23	18.08
Percent coverage of mobile cellular network (population)		%	85.00	85.00	85.00	85.00	86.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(6)	10x3	63'244	22'317	11'164	10'009	...
International incoming fixed telephone traffic (minutes)	(7)	10x3	79'968	26'122	19'380	21'076	...
STAFF							
Total full-time telecommunication staff			1'082	1'099	1'150	1'244	...
Subscribers per employee			281.62	362.62	431.71	635.09	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	96'812	118'090	132'787	153'843	...
Telecommunication revenues as a % of GDP		%	5.39	5.82	6.29	7.04	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	...	46'025	67'440	...
Telecommunication investment as a % of GFCF		%	...	...	...	...	...
BROADCASTING							
Per cent of households with a television	(8)		14.41	15.55	16.69	14.27	...
Per cent of households with a radio			51.62	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			12'500	...	...	...	...
Total fixed broadband Internet subscribers			-	-	-	...	1'200
Estimated Internet users			210'000	221'000	300'000	320'000	...
Internet users per 100 inhabitants			4.20	4.41	5.88	5.07	...
International Internet bandwidth (Mbit/s)			14.26	14.26	14.26	14.26	...

Notes: Societe des Télécommunications du Togo (TOGO TELECOM). From 2004: ART&P.
(1) UN; ITU estimates.
(2) ITU estimates.
(3) IMF.
(4) 2005: Drop results from the termination of contract for clients that had not paid.
(5) From 1999: includes private phone booths and GSM phone booths.
(6) 1984: ITU estimate.
(7) 1997: Incoming traffic total estimated.
(8) 2003-05: ITU estimates.
Source: ITU.

Tunisia

Land area(km2):	*164'148*						
Local currency:	*Dinar*			*Year Ending 31.12*			
Capital:	*Tunis*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	9'880	9'980	10'086	10'210	10'327
Households	(2)	10x3	2'139	2'220	2'274	2'304	3'330
Gross Domestic Product (GDP) (US$)		10x6	24'963	28'161	28'683	30'874	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	5'842	6'389	6'484	...	...
Average annual exchange rate per US$	(3)		1.29	1.25	1.30	1.33	1.28
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation		10x3	1'164	1'204	1'257	1'268	1'273
Main telephone lines per 100 inhabitants			11.78	12.06	12.47	12.42	12.33
Percent of main (fixed) lines connected to digital exchanges		%	100	100	100	100	100
Waiting list for main (fixed) lines			59'973	28'107	16'112	14'354	...
Public payphones			33'058	37'977	41'202	42'539	42'029
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	1'918	3'736	5'681	7'339	7'842
Cellular subscribers per 100 inhabitants			19.41	37.43	56.32	71.88	75.94
Percent coverage of mobile cellular network (population)		%	98.00	98.00	98.00	100.00	100.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)		10x3	221'000	215'000	247'000	242'311	...
International incoming fixed telephone traffic (minutes)	(4)	10x3	522'000	562'000	593'000	493'062	...
STAFF							
Total full-time telecommunication staff			8'610	8'844	9'373	9'404	...
Subscribers per employee			357.88	558.48	740.23	915.30	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	781	1'142	1'240	1'341	...
Telecommunication revenues as a % of GDP		%	3.13	4.06	4.32	4.34	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	405'426	412'800	269'082	311'796	...
Telecommunication investment as a % of GFCF		%	6.94	6.46	4.15	...	...
BROADCASTING							
Per cent of households with a television	(5)		92.05	90.18	92.13	93.10	...
Per cent of households with a radio			...	75.62	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers		10x3	92	121	150	179	253
Total fixed broadband Internet subscribers	(6)	10x3	-	3	18	46	114
Estimated Internet users		10x3	630	835	954	1'295	1'722
Internet users per 100 inhabitants			6.38	8.37	9.46	12.68	16.68
International Internet bandwidth (Mbit/s)			155.00	380.00	750.00	1'280.00	3'100.00

Notes: Ministère des Technologies de la Communication.
(1) UN; ITU estimates; 1994: Latest census.
(2) ITU estimates.
(3) IMF.
(4) 1997: ITU estimate.
(5) 2003-05: ITU estimate.
(6) 2007: includes ISDN, Frame Relay, and VSAT.
Source: ITU.

Uganda

Land area(km2):	*236'578*						
Local currency:	*Shilling*			*Year Ending 30.06*			
Capital:	*Kampala*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	26'869	27'821	28'816	29'856	30'884
Households	(2)	10x3	5'570	5'904	6'258	6'491	6'714
Gross Domestic Product (GDP) (US$)		10x6	6'496	7'779	9'136	10'160	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'397	1'783	2'076	2'463	...
Average annual exchange rate per US$	(3)		1'963.72	1'810.30	1'780.67	1'831.45	1'747.20
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		60'995	71'568	87'513	108'140	162'263
Main telephone lines per 100 inhabitants			0.23	0.26	0.30	0.36	0.53
Percent of main (fixed) lines connected to digital exchanges	(5)	%	80	85	90	95	...
Waiting list for main (fixed) lines			...	...	...	...	...
Public payphones	(6)		3'456	4'634	6'914	11'082	24'030
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(7)	10x3	776	1'165	1'315	2'009	4'195
Cellular subscribers per 100 inhabitants			2.89	4.19	4.56	6.73	13.58
Percent coverage of mobile cellular network (population)	(8)	%	46.00	75.00	70.00	80.00	80.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(9)	10x3	38'024	31'912	39'030	...	22'989
International incoming fixed telephone traffic (minutes)	(10)	10x3	46'168	...	...	...	192'122
STAFF							
Total full-time telecommunication staff	(11)		5'028	5'193	5'511	...	...
Subscribers per employee			166.50	238.13	254.55	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	185'091	248'938	287'328	...	...
Telecommunication revenues as a % of GDP		%	2.85	3.20	3.14	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	59'764	88'523	67'326	...	...
Telecommunication investment as a % of GFCF		%	4.28	4.97	3.24	...	...
BROADCASTING							
Per cent of households with a television	(12)		4.50	5.00	7.00	10.00	...
Per cent of households with a radio			48.60	52.00	60.00	65.00	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			7'024	8'000	9'500	11'000	15'500
Total fixed broadband Internet subscribers			-	-	850	1'210	1'860
Estimated Internet users			125'000	200'000	500'000	1'500'000	2'000'000
Internet users per 100 inhabitants			0.47	0.72	1.74	5.02	6.48
International Internet bandwidth (Mbit/s)			10.00	60.53	60.53	133.00	344.40

Notes: Uganda Communications Commission (UCC).
(1) Source: UN.
(2) ITU estimates.
(3) Source: IMF.
(4) 2007: September.
(5) 1999: August.
(6) From 2000: Including MTN.
(7) 2007: ITU estimate based on UCC Sept. 2007 data.
(8) 2001: Celtel.
(9) Not including traffic with Kenya or Tanzania, 2007: September.
(10) Not including traffic with Kenya or Tanzania, 2007: September.
(11) 1999: Staff of UTL (1'430), CelTel (107) and MTN (125).
(12) 2002: ITU estimate.
Source: ITU.

Zambia

Land area(km2):	*752'617*						
Local currency:	*Kwacha*			*Year Beginning 01.04*			
Capital:	*Lusaka*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	11'291	11'479	11'668	11'861	11'922
Households	(2)	10x3	2'200	2'238	2'302	2'326	2'338
Gross Domestic Product (GDP) (US$)		10x6	4'327	5'440	7'271	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	1'068	...	...	...	...
Average annual exchange rate per US$	(3)		4'733.27	4'778.88	4'463.50	3'603.07	4'002.52
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		88'426	91'719	94'665	93'427	91'789
Main telephone lines per 100 inhabitants			0.78	0.80	0.81	0.79	0.77
Percent of main (fixed) lines connected to digital exchanges		%	81	94	93	...	...
Waiting list for main (fixed) lines			10'957	11'495	...	...	...
Public payphones			883	865	750	...	5'440
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)	(5)	10x3	241	464	950	1'663	2'639
Cellular subscribers per 100 inhabitants			2.13	4.05	8.14	14.02	22.14
Percent coverage of mobile cellular network (population)	(6)	%	50.50	50.50	65.00	46.00	50.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(7)	10x3	12'635	12'000	10'000	19'341	...
International incoming fixed telephone traffic (minutes)		10x3	63'260	...	...	...	...
STAFF							
Total full-time telecommunication staff	(8)		2'864	3'172	...	...	...
Subscribers per employee			115.02	175.31	...	...	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x3	119'592	144'746	...	273'508	...
Telecommunication revenues as a % of GDP		%	2.76	2.66	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	27'626	42'475	...	...	...
Telecommunication investment as a % of GFCF		%	2.59	...	...	...	...
BROADCASTING							
Per cent of households with a television			...	...	...	...	...
Per cent of households with a radio			...	...	...	...	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers			...	16'538	...	9'049	12'578
Total fixed broadband Internet subscribers			91	250	250	2'339	...
Estimated Internet users	(9)		110'000	231'000	334'751	500'000	500'000
Internet users per 100 inhabitants			0.97	2.01	2.87	4.22	4.19
International Internet bandwidth (Mbit/s)			12.00	22.00	22.00	128.00	37.00

Notes: Communications Authority.
(1) Source: UN.
(2) ITU estimates.
(3) Source: IMF.
(4) 1960: ITU estimate.
(5) Until 1997: Only Zamtel.
(6) 2005: Only Celtel.
(7) 2004-05: ITU estimates.
(8) 2001: Data as at 31st December 2001.
(9) 2005: ITU estimate.
Source: ITU.

Zimbabwe

Land area(km2):	*390'310*						
Local currency:	*Dollar*			*Year Ending 30.06*			
Capital:	*Harare*		**2003**	**2004**	**2005**	**2006**	**2007**
DEMOGRAPHY, ECONOMY							
Population	(1)	10x3	11'763	11'892	11'900	13'085	13'349
Households	(2)	10x3	2'653	2'662	2'667	2'908	2'967
Gross Domestic Product (GDP) (US$)		10x6	...	...	...	...	...
Gross Fixed Capital Formation (GFCF) (US$)		10x6	...	...	...	...	...
Average annual exchange rate per US$	(3)		...	...	...	...	...
TELEPHONE NETWORK							
Main (fixed) telephone lines in operation	(4)		300'921	317'000	328'000	335'561	344'502
Main telephone lines per 100 inhabitants			2.56	2.67	2.76	2.56	2.58
Percent of main (fixed) lines connected to digital exchanges		%	65	81	81	81	...
Waiting list for main (fixed) lines			130'979	240'502	242'965	157'621	...
Public payphones			3'229	1'270	275	...	245
MOBILE SERVICES							
Mobile cellular telephone subscribers (post-paid + prepaid)		10x3	364	426	647	849	1'226
Cellular subscribers per 100 inhabitants			3.09	3.58	5.44	6.49	9.18
Percent coverage of mobile cellular network (population)		%	...	...	70.00	72.00	75.00
TRAFFIC							
International outgoing fixed telephone traffic (minutes)	(5)	10x6	...	85	85	70	...
International incoming fixed telephone traffic (minutes)	(6)	10x6	159	212	232	208	...
STAFF							
Total full-time telecommunication staff	(7)		4'101	4'694	4'226	3'106	...
Subscribers per employee			162.05	158.23	230.74	381.43	...
REVENUE AND EXPENSE							
Telecommunication revenues (US$)		10x6	...	...	...	...	...
Telecommunication revenues as a % of GDP		%	...	...	...	...	...
CAPITAL EXPENDITURE							
Total annual investment in telecommunication (US$)		10x3	...	...	...	...	...
Telecommunication investment as a % of GFCF		%	13'469.75	4'473.52	...	...	...
BROADCASTING							
Per cent of households with a television			27.40	33.92	34.35	31.77	...
Per cent of households with a radio			55.97	56.91	57.74	53.30	...
INFORMATION TECHNOLOGY							
Total (fixed) Internet subscribers		10x3	83	90	96	97	100
Total fixed broadband Internet subscribers		10x3	6	9	10	10	15
Estimated Internet users	(8)	10x3	800	820	1'000	1'220	1'351
Internet users per 100 inhabitants			6.80	6.90	8.40	9.32	10.12
International Internet bandwidth (Mbit/s)			...	55.00	55.00	55.00	57.00

Notes: Post and Telecommunications Regulatory Authority (POTRAZ).
(1) Source: UN; 1992, 2002: Census.
(2) Source: UN; 1992, 2002: Census.
(3) Source: IMF. 2003: UN Operational exchange rate.
(4) 1970: ITU estimate.
(5) 1993: ITU estimate.
(6) 1993: ITU estimate.
(7) Before 2000: Including post.
(8) Source: PTC, ZISPA, ITU estimates.
Source: ITU.

Technical Notes

General methodology
The compound annual growth rate (CAGR) is computed by the formula:

$$[(P_v / P_0)^{(1/n)}]-1$$

where P_v = Present value
P_0 = Beginning value
n = Number of periods

The result is multiplied by 100 to obtain a percentage.

United States dollar figures are reached by applying the average annual exchange rate (from the International Monetary Fund, IMF) to the figure reported in national currency. For countries where the IMF rate is unavailable or where the exchange rate typically applied to foreign exchange transactions differs markedly from the official IMF rate, a World Bank conversion rate is used. For the few countries where neither the IMF nor World Bank rates are available, a United Nations end-of-period rate was used.

Group figures are either *totals* or weighted averages depending on the indicator. For example, for main (fixed) telephone lines, the total number of *main (fixed) telephone lines* for each grouping is shown, while for *main (fixed) lines per 100 inhabitants* the weighted average is shown. Group figures are shown in bold in the tables. In cases of significant missing data, group totals are not shown. Group growth rates generally refer to countries for which data are available for both years.

1. Basic indicators
The data for *Population* are mid-year estimates from national statistical offices or the United Nations (UN). Population *Density* is based on land area data from the UN; the land area does not include any overseas dependencies but does include inland waters. The data for *Gross Domestic Product (GDP)* are generally from the IMF. They are current price data in national currency converted to United States dollars using annual average exchange rates. *Total telephone subscribers* refers to the sum of main (fixed) telephone lines and cellular mobile subscribers (see below for definitions). *Total telephone subscribers per 100 inhabitants* is calculated by dividing the total telephone subscribers by the population and multiplying by 100. *Effective teledensity* is the higher value of either main (fixed) telephone lines per 100 inhabitants or mobile cellular subscribers per 100 inhabitants.

2. Main (fixed) telephone lines
This table shows the number of *Main (fixed) telephone lines* and *Main (fixed) telephone lines per 100 inhabitants* for the years indicated and corresponding compound annual growth rates (CAGR, see above for computation). *Main (fixed) telephone lines* refer to telephone lines connecting a customer's equipment (e.g., telephone set, facsimile machine) to the Public Switched Telephone Network (PSTN) and which have a dedicated port on a telephone exchange. Note that for most countries, main lines also include public payphones. Many countries also include ISDN channels in main lines (see below ISDN and ADSL). *Main telephone lines per 100 inhabitants* is calculated by dividing the number of main lines by the population and multiplying by 100.

3. Waiting list for telephone lines
The table shows the total number of applications for a connection to a main (fixed) telephone line that have had to be held over, owing to a lack of technical availability. It should be noted that the waiting list refers to applications received; it does not include figures for those who desire a telephone line but have not submitted an application. *Total demand* is obtained by adding main (fixed) lines in operation and the waiting list. *Satisfied demand* is obtained by dividing the number of main (fixed) lines by the total demand for main (fixed) telephone lines (sum of the unmet applications and operating main (fixed) telephone lines). *Waiting time* shows the approximate number of years applicants must wait for a telephone line. It is calculated by dividing the number of applicants on the waiting list by the average number of main (fixed) lines added per year over the past three years.

4. Local telephone network
Capacity used is obtained by dividing the number of main (fixed) lines in service by the total number of main (fixed) lines that could be connected to local public switching exchanges. The *Automatic* per cent is calculated by dividing the number of main (fixed) lines connected to automatic exchanges by the total number of main (fixed) lines. The *Digital* per cent is calculated by dividing the number of main (fixed) lines connected to digital exchanges by the total number of main

(fixed) lines. The percentage of *Residential* lines refers to the number of main (fixed) lines serving households (i.e. lines that are not used for professional purposes or as public telephone stations) divided by the total number of main (fixed) lines. *Faults per 100 main lines per year* refer to the number of reported faults per 100 main (fixed) telephone lines for the year indicated. It is calculated by the total number of reported faults for the year divided by the number of telephone main (fixed) lines and multiplied by 100. Some countries report this on a monthly basis, so an annual estimate is made by multiplying by 12. The definition of a fault varies among countries: some operators define faults as including malfunctioning customer equipment while others include only technical faults.

5. Teleaccessibility

Total residential main (fixed) lines refers to the number of main (fixed) lines used by households. *Per 100 households* is obtained by dividing the number of residential main lines by the number of households and multiplying by 100. *Public telephones* refers to the total number of all types of public telephones including coin- and card-operated ones. Some countries include public phones installed in private places. No distinction is made between operational and non-operational payphones. *Per 1000 inhabitants* is obtained by dividing the number of public payphones by the population and multiplying by 1000. *As % of main (fixed) lines* is obtained by dividing the number of public telephones by the number of main (fixed) lines.

6. International fixed telephone traffic

Outgoing international fixed telephone traffic refers to total telephone traffic measured in minutes that originated in the specified country with a destination outside the country. *As % of bothway* refers to outgoing fixed traffic divided by total fixed traffic (incoming and outgoing). *Minutes per inhabitant* is obtained by dividing outgoing international minutes by the number of inhabitants in the country. *Minutes per subscriber* is obtained by dividing outgoing international minutes by the number of main (fixed) lines. *International telephone circuits* refers to the number of links (voice channel equivalents) with other countries for establishing telephone communications.

7. Fixed telephone tariffs

The table shows the costs associated with local residential and business telephone service. *Connection* refers to connection charges for basic telephone service. *Monthly subscription* refers to the recurring fixed charge for subscribing to the PSTN. This indicator is not always comparable since some countries include a number of free local calls in the subscription. When subscription charges are reported annually or bi-monthly, they are converted to their corresponding monthly amount. *Local call* refers to the cost of a 3-minute call within the same exchange area using the subscriber's equipment (i.e., not from a public telephone). This is the amount the subscriber must pay for a 3-minute call and not the average price for each 3-minutes. Any taxes involved in these three charges are included to improve comparability. The *Subscription as a % of GDP per capita* shows cost of an annual residential telephone subscription as a percentage of Gross Domestic Product (GDP) per capita. The *Price basket for fixed line ($US) as a percentage of GNI per capita* is a fixed price basked adopted from the World Bank. It is calculated as one-fifth of the connection charge, the monthly subscription charge, and the cost of local calls (15 peak and 15 off-peak calls of three minutes each). The basket is expressed as a percentage of countries' 2006 GNI per capita.

8. Mobile cellular subscribers

Mobile cellular subscribers refers to users of portable telephones subscribing to an automatic public mobile telephone service using cellular technology that provides access to the PSTN. *Per 100 inhabitants* is obtained by dividing the number of cellular subscribers by the population and multiplying by 100. *Prepaid subscribers* refers to the total number of mobile cellular subscribers using prepaid cards. *Population coverage* measures the percentage of inhabitants that are within range of a mobile cellular signal whether or not they are subscribers. This is calculated by dividing the number of inhabitants within range of a mobile cellular signal by the total population and multiplying by 100. *As a % of total telephone subscribers* is obtained by dividing the number of mobile cellular subscribers by the total number of telephone subscribers (sum of the main (fixed) telephone lines and the mobile cellular subscribers).

9. Mobile prepaid cellular tariffs

The table shows the cost associated with mobile prepaid cellular service. Where possible, the prices of the incumbent and/or major operator were taken, from operators' website or by correspondence: this may not necessarily be the most cost-effective connection, but rather a representative package on offer to consumers in September 2007. *Connection charge* refers to connection charges for basic mobile cellular service. Offers of free local calls on connection were not taken into account. *Average cost per minute* refers to the average cost of a one-minute mobile call within the

same network, to off-net and to a fixed line. These averages are calculated for both *Peak* and *Off-peak* periods. Any taxes involved in these charges are included to improve comparability. *Cost of local SMS* is the charge to the consumer of sending a single short messaging service (SMS) within the local exchange area. *100 minutes of use* includes the cost of 50 minutes of average cost per minute peak time calling and 50 minutes of average cost per minute off-peak calling. The connection charge is not taken into account. The price comparison is expressed in US$, using 2007 average annual exchange rates. *As a percentage of per capita income* is computed by dividing the 100 minutes of use by the Gross National Income (GNI) per capita of the country (World Bank, Atlas method, current US$). The OECD low-user basket gives the price of a standard basket of mobile monthly usage in US$ determined by the OECD for 25 outgoing calls per month (on-net, off –net and to a fixed line) in predetermined ratios plus 30 SMS messages. For more details on the OECD/Teligen methodology, see www.oecd.org. *As a percentage (%) of GNI per capita* is the price of the OECD low-user mobile basket divided by the GNI per capita monthly income (World Bank, Atlas method, current $US).

10. Telecommunication staff

Telecommunication staff refers to the total number of staff (part time staff converted to full time equivalents) employed by telecommunication enterprises providing public telecommunication services. In some cases where posts and telecommunication organisations are combined, no breakdown of telecommunication staff is available. Note that the figure would generally not include sub-contract staff. *% female* refers to the number of full time telecommunication staff that are female divided by the total number of employees and multiplied by 100. *Subscribers per employee* is computed by dividing the number of total telephone lines (fixed and mobile) by the number of employees. Caution should be used in interpreting this figure as some countries may subcontract a proportion of work, in which case the number of main (fixed) lines per employee would be overstated. *Mobile staff* refers to the number of full time staff working in the mobile communication sector. *Mobile subscribers per employee* is computed by dividing the number of mobile cellular subscribers by the number of employees in mobile communication.

11. Telecommunication revenue

This table shows the revenues (turnover) received from providing telecommunication services in each country. US dollar values are obtained by using the average annual exchange rate. Data may not be strictly comparable due to a number of factors. First, it is assumed that the data relate to revenues of all operators providing service in the country. This is not unequivocally known and may be impossible to determine since there may be no legal requirement for all operators to provide financial information, or operators may be part of a parent company that only provides consolidated accounts. The data do not always include revenues from cellular mobile telephone services, radio paging or data services. Second, the operators may have subsidiaries with financial activities unrelated to telecommunication services that may be included. Third, in the case of countries where posts and telecommunications are combined, a perfect allocation of revenues is not always possible. Fourth, there are definition and accounting differences among countries.

Total telecommunication revenue consists of all telecommunication revenues earned during the financial year under review. *% mobile* revenue is the share of mobile communication revenue. *Per inhabitant* shows current revenues divided by the number of inhabitants in the country. *Per telephone subscriber* is obtained by dividing revenues by total telephone subscribers (fixed plus mobile). *Per employee* is obtained by dividing revenues by the number of employees. *As a % of GDP* shows telecommunication revenues divided by national Gross Domestic Product.

12. Telecommunication investment

Investment refers to the annual expenditure associated with acquiring ownership of property and plant used for telecommunication services and includes land and buildings. *Total telecom investment* shows total current investments for the year indicated; the US dollar figure is arrived at by using average annual exchange rate. *Per inhabitant* is obtained by dividing the annual investment by the population. *Per telephone subscriber* is obtained by dividing investment by total telephone subscribers (fixed plus mobile). *As a % of revenue* is obtained by dividing annual investment by telecommunication revenues. *As a % of GFCF* shows telecommunications investment divided by Gross Fixed Capital Formation (GFCF).

13. ISDN and DSL

ISDN subscribers refers to the number of subscribers to Integrated Services Digital Networks. It includes both basic rate and primary rate interface subscribers. *B-channel equivalents* converts the number of ISDN

subscriber lines into their equivalent voice channels. The number of basic rate subscribers is multiplied by two and the number of primary rate subscribers is multiplied by 23 or 30, depending on the standard implemented.

B-channels per 1000 inhabitants is the number of B-channel equivalents divided by the population and multiplied by 1000. *B-channels as % of main lines* is the number of B-channel equivalents divided by the number of main (fixed) telephone lines and multiplied by 100. *DSL subscribers* refers to subscribers using Digital Subscriber Line (DSL) technology. DSL is a technology for bringing high-bandwidth information to homes and small businesses over ordinary copper telephone lines, with speed equal to, or greater than 256 kbit/s, as the sum of the capacity in both directions. *As % of subscriber lines* is calculated by dividing the number of DSL subscribers by the number of subscriber lines multiplied by 100. *Subscriber lines* is calculated by subtracting the number of ISDN channels from main (fixed) telephone lines and adding ISDN subscribers.

14. Internet

Internet subscribers refers to the number of dial-up, leased line and fixed broadband Internet subscribers. *Internet subscribers per 100 inhabitants* is obtained by dividing the number of subscribers by the population and multiplying by 100. *Internet users* is based on nationally reported data. In some cases, surveys have been carried out that give a more precise figure for the number of Internet users. However, surveys differ across countries in the age and frequency of use they cover. The reported figure for Internet users – which may refer to only users above a certain age – is divided by the total population and multiplied by 100 to obtain *Internet users per 100 inhabitants*. Countries that do not have surveys generally base their estimates on derivations from reported Internet Service Provider subscriber counts, calculated by multiplying the number of subscribers by a multiplier. Fixed *broadband subscribers* refers to the sum of DSL, cable modem and other fixed broadband subscribers. Although various definitions of *broadband* exist, it is here defined as sufficient bandwidth to permit combined provision of voice, data and video. Speed should be greater than 256 kbps, as the sum of capacity in both directions. Fixed broadband subscribers per 100 inhabitants is calculated by dividing the number of fixed broadband subscribers by the population of the country and by multiplying by 100.

15. Internet and bandwidth

Internet subscribers refers to the number of dial-up, leased line and fixed broadband Internet subscribers. Fixed *broadband subscribers* refer to the sum of DSL, cable modem and other fixed broadband subscribers. *As % of total Internet subscribers* is calculated by dividing the total number of fixed broadband subscribers by the total number of Internet subscribers and multiplying by 100. *Subscribers per 100 inhabitants* is calculated by dividing the number of broadband subscribers by the population of the country multiplied by 100. *International bandwidth* refers to the amount of international Internet bandwidth measured in Mega Bits Per Second (Mbps). Data for Internet bandwidth come from ITU's annual questionnaire supplemented with data from TeleGeography. *Bits per inhabitants* is calculated by dividing the international Internet bandwidth (in bits) by the country's population.

16. Internet tariffs, 20 hours per month

The table shows a representative selection of the cheapest prices commercially available for 20 hours per month from major Internet Service Providers of internet access for each economy, whether it is through dial-up or dedicated access. For dial-up, the cost is assumed to spread across 10 hours of peak usage and 10 hours of off-peak usage. The cost of dial-up also includes telephone usage charges (if applicable), based on 20 hours of local calls of one-hour duration. Where countries have a special Internet dial-up tariff, this is used. Where countries have a flat rate telephone usage charge (per call charge rather than per minute), a call duration of one hour per session is assumed. Note that the monthly rental for the telephone line is not included. If there is a specific 20 hour package (i.e. 20 hours included in the subscription price), this is assumed to be the cheapest. Where dedicated access is available, the cost of a monthly subscription is compared to the cost of dial-up, since in some countries, dedicated access is cheaper, even for low usage levels. If dedicated access prices are cheaper, these are used instead. Where dedicated access is used, telephone usages charges are not included. Note that dedicated access does not necessarily refer to broadband as defined by ITU. Data are generally those of the largest Internet Service Provider (ISP) and incumbent telephone company. *ISP charge* refers to the Internet monthly subscription plus extra charges once free hours have been used up. Local call charge refers to the amount payable to the telephone company for local telephone charges while logged on. *Total Internet price* refers to the sum of telephone usage charges and ISP charges. *As % of GNI per capita* shows cost of 20 hours use per month as a percentage of Gross National Income (GNI) per capita of the country (World Bank, Atlas method, current US$).

17. Broadband tariffs

The prices gathered for broadband give a representation of typical offers available in an economy. Broadband is considered any dedicated connection to the Internet of 256 kbit/s as the sum of capacity in both directions. They are not necessarily the cheapest, fastest or most cost-effective connections. Rather, they provide a sample of the offers of the incumbent telecommunications operator available to consumers. All prices were gathered during September 2007 and translated into United States dollars using the average annual exchange rates for 2007. If there is a distinction, broadband prices refet to residential offerings, unless operators offer only business packages. If applicable, bit caps are indicated in the table notes. All prices are gathered in local currency and converted to US$ using the average annual exchange rate for 2007. Most prices in the table are for ADSL services. The prices shown do not include installation charges or telephone line rentals that are often required for ADSL service. In most cases, two prices are gathered for each economy. *Lower speed monthly charge* refers to a lower-speed connection (typically at download speeds of 256 - 1'024 kbit/s) and gives an example of a typical "entry-level" broadband offer in the economy. The *monthly charge* reflects the ISP charge for one month of service. Charges do not include installation fees or modem rentals. *Speed (kbit/s) down* represents the advertised maximum theoretical download speed and not speeds guaranteed to users. *Higher speed monthly charge* refers to a faster and typically more expensive offer available in the economy. Download speeds are theoretical maxima. *Lowest sampled cost US$ per 100 kbit/s* gives the most cost-effective offer based on the criteria of the "least cost per 100 kbit/s." This is calculated by dividing the monthly subscription charge in US$ by the theoretical download speed, and then multiplying by 100. This figure is calculated for each recorded sample and the lowest cost per 100 kbit/s is given. *Lowest sampled cost as a % of monthly income (GNI) per capita* refers to the lowest sampled cost US$ per 100 kbit/s divided by GNI per capita monthly income (World Bank, Atlas method, current US$). The figure is then reported as a percentage (multiplied by 100). *ISP* lists the name of the Internet service provider whose sampled price was the lowest per 100 kbit/s over all the country samples.

18. Network growth

This table shows the increase in the number of main (fixed) telephone lines, mobile cellular subscribers and Internet users over the preceding 5-year period. Note that particularly for main (fixed) telephone lines, the figure is the addition to the base of main (fixed) lines and does not reflect replacements.

19. Broadcasting

Radio households represents the number of households that have a radio receiver. Note that for some countries, the number of licenses (i.e. system where radio sets must be registered) is used as a proxy for radio households. Since households may not register, the number of licenses may understate the true number especially if there is widespread avoidance of the licensing system. *As % of total households* is calculated by dividing the number of radio households by total households and multiplying by 100. Radio *population coverage* refers to the percentage of the population that could receive terrestrial-based radio programming transmissions from where they live. *Television households* is the number of households that have television receivers. Note that for some countries, the number of licenses (i.e. system where television sets must be registered) is used as a proxy for television households. Since households may not register, the number of licenses may understate the true number especially if there is widespread avoidance of the licensing system. *Population coverage* refers to the percentage of the population that can receive a terrestrial broadcast signal.

20. Core indicators on ICT infrastructure and access

This table shows the available data for the core list of indicators on ICT infrastructure and access, identified and agreed by the *Partnership on Measuring ICT for Development*. For a more detailed description of the indicators, including definition and methodological notes, please consult the *Core ICT Indicators* publication, available for free, on the ITU ICT Statistics website (http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf).

21. Core indicators on access to, and use of, ICT by households and individuals, latest available data

This table shows the latest available data for the core list of indicators on access to, and use of, ICT by households and individuals identified and agreed by the *Partnership on Measuring ICT for Development*. Data are collected from National Statistical Offices and usually come from national (household and individual) surveys. For a more detailed description of the indicators, including definitions, model questions and methodological notes, please consult the *Core ICT Indicators* publication, available for free on the

ITU ICT Statistics website (http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf). The *proportion of households with different types of ICTs (radio, TV, fixed telephone line, mobile cellular subscribers, computer, Internet)* is calculated by dividing the number of in-scope households with different ICTs by the total number of in-scope households and multiplying by 100. The *proportion of individuals who used a computer* is calculated by dividing the total number of in-scope individuals who used a computer from any location in the last 12 months by the total number of in-scope individuals and multiplying by 100. The *proportion of individuals who used the Internet* is calculated by dividing the total number of in-scope individuals who used the Internet (from any location) in the last 12 months by the total number of in-scope individuals and multiplying by 100.

Country Pages

These tables show annual data for the last five years (2002-2007) for each economy. There are limited data for the year 2007 since a number of countries were not able to provide year-end data for 2007 by the time this Report was published.

The *Land area* (in square kilometres), name of the *Local currency* and name of the *Capital* city are shown at the top left. The period to which the data refer is shown at the top right.

Definitions

DEMOGRAPHY, ECONOMY

Population: The data for *population* are generally mid-year estimates from the United Nations or from national statistical agencies.

Households: The data for *households* are generally mid-year estimates from the United Nations or from national statistical agencies.

Gross Domestic Product (GDP) (US$): The data for *Gross Domestic Product (GDP)* are generally from the International Monetary Fund (IMF). They are current price data in national currency converted to United States dollars using average annual exchange rates. GDP is the sum of final expenditures on goods and services in the domestic economy.

Gross Fixed Capital Formation (GFCF) (US$): The data for *Gross Fixed Capital Formation (GFCF)* are generally from the International Monetary Fund (IMF). They are current price data in national currency converted to United States dollars using average annual exchange rates. GFCF is expenditures made by business and government for additions to fixed assets.

Average annual exchange rate per US$: Number of units of country's currency per United States dollar averaged over one year. Rates are based on market, official or primary rates and are generally from the IMF.

TELEPHONE NETWORK

Main (fixed) telephone lines in operation: A telephone line connecting the subscriber's terminal equipment to the public switched network and which has a dedicated port in the telephone exchange equipment. This term is synonymous with the term "main station" or "Direct Exchange Line" (DEL) which are commonly used in telecommunication documents and is generally comparable with the terms "access line" or "subscriber."

Main telephone lines per 100 inhabitants: Calculated by dividing the number of main lines by the population and multiplying by 100.

Percent of main (fixed) lines connected to digital exchanges: This percentage is obtained by dividing the number of main lines connected to digital telephone exchanges by the total number of main lines.

Waiting list for main (fixed) lines: Unmet applications for connection to the Public Switched Telephone Network (PSTN) which have had to be held over owing to a lack of technical facilities (equipment, lines, etc.).

Public payphones: Total number of all types of public telephones, including coin and card operated and public telephones in call offices.

MOBILE SERVICES

Cellular mobile telephone subscribers (post-paid + prepaid): Users of portable telephones subscribing to an automatic public mobile telephone service which provides access to the Public Switched Telephone Network (PSTN) using cellular technology. This includes analogue and digital cellular systems.

Cellular subscribers per 100 inhabitants: Obtained by dividing the number of cellular subscribers by the population and multiplying by 100.

Percent coverage of mobile cellular network (population): Measures the percentage of inhabitants that are within range of a mobile cellular signal whether or not they are mobile cellular subscribers. This is calculated by dividing the number of inhabitants within range of a mobile cellular signal by the total population.

TRAFFIC

International outgoing fixed telephone traffic (minutes): Refers to total fixed telephone traffic measured in minutes that originated in the specified country with a destination outside the country.

International incoming fixed telephone traffic (minutes): Refers to total fixed telephone traffic measured in minutes that originated outside the specified country with a destination inside the country.

STAFF

Total full-time telecommunication staff: Refers to the total number of staff (part time staff converted to full time equivalents) employed by telecommunication enterprises providing public telecommunication services. In some cases where posts and telecommunication organizations are combined, no breakdown of telecommunication staff is available. Note that the figure would generally not include sub contract staff.

Subscribers per employee: Computed by dividing total telephone subscribers by the number of employees. Caution should be used in interpreting this figure as some countries may subcontract a proportion of work, in which case the number of main lines per employee would be overstated.

REVENUE AND EXPENSE

Telecommunication revenues (US$): Revenue (turnover) consists of telecommunication service earnings during the financial year under review received from providing telecommunication services in each country. US$ figures are arrived at by dividing the national currency data by the annual average exchange rate. Data may not be strictly comparable due to a number of factors. First, it is assumed that the data relate to revenues of all public telecommunication operators providing service in the country. This is not unequivocally known and may be impossible to determine since there may be no legal requirement for all operators to provide financial information, or operators may be part of a parent company that only provides consolidated accounts. The data does not usually include revenues from cellular mobile telephone, radio paging or data services if these services are not provided by the main fixed-link operator. Second, the operators may have subsidiaries with financial activities unrelated to telecommunication services that may be included. Third, in the case of countries where posts and telecommunications are combined, a perfect allocation of revenues is not always possible. Fourth, there are definition and accounting differences among countries.

Telecommunication revenues as a % of GDP: Shows current telecommunication revenues divided by national Gross Domestic Product.

CAPITAL EXPENDITURE

Total annual investment in telecommunication (US$): The annual investment for acquiring property and plant. US$ value arrived at by dividing the national currency figure by the annual average exchange rate. The term investment means the expenditure associated with acquiring the ownership of property (including intellectual and non-tangible property such as computer software) and plant. These include expenditure on initial installations and on additions to existing installations where the usage is expected to be over an extended period of time. Also referred to as “capital expenditure”.

Telecommunication investment as a % of GFCF: Telecommunications investment divided by Gross Fixed Capital Formation (GFCF). For some countries where GFCF is not available, Gross Domestic Investment is used. This is similar to GFCF except that it does not include changes in inventories which tend to comprise a small proportion of GFCF.

BROADCASTING

Per cent of households with a television: Calculated by dividing the number of households that have television receivers by total number of households and multiplying by 100. Note that for some countries, the number of licenses (i.e. system where television sets must be registered) is used as a proxy for television households. Since households may not register, the number of licenses may understate the true number especially if there is widespread avoidance of the licensing system.

Per cent of households with a radio: Calculated by dividing the number of households that have a radio receiver by total number of households and multiplying by 100. Note that for some countries, the number of licenses (i.e. system where radio sets must be registered) is used as a proxy for television households. Since households may not register, the number of licenses may understate the true number especially if there is widespread avoidance of the licensing system.

INFORMATION TECHNOLOGY

Total (fixed) Internet subscribers: Refers to the number of total Internet subscribers with fixed access, which includes dial-up, total fixed broadband subscribers, cable modem, DSL Internet subscribers, other broadband and leased line Internet subscribers. This includes only active subscribers that have used the system within a reasonable period of time.

Total fixed broadband Internet subscribers: Refers to a subscriber who pays for high-speed access to the public Internet (a TCP/IP connection), at speeds equal to, or greater than, 256 kbit/s, in one or both directions. This total is measured irrespective of the method of payment. It excludes subscribers with access to data communications (including the Internet) via mobile cellular networks.

Estimated Internet users: The number of Internet users based on nationally reported data. In some cases, surveys have been carried out that give a more precise figure for the number of Internet users. However surveys differ across countries in the age and frequency of use they cover.

Internet users per 100 inhabitants: Calculated by dividing the number of Internet users by the population and multiplying by 100.

International Internet bandwidth (Mbit/s): Refers to the total capacity of international Internet bandwidth in Mega Bits Per Second (Mbit/s).

AFRICAN TELECOMMUNICATION/ICT ORGANIZATIONS

African Telecommunication/ICT Organizations

Ministries and regulators responsible for telecommunication and main facilities-based providers of local and national and international long distance telephone service and mobile cellular service are shown below. Situation at 7 April 2008.

1 = Local telephone service. 2 = National long distance. 3 = International Long Distance. 4 = Wireless. 4a = GSM Mobile. 4b = CDMA Mobile. 4c = CDMA Fixed.

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Algeria	Ministère de la Poste et des Technologies de l'Information et de la Communication	*Ministry*						www.mptic.dz
	Autorité de Régulation de la Poste et des Télécommunications (ARPT)	*Regulator*						www.arpt.dz
	Algérie Télécom Mobilis	•	•	•	•		•	www.algerietelecom.dz www.mobilis.dz
	Lacom	•	•	•			•	www.lacom.dz
	Djezzy				•			www.djezzygsm.com
	Nedjma				•			www.nedjma.dz
Angola	Ministério dos Correios e Telecomunicações	*Ministry*						
	Instituto Angolano das Comunicações (INACOM)	*Regulator*						www.inacom.og.ao
	Angola Telecom Movicel	•	•	•		•	•	www.angolatelecom.com www.movicel.co.ao
	Mundo Startel	•	•	•				www.startel.co.ao
	Unitel				•			www.unitel.co.ao
Benin	Ministère de la Communication et de la Promotion des Technologies Nouvelles	*Ministry*						www.communication.gouv.bj
	Bénin Télécom (BT) Libercom	•	•	•	•			www.benintelecoms.bj www.libercom.bj
	Bell Benin Communications				•			www.groupebellbenin.com
	Moov Benin				•			www.moov.bj
	MTN Benin				•			www.areeba.com.bj
Botswana	Ministry of Communications, Science and Technology	*Ministry*						www.mcst.gov.bw
	Botswana Telecommunications Authority (BTA)	*Regulator*						www.bta.org.bw
	BTC	•	•	•				www.btc.bw
	Mascom				•			www.mascom.bw
	Orange				•			www.orange.co.bw
Burkina Faso	Ministère des Postes et Télécommunications	*Ministry*						www.mpt.bf
	Autorité Nationale de Régulation des Télécommunications (ARTEL)	*Regulator*						www.artel.bf
	Onatel Telmob	•	•	•	•			www.onatel.bf www.telmob.bf
	Celtel Burkina				•			www.bf.celtel.com
	Telecel Faso				•			www.telecelfaso.bf

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Burundi	Ministère des Transports, Postes et Télécommunications	*Ministry*						www.burundi.gov.bi
	Agence de Régulation et de Contrôle des Télécommunications (ARCT)	*Regulator*						www.arct.bi
	Office National des Télécommunications (ONATEL)	•	•	•	•			www.onatel.com
	Africell				•			www.africell.bi
	Econet Wireless Burundi				•			www.econet.bi
	Telecel Burundi				•			
Cameroon	Ministère des Postes et Télécommunications	*Ministry*						www.minpostel.gov.cm
	Agence de Régulation des Télécommunications (ART)	*Regulator*						www.art.cm
	Camtel	•	•	•		•	•	www.camtel.cm
	MTN Cameroon				•			www.mtncameroon.net
	Orange				•			www.orange.cm
Cape Verde	Ministerio de Estado e das Infraestruturas, Transportes e Mar	*Ministry*						www.governo.cv
	Agência Nacional de Comunicações (ANAC)	*Regulator*						www.anac.cv
	CVTelecom CVMóvel	•	•	•	•			www.cvtelecom.cv www.cvmovel.cv
	T+ Telecomunicações				•			www.tmais.cv
Central African Rep.	Ministère des Postes et des Télécommunications chargé des Nouvelles Technologies	*Ministry*						Email: minptt@intnet.cf
	Agence de Régulation des Télécommunications (ART)	*Regulator*						www.art-rca.org
	Socatel	•	•	•				www.socatel.cf
	Atlantique Cellulaire RCA (A-Cell)				•			
	Nationlink Telecom				•			www.nationlinktelecom.com
	Orange				•			www.orange.cf
	Telecel Centrafrique				•			
Chad	Ministère des Postes, et des Nouvelles Technologies de la Communication	*Ministry*						www.primature-tchad.org
	Office Tchadien de Régulation des Télécommunications (OTRT)	*Regulator*						www.otrt.td
	Société des Télécommunications (SOTEL)	•	•	•				www.sotel.td
	Celtel Tchad				•			www.td.celtel.com
	Millicom (Tigo)				•			www.millicom.com
Comoros	Ministère des Transports, des Postes et Télécommunications et du Tourisme	*Ministry*						www.beit-salam.km
	Comores Telecom	•	•	•	•			www.comorestelecom.km

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Congo	Ministère des Postes et Télécommunications chargé des Nouvelles Technologies de la Communication	*Ministry*						www.postelntic.gouv.cg
	Direction Générale de l'Administration Centrale des Postes et Télécommunications (DGACPT)	*Regulator*						www.dgacpt.com
	Société des Télécommunications du Congo (Sotelco)	•	•	•				
	Celtel Congo				•			www.cg.celtel.com
	MTN Congo (Libertis Telecom)				•			www.mtncongo.net
	Warid Congo				•			www.waridtel.cg
Côte d'Ivoire	Ministère des Nouvelles Technologies de l'Information et de la Communication	*Ministry*						www.gouv.ci
	Agence des Télécommunications de Côte d'Ivoire (ATCI)	*Regulator*						www.atci.ci
	Arobase	•	•	•			•	www.arobasetelecom.ci
	Côte d'Ivoire Telecom Orange Côte d'Ivoire	•	•	•	•	•	•	www.citelecom.ci www.orange.ci
	KoZ				•			www.koz.ci
	Moov (A-Cell)				•			www.moov.com
	MTN Côte d'Ivoire				•			www.mtn.ci
D.R. Congo	Ministère des Postes, Téléphones et Télécommunications	*Ministry*						
	Autorité de Régulation de la Poste et des Télécommunications du Congo (ARPTC)	*Regulator*						www.arptc.cd
	Office Congolais des Postes et des Télécommunications (OCPT)	•	•	•				www.ocpt.cd
	Congo Chine Telecom				•			www.cct.cd
	AfriTel						•	
	Celtel Congo (DRC)				•			www.cd.celtel.com
	Congo Korea Telecom (CKT)	•						
	Oasis (SAIT Télécom)				•			www.tigo.cd
	Supercell				•			
	Tatem Telecom					•	•	tatemtelecom.com
	Vodacom Congo				•			www.vodacom.cd
Djibouti	Ministère de la Communication et de la Culture, chargé des Postes et Télécommunications	*Ministry*						www.mccpt.dj
	Direction des Postes et Télécommunications	*Regulator*						www.mccpt.dj
	Djibouti Télécom	•	•	•	•			www.adjib.dj

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Egypt	Ministry of Communications and Information Technology	*Ministry*						www.mcit.gov.eg
	National Telecommunication Regulatory Authority (NTRA)	*Regulator*						www.tra.gov.eg
	Telecom Egypt	•	•	•			•	www.telecomegypt.com.eg
	Etisalat				•			www.etisalat.com
	Mobinil				•			www.mobinil.com
	Vodafone				•			www.vodafone.com.eg
Equatorial Guinea	Ministerio de Comunicaciones y Transporte	*Ministry*						www.ceiba-guinea-ecuatorial.org
	Dirección General de Correos y de Telecomunicaciones	*Regulator*						www.ceiba-guinea-ecuatorial.org
	Getesa	•	•	•	•			www.getesa.gq
Eritrea	Ministry of Transport and Communications	*Ministry*						Email: motcrez@aol.com.er
	Communications Department	*Regulator*						Email: motcrez@aol.com.er
	EriTel	•	•	•	•		•	www.eritel.com
Ethiopia	Ministry of Transport and Communication	*Ministry*						www.motac.gov.et
	Ethiopian Telecommunications Agency (ETA)	*Regulator*						www.eta.gov.et
	Ethiopian Telecommunications Corporation (ETC)	•	•	•	•		•	www.ethionet.et
Gabon	Ministère de la Communication, des Postes, des Télécommunications et des Nouvelles Technologies de l'Information	*Ministry*						
	Agence de Régulation des Télécommunications (ARTEL)	*Regulator*						www.artel.ga
	Gabon Télécom Libertis	•	•	•	•			www.ogooue.ga www.libertis.ga
	Celtel Gabon				•			www.ga.celtel.com
	Moov Gabon				•			www.moov.ga
Gambia	Department of State for Communications and Information Technology (DOSCIT)	*Ministry*						www.doscit.gm
	Public Utilities Regulatory Authority (PURA)	*Regulator*						www.pura.gm
	Gamtel Gamcel	•	•	•	•		•	www.gamtel.gm www.gamcel.gm
	Africell				•			www.africell.gm
	Comium Gambia				•			www.comium.com
Ghana	Ministry of Communications	*Ministry*						www.moc.gov.gh
	National Communications Authority (NCA)	*Regulator*						www.nca.org.gh
	Ghana Telecom Onetouch	•	•	•	•			www.ghanatelecom.com.gh www.onetouch.com.gh
	Western Telesystems (Westel)	•	•	•				www.westelgh.com
	Kasapa Telecom					•		
	Tigo				•			www.tigo.com.gh
	MTN				•			www.mtn.com.gh

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Guinea	Ministère de la Communication et des Nouvelles Technologies de l'Information	*Ministry*						www.guinee.gov.gn
	Direction Nationale des Postes et Télécommunications	*Regulator*						
	Sotelgui	•	•	•	•			www.sotelgui.net
	Areeba				•			www.areeba-guinea.com
	Intercel Guinée				•			
	Orange Guinée				•			
Guinea-Bissau	Ministério dos Transportes e Comunicações (not sure)	*Ministry*						www.republica-da-guine-bissau.org
	Instituto das Comunicações da Guiné-Bissau (ICGB)	*Regulator*						www.icgb.org
	Guiné Telecom	•	•	•	•			www.gtelecom.gw
	Areeba				•			www.areeba.com.gw
	Orange Bissau				•			
Kenya	Ministry of Information and Communications	*Ministry*						www.information.go.ke
	Communications Commission of Kenya	*Regulator*						www.cck.go.ke
	Telkom Kenya	•	•	•			•	www.telkom.co.ke
	Celtel Kenya			•	•			www.ke.celtel.com
	EM Communications	•					•	www.popotewireless.co.ke
	Flashcom	•					•	www.flashcom.co.ke
	Safaricom			•	•			www.safaricom.co.ke
Lesotho	Ministry of Communications, Science and Technology	*Ministry*						www.lesotho.gov.ls/comms/
	Lesotho Telecommunications Authority (LTA)	*Regulator*						www.lta.org.ls
	Telecom Lesotho Econet EziCell	•	•	•	•			www.telecom.co.ls www.ezicell.com
	Vodacom Lesotho				•			www.vodacom.co.ls
Liberia	Ministry of Posts and Telecommunications	*Ministry*						www.emansion.gov.lr
	Liberia Telecommunications Authority (LTA)	*Regulator*						www.lta.org.lr
	Liberia Telecommunications Corporation (LIBTELCO)	•	•	•				
	Cellcom				•			www.cellcomgsm.com
	Comium Liberia				•			www.comium.com.lr
	LiberCell				•			www.libercell.info
	Lonestar Cell				•			www.lonestarcell.com
Libya	General Directorate of Posts and Telecommunications (GDPT)	*Ministry*						
	General Post and Telecommunication Company (GPTC)	•	•	•				www.gptc.ly
	Al Madar				•			www.almadar.ly
	Libyana Mobile Phone				•			www.libyana.ly

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Madagascar	Ministère des Télécommunications, des Postes et de la Communication	*Ministry*						www.mtpc.gov.mg
	Office Malagasy d'Etudes et de Régulation des Télécommunications (OMERT)	*Regulator*						www.omert.mg
	Telma	•	•	•	•		•	www.telma.mg
	Celtel Madagascar				•			www.mg.celtel.com
	Orange Madagascar				•			www.orange.mg
Malawi	Ministry of Information and Civic Education	*Ministry*						www.malawi.gov.mw/Information/Home%20Information.htm
	Malawi Communications Regulatory Authority (MACRA)	*Regulator*						www.macra.org.mw
	Malawi Telecommunications (MTL)	•	•	•				www.mtl.mw
	Celtel Malawi				•			www.mw.celtel.com
	Telekom Networks Malawi				•			
Mali	Ministère de la Communication et des Nouvelles Technologies	*Ministry*						www.mcnt.gov.ml
	Comité de Régulation des Télécommunications (CRT)	*Regulator*						mali-reforme-telecom.mctmtl.com
	Sotelma Malitel	•	•	•	•		•	www.sotelma.ml www.malitel.com.ml
	Orange Mali				•			www.orangemali.com
Mauritania	Ministère de l'Intérieur, des Postes et Télécommunications	*Ministry*						www.interieur.gov.mr
	Autorité de Régulation (ARE)	*Regulator*						www.are.mr
	Mauritel	•	•	•	•		•	www.mauritel.mr www.eljawal.mr
	Chinguitel					•		www.chinguitel.mr
	Mattel				•			www.mattel.mr
Mauritius	Ministry of Information Technology and Telecommunications	*Ministry*						telecomit.gov.mu
	Information and Communication Technologies Authority (ICTA)	*Regulator*						www.icta.mu
	Mauritius Telecom Cellplus	•	•	•	•		•	www.mauritiustelecom.com www.cellplus.mu
	MTML	•	•	•		•	•	www.mahanagartelephone.com/mtml/
	Emtel				•			www.emtel-ltd.com
Morocco	Ministère de l'Industrie, du Commerce et des Nouvelles Technologies	*Ministry*						www.mcinet.gov.ma; www.technologies.gov.ma
	Agence Nationale de Réglementation des Télécommunications (ANRT)	*Regulator*						www.anrt.ma
	Maroc Telecom	•	•	•	•			www.elmanzil.ma; www.mobileiam.ma
	Méditel				•			www.meditel.ma
	Wana					•	•	www.wana.ma

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Mozambique	Ministério dos Transportes e Comunicação	*Ministry*						www.mtc.gov.mz
	Instituto Nacional das Comunicações de Moçambique (INCM)	*Regulator*						www.incm.gov.mz
	TDM	•	•	•				www.tdm.mz
	mCel				•			www.mcel.co.mz
	Vodacom Moçambique				•			www.vm.co.mz
Namibia	Ministry of Works, Transport and Communication	*Ministry*						www.grnnet.gov.na
	Namibian Communications Commission (NCC)	*Regulator*						www.ncc.org.na
	Telecom Namibia	•	•	•			•	www.telecom.na
	Cell One				•			www.cellone.com.na
	MTC				•			www.mtc.com.na
Niger	Ministère de la Communication	*Ministry*						www.communication-gouv-niger.ne
	Autorité de Régulation Multisectorielle (ARM)	*Regulator*						niger.arm-niger.org
	Sonitel SahelCom	•	•	•	•		•	www.sonitel.ne www.sahelcom.ne
	Celtel Niger				•			www.ne.celtel.com
	Telecel Niger				•			www.telecelniger.com
Nigeria	Ministry of Information and Communications	*Ministry*						www.nigeria.gov.ng
	Nigerian Communications Commission	*Regulator*						www.ncc.gov.ng
	Nitel M-tel	•	•	•	•		•	www.nitelnet.com www.mtelnigeria.com
	Globacom Glo Mobile	•	•	•	•			www.gloworld.com
	Bourdex Telecom						•	www.bourdex.com
	Cell Communications						•	www.cellcomng.com
	Celtel				•			www.ng.celtel.com
	Independent Telephone Network						•	www.itnnetwork.com
	Intercellular Nigeria						•	www.intercellular-ng.com
	MTS First Wireless						•	www.mtsfirst.com
	Multi-links						•	www.multilinks.com
	MTN Nigeria				•			www.mtnonline.com
	Rainbownet						•	www.rainbownet.net.ng
	Reliance					•	•	www.reltelnigeria.com
	Starcomms					•	•	www.starcomms.com
Rwanda	Ministry of Infrastructure	*Ministry*						www.mininfra.gov.rw
	Rwanda Utilities Regulatory Agency (RURA)	*Regulator*						www.rura.gov.rw
	RwandaTel	•	•	•				www.rwandatel.rw
	MTN Rwanda				•			www.mtn.co.rw

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
S. Tomé & Principe	Ministère des Travaux Publics, des Infrastructures et de l'Urbanisme	*Ministry*						Email: mirna@cstome.net
	Autorité Générale de Régulation	*Regulator*						www.ager-stp.org
	Companhia Santomense de Telecomunicações (CST)	•	•	•	•			www.cstome.net
Senegal	Ministère des Postes, des Télécommunications et des Nouvelles Technologies de l'Information et de la Communication	*Ministry*						www.telecom.gouv.sn
	Agence de Régulation des Télécommunications et des Postes	*Regulator*						www.artp-senegal.org
	Sonatel Orange	•	•	•	•			www.sonatel.sn www.orange.sn
	Tigo				•			www.tigo.sn
Seychelles	Ministry of National Development	*Ministry*						www.ict.gov.sc
	Department of Information Communication Technology	*Regulator*						www.ict.gov.sc/Infotech/itpro.aspx
	Airtel Telecom	•	•	•	•			www.airtel.sc
	Cable and Wireless	•	•	•	•			www.cwseychelles.com
	Smartcom				•			www.smartcomgsm.com
Sierra Leone	Ministry of Information and Communications	*Ministry*						
	National Telecommunications Commission (NTC)	*Regulator*						Fax: +232 22 235855
	SierraTel	•	•	•				www.stcg.net
	Africell				•			www.africell.sl
	Celtel				•			www.sl.celtel.com
	Comium				•			www.comium.com.sl
	Tigo				•			www.tigo.sl
Somalia	Ministry of Posts and Telecommunications	*Ministry*						www.somaligovernment.org
	Nationlink Telecom	•	•	•	•			www.nationlinktelecom.com
	Telcom Somalia	•	•	•	•			www.telcom-somalia.com
	Golis Telecom				•			www.golistelecom.com
	HorTel				•			www.hortel.net
	Somafone				•			www.somafone.com
	Telsom Mobile				•			www.telesom.net
South Africa	Department of Communications	*Ministry*						www.doc.gov.za
	Independent Communications Authority of South Africa (ICASA)	*Regulator*						www.icasa.org.za
	Telkom	•	•	•				www.telkom.co.za
	Cell C				•			www.cellc.co.za
	MTN				•			www.mtn.co.za
	Neotel						•	www.neotel.co.za
	Vodacom				•			www.vodacom.co.za

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Sudan	Ministry of Information and Communications	*Ministry*						www.sudan.gov.sd
	National Telecommunication Corporation (NTC)	*Regulator*						www.ntc.org.sd
	Canartel	•	•	•			•	www.canar.sd
	Sudatel	•	•	•		•		www.sudatel.net
	MobiTel				•			www.sdn-mobitel.com
	MTN				•			www.mtn.sd
Swaziland	Ministry of Tourism, Environment and Communications	*Ministry*						www.gov.sz
	Swaziland Posts and Telecommunications Corporation (SPTC)	•	•	•				www.sptc.co.sz
	MTN				•			www.mtn.co.sz
Tanzania	Ministry of Infrastructure Development	*Ministry*						www.infrastructure.go.tz
	Tanzania Communications Regulatory Authority (TCRA)	*Regulator*						www.tcra.go.tz
	TTCL	•	•	•			•	www.ttcl.co.tz
	Zanzibar Telecom	•	•	•	•		•	www.zantel.co.tz
	Benson					•		www.bolmobile.co.tz
	Celtel Tanzania				•			www.tz.celtel.com
	Mobitel				•			www.mobitel.co.tz
	Vodacom Tanzania				•			www.vodacom.co.tz
Togo	Ministère des Postes et des Télécommunications et des Innovations Technologiques	*Ministry*						www.telecom.gouv.tg
	Autorité de Réglementation des Secteurs de Postes et de Télécommunications (ART&P)	*Regulator*						www.artp.tg
	Togo Telecom TogoCel	•	•	•	•		•	www.togotel.net.tg www.togocel.tg
	Telecel Togo				•			www.telecel.tg
Tunisia	Ministère des Technologies de la Communication	*Ministry*						www.infocom.tn
	Instance Nationale des Télécommunications	*Regulator*						www.intt.tn
	Tunisie Telecom	•	•	•	•			www.tunisietelecom.tn
	Tunisiana				•			www.tunisiana.com
Uganda	Ministry of Information and Communications Technology	*Ministry*						www.ict.go.ug
	Uganda Communications Commission (UCC)	*Regulator*						www.ucc.co.ug
	Uganda Telecom UT Mobile	•	•	•	•		•	www.utl.co.ug www.utmobile.ug
	MTN Uganda	•	•	•	•		•	www.mtn.co.ug
	Celtel Uganda				•			www.ug.celtel.com
	Warid Telecom	•	•	•	•			www.waridtel.co.ug

COUNTRY	ORGANIZATION	1	2	3	4			WEBSITE
					a	b	c	
Zambia	Ministry of Communications and Transport	*Ministry*						www.mct.gov.zm
	Communications Authority	*Regulator*						www.caz.zm
	Zamtel Cell Z	•	•	•	•		•	www.zamtel.zm
	Celtel Zambia				•			www.zm.celtel.com
	MTN Zambia				•			www.mtnzambia.co.zm
Zimbabwe	Ministry of Transport and Communications	*Ministry*						www.transcom.gov.zw
	Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)	*Regulator*						www.potraz.gov.zw
	Tel*One Net*One	•	•	•	•			www.telone.co.zw www.netone.co.zw
	Econet Wireless Zimbabwe				•			www.econet.co.zw
	Telecel Zimbabwe				•			www.telecel.co.zw

32345

Printed in Switzerland
Geneva, 2008
ISBN 92-61-12411-9

Photo credits:
ITU/Alain de Ferron, ITU/Jean-Marie Micaud