2007 Ghana
Telecommunications
Sector Performance Review
a supply side analysis of policy outcomes

GODFRED K FREMPONG
2007 Ghana
Telecommunications Sector Performance Review
a supply side analysis of policy outcomes

Godfred K Frempong

Science and Technology Policy Research Institute
PO Box CT 519
Accra, Ghana
gkfrempong@stepri.csir.org.gh
godie58@yahoo.com
Research ICT Africa! (RIA!) fills a strategic gap in the development of a sustainable information society and network knowledge economy by building the ICT policy and regulatory research capacity needed to inform effective ICT governance in Africa. The network was launched with seed funding from the IDRC and seeks to extend its activities through national, regional and continental partnerships.

The establishment of the RIA! network emanates from the growing demand for data and analysis necessary for appropriate but visionary policy required to catapult the continent into the information age. Through network development RIA! seeks to build an African knowledge base in support of ICT policy and regulatory design processes and monitor and review policy and regulatory developments on the continent.

The research, arising from a public interest agenda, is made available in the public domain and individuals and entities from the public and private sector and civil society are encouraged to use it for teaching, further research or to enable them to participate more effectively in national, regional and global ICT policy formulation and governance.

The network is hosted at the Witwatersrand University, LINK Centre, under the directorship of Professor Alison Gillwald. Each member country has a nodal member responsible for coordinating RIA! activities in his/her respective country. There are further regional coordinators for East Africa, Dr Lishan Adam, and for West Africa, Dr Olivier Nana Nzépa.

For further information contact the RIA! coordinator Beki Nkala on nkala.b@pdm.wits.ac.za or go to www.researchICTAfrica.net

Benin – CEFRED, Université d’Abomey Calavi
Botswana – University of Botswana
Burkina Faso – CEDRES, University of Ouagadougou
Cameroon – University of Yaounde II
Côte d’Ivoire – CIRES, l’Université Nationale de Côte d’Ivoire
Ethiopia – University of Addis Ababa
Ghana – STEPRI of CSIR
Kenya – University of Nairobi
Mozambique – Universidade Eduardo Mondlane
Namibia – Namibia Economic and Policy Research Unit
Nigeria – University of Lagos
Rwanda – KIST (Kigali Institute of Science, Technology and Management
Senegal – CRES
South Africa – LINK Centre, University of Witwatersrand
Tanzania – Tanzania Communications Regulatory Authority
Uganda – University of Makerere
Zambia – University of Zambia

East Africa Regional Manager: Dr Lishan Adam
West Africa Regional Manager: Dr Olivier Nana Nzépa

This research is made possible by the support of the Independent Development Research Centre, (IDRC), Ottawa, Canada.
Senior Programme Manager:
Heloise Emdon, hemdon@idrc.ca
South Africa
Ghana
SERIES EDITOR:
Alison Gillwald

Other country studies in this series are available on www.researchICTafrica.com.

- Benin: Augustin Chabossou
- Botswana: Sebusang Sebusang, MP Makepe and TD Bothole
- Burkina Faso: Pam Zahonogo
- Cameroon: Olivier Nana Nzépa and Robertine Tankeu
- Côte d'Ivoire: Arsene Kouadio
- Ethiopia: Lishan Adam
- Kenya: Tim Waema
- Mozambique: Americo Muchanga and Francisco Mabila
- Namibia: Christoph Stork and Mariama Deen-Swarray
- Nigeria: Ike Mowete
- Rwanda: Albert Nsengiyumva and Annet B Baingana
- South Africa: Steve Esselaar and Alison Gillwald
- Tanzania: Ray Mfungayma and Haji Semboja
- Uganda: FF Tusubira, Irene Kaggwa-Sewankambo, Apolo Kyeyune, Ali Ndiwalana, Annrita Ssemboga
- Zambia: Sikaaba Malavu

Proof reading: Beki Nkala
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>9</td>
</tr>
<tr>
<td>Introduction and Summary</td>
<td>11</td>
</tr>
<tr>
<td>Socio-economic and Political Background of Ghana</td>
<td>13</td>
</tr>
<tr>
<td>Policy, Institutional and Regulatory Framework</td>
<td>15</td>
</tr>
<tr>
<td>Telecom Regulatory Environment Survey</td>
<td>22</td>
</tr>
<tr>
<td>International and Regional Organisations</td>
<td>24</td>
</tr>
<tr>
<td>ICT Market Outlook</td>
<td>26</td>
</tr>
<tr>
<td>Cost of ICT Services and Usage</td>
<td>41</td>
</tr>
<tr>
<td>Conclusion and Recommendations</td>
<td>51</td>
</tr>
<tr>
<td>References</td>
<td>55</td>
</tr>
</tbody>
</table>
ICT has assumed an important position in the contemporary world. Many countries both developed and developing have enunciated policies and programmes to utilise effectively the potential of ICTs. This has entailed substantive reform of telecommunications markets. Reform policy, especially since the mid 1980s, resulted in the liberalisation of the global ICT market. The rationale for this is that it provides opportunities for increased penetration of ICT services, increased competition which should have positive effects on pricing, improved quality of service, a plethora of services, and the utilisation of these services to enhance good governance and socio-economic development.

In Ghana, reform of the sector started in the early 1990s. A decade on there is a need to assess the implementation of the process and its effect on the sector’s development, especially in the early part of this millennium. This study assesses the performance of the ICT sector since 2000 and provides recommendations that could accelerate the development of the sector to enable Ghanaians to participate actively in the global ICT revolution.

Ghana has put in place the necessary frameworks to bolster ICT development in the country. The country has an ICT policy dubbed “ICT4AD”. This is augmented by the national telecommunication policy. Also, two regulatory authorities, namely the National Communications Authority and the National Media Commission, have been established by the National Communications Authority Act 524 of 1996 and the National Media Commission Act 449 of 1993. These bodies have the authority to regulate the different segments of the ICT market.

The telecom market in Ghana has two national fixed-line telephone network operators – Ghana Telecom (GT) and Westel, and four mobile telephone companies (Areeba Ghana Limited, Millicom Ghana Limited, GT One Touch and Kasapa Telecom). In addition, in 2005 there were 29 companies actively providing Internet services, 25 public/corporate data operators, 57 VSAT operators and 84 FM stations operating in the country. Further, there were also four TV companies providing free-on-air viewing and four others providing pay and view.
In terms of penetration of ICT services, both the fixed-line and the mobile telephone services grew positively during the study period. However, the growth of mobile telephony was more dramatic. The mobile telephone sub-sector grew by 87.4% for the period 2000 to 2005, while growth of the fixed-line sub-sector was only 9.4%. Although this appears low in comparison to mobile telephones, with fixed-line growth stagnant or negative across the continent this growth is very positive.

Access to broadband and dial-up Internet services was also assessed. ITU data revealed that Internet users per 100 increased over the period but still lagged behind countries such as Nigeria and Senegal. Data on actual broadband and dial-up Internet subscribers in the country could not be obtained due to the non-cooperation of most of the Internet Service Providers.

It is evident from the analysis that call charges for mobile telephone services, especially on-net call charges, have declined since 2003. However, the charges for off-net calls remain high and have led to a situation where individuals have started subscribing to multiple operators to optimise their call charges. These issues, particularly pricing, are unlikely to be resolved until state domination in the fixed-line telephone market is reduced. The establishment of a well resourced and autonomous single multi-sector regulator would allow optimal use of the limited regulatory capacity across a range of sectors. This would need to focus far more actively on consumer protection and the building of consumer awareness in this sector.
Introduction

In the contemporary world, information and communication technologies (ICTs) have become critical to the global socio-economic system. ICTs underpin the world’s business, administrative, bureaucratic and social organisations. This has compelled governments of both developed and developing countries to push the development of this sector. The literature is fraught with discussions of the potential contribution of ICT to good governance, education, health, environment, commerce and economic growth and development more generally.

In response to global changes in the industry, many governments have reformed their sector through the termination of state-owned monopolies through deregulation, privatisation and liberalisation. The underlying principle of such reforms is to enable the subscriber to enjoy a wider, better, new and less costly services (Wellenius, 1997).

Ghana liberalised its telecom market in the early 1990s to take advantage of the potential benefits of the reform. It introduced a five-year Accelerated Development Programme (ADP) in 1994 with the general objective of increasing telephone coverage in the country by allowing private participation in all sectors of the industry. The airwaves were also liberalised in response to constitutional provisions, and also in consonance with changes in the global environment. The Fourth Republican Constitution called for the removal of impediments to the establishment or operation of both print and electronic media. As a result of these developments the ICT landscape in Ghana is now characterised by the proliferation of services such as cellular phones, pagers, cable TV, Internet and its ancillary services and of a myriad print and electronic media operators, all trying to utilise niches in the market.

This development provides opportunities for increased penetration of ICT services, increased competition that should have positive effects on pricing, improved quality of service, a plethora of services, and the utilisation of these to enhance good governance in the country. This study assesses the performance of the ICT sector since 2000, and provides recommendations that could accelerate the developments in the sector to enable Ghanaians to participate actively in the global ICT revolution.

The country’s socio-economic indicators are discussed in the study. They centre on some of the development indicators espoused by the United Nations Development Programme (UNDP), which provide the wider policy context for telecommunications reform in the country.

The report looks at the policy, institutional, legal and regulatory framework that has been established to support ICT development in the
country. The section looks at the national policy for ICT, telecommunication policy, laws and regulatory agencies among other issues.

The regional and international organisations of which Ghana is a member are discussed in the following section. The objectives and functions of these organisations are discussed, and they include ECOWAS, UNECA, WATRA and others.

The ICT market in the country is also assessed, throwing light on the operators in the market, penetration of ICT services such as fixed-line and mobile telephones, and broadband and dial-up Internet services. There is also a discussion on government access and usage of Internet services.

The next section is concerned with the cost of ICT services; fixed-line and mobile, as well as broadband and dial-up Internet services are also discussed. The last section dwells on conclusion and recommendations.
Socio-economic and Political Background of Ghana

Ghana has a total land surface area of 238,537 km² and is sandwiched between the French-speaking countries of Côte d’Ivoire in the west, Togo in the east and Burkina Faso in the north.

By the end of 2005, the estimated population was 22.1 million and was dominated by young people. Almost 61% of the population comprises people below the age of 25 years. The country has a high illiteracy rate of 38.1% and this presents a great challenge to the adoption of ICT by the populace as a whole. ICT is knowledge-intensive and Ghana therefore requires a high level of literacy to enable every citizen to utilise the technologies to effectively enhance their socio-economic activities. Table 1 presents some development indicators of the country.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Surface Area</td>
<td>238,537 km²</td>
</tr>
<tr>
<td>Total population</td>
<td>22.1m</td>
</tr>
<tr>
<td>Population Growth Rate</td>
<td>2.5</td>
</tr>
<tr>
<td>Rural Population as % of total population (2002)</td>
<td>62%</td>
</tr>
<tr>
<td>Population Under 25 years (2002)</td>
<td>60.9</td>
</tr>
<tr>
<td>GDP Growth Rate</td>
<td>5.8</td>
</tr>
<tr>
<td>GDP per capita (PPP US$) 2003</td>
<td>2,238</td>
</tr>
<tr>
<td>GNI per capita income (Atlas Method)</td>
<td>US$450</td>
</tr>
<tr>
<td>Human Development Index Value (2003)</td>
<td>0.520</td>
</tr>
<tr>
<td>Human Development Index Rank (2003)</td>
<td>138</td>
</tr>
<tr>
<td>Human Poverty Index – Rank (2003)</td>
<td>62</td>
</tr>
<tr>
<td>Human Poverty Index – Value (2003)</td>
<td>35.1</td>
</tr>
<tr>
<td>Adult Literacy (% ages 15 and above: 2003)</td>
<td>54.1</td>
</tr>
</tbody>
</table>


Agriculture is the dominant economic activity of the country. It contributes about 36% to the country’s GDP and employs directly and indirectly over 60% of the country’s population. Efforts have been made to attract foreign direct investment (FDI) to diversify the economic base of the country. Between January 2001 and March 2005, Ghana attracted over US$488m in FDI into the economy. The level has, however, not been adequate to radically transform the economic base of the country.

Ghana’s Human Development Index (HDI) ranking fell from 129 in 2001 to 131 in 2002 and is now ranked at 138. Ghana’s HDI value for 2003 was

2 The UNDP development indicators and others illustrate the poverty situation and status of development achieved by a country.
0.520, ranking it 62 in the Poverty Index. Further to these UN indicators, about 44.8% of the country’s population lives below the poverty line of US$1 per day. Poverty is worse in the three northern regions.\(^3\) The country’s performance in terms of HDI has not dramatically changed; consequently there is the need for accelerated development efforts to move the country up the world’s development ladder.

\(^3\) It should be stated that the current official minimum wage is above US$1 per day.
Policy, Institutional and Regulatory Frameworks

POLICY FRAMEWORK
The ICT landscape in Ghana is directed by two policies, namely the National Telecom Policy and the ICT for Accelerated Development Policy (ICT4AD).

GHANA ICT FOR ACCELERATED DEVELOPMENT POLICY
The Ghana ICT4AD was launched in 2003 with the overall objective of engineering an ICT-led socio-economic development process with the potential to transform Ghana into a middle income, information-rich, knowledge-based, and technology driven economy and society (Ghana Government 2003). The strategic focus of the policy is to target simultaneously the development of the ICT sector and industry as well as use ICT as a broad-based driver of developmental goals with emphasis on the development, deployment and exploitation of ICTs as engines for all sectors of the economy. The argument is that the spill-over or catalytic effect on the economy as a whole of developing the ICT sector will not be enough to accelerate Ghana’s socio-economic development process. It is envisaged that a simultaneous focus on developing the ICT industry, while at the same time using ICTs to drive other sectors of the economy, can accelerate Ghana’s development faster and spread the social and economic impact of the development, deployment and exploitation of ICTs much faster than a single focus on the development of the ICT sector.

The specific objectives of the ICT4D Policy, among others, include creating an enabling environment to facilitate the deployment, utilisation and exploitation of ICTs within the economy and society, and supporting the development of a competitive high value-added services sector. This will serve as an engine for accelerated development and economic growth with the potential to develop into a regional business-services and ICT hub, while aiding the process of the development of national human resource capacity and the nation’s R&D capabilities to meet the changing needs and demands of the economy (Ghana Government 2003).

NATIONAL TELECOM POLICY
The National Telecommunications Policy (NTP) provides a framework within which the Ghana telecommunications sector will contribute to the achievement of government’s overarching ICT policy vision of improving the quality of life of the people of Ghana by significantly enriching their social, economic and cultural well-being through the rapid development and modernisation of the economy and society, using information and communication technologies as the main engine for accelerated and sustainable economic and social development (Ghana Government, 2003). The aim is to achieve this through:
Achievement of universal access for all communities and population groups in Ghana to telephone, Internet, and multimedia services by the year 2010;
National penetration of universal telecommunications service to reach 25% of the population, including at least 10% in rural areas, by the year 2010;
Connection of all schools, medical clinics, Government offices and public and community broadcasting stations to advanced telecommunications services;
Fully open, private, and competitive markets for all telecommunications services;
Streamlined, efficient, and effective regulation of the telecommunications industry on a fully transparent, technologically neutral, and competitively balanced basis;
Affordable prices for telecommunications services, particularly for low income citizens (Ministry of Communication, 2004).

The NTP has provided a broad framework of measures that will support the development of the telecom industry in the country. Issues of interconnection, competition, tariffs, sharing of facilities, protection of consumers, spectrum management, market access and telecom regulation in the country, among others, have succinctly been addressed by the policy.

INSTITUTIONAL FRAMEWORK
Two ministries, namely Ministry of Information and National Orientation and Ministry of Communications, have ministerial responsibilities over the entire ICT sector.

MINISTRY OF COMMUNICATIONS
The Ministry of Communications was created out of the former Ministry of Transport & Communications in response to local and global developments in the ICT industry. The purpose of restructuring the ministry was to enable the government to devote more attention to developing policies that will help integrate information technologies into the activities of the Ghanaian society and also to harness their full potential for effective development.

The Ministry is to manage the convergence of communications and technologies to promote a viable integrated national development process within a global setting; also to facilitate the development of a reliable and cost effective world-class communications infrastructure and service, driven by appropriate technological innovations to enhance the promotion of economic competitiveness in the knowledge-based environment.4
Some of the strategies to achieve these objectives include:

- Encouraging and facilitating the development of national telecommunications and technology infrastructure to bridge the digital divide,

create affordable access particularly to the rural community and build a demystified Internet based economy;
- Facilitating the development of a transparent, pro-competitive and regulatory regime conducive to ensuring fair, equitable and accelerated development of Ghana’s ICT sector, with the active participation of the private sector;
- Implementing the ICT reform in such a manner that it will be viewed as a component of reform programmes of other sectors so as to eliminate complexities, which may lead to policy failure;
- Promoting Ghana to become the leading international ICT centre in the sub-Saharan region by facilitating the establishment of major network application centres and operational data centres for international companies in the sub-region to source information;
- Proposing procedures for the introduction of requisite legislation to promote sector-wide development, application and deployment of ICT.

MINISTRY OF INFORMATION AND NATIONAL ORIENTATION

The role of Ministry of Information and National Orientation, among others, is to facilitate the free flow of information and feedback between the government and the public, and to assist in the development, coordination and implementation of policies in relation to the information needs of the people. The strategies to achieve this aim are to:
- Ensure effective information dissemination of government policies and programmes to all;
- Provide the necessary human resources to support information delivery for national development;
- Encourage private sector involvement in the information sector;
- Facilitate the delivery of modernised public services in the area of provision of government information through the deployment and the exploitation of information and communications technologies within the society and the economy;
- Provide a favourable environment for the provision of electronic government and electronic business and commerce;
- Promote the deployment and the use of ICT to facilitate universal access to public and government information and services to support the promotion of the principle and practice of good governance.

The Ministry has responsibility for the oversight of both print and electronic media. Prior to the liberalisation policy, the Ministry was in charge of media which were largely government controlled, and comprised the Ghana Broadcasting Corporation for Radio and TV, the New Times Corporation, the Ghana News Agency and the Graphic Corporation for the print media. The institutional framework for the governance of the sector was therefore simple, since most of the players were government organisations.
LEGAL AND REGULATORY FRAMEWORK

There are two main acts governing the ICT sector in the country; the National Communication Act and the National Media Commission Act. The two Acts established the National Communications Authority and the National Media Commission as regulatory institutions for the ICT sector in the country. However, there are others such as the Telecommunication Bill, National Information Technology Agency Bill and Electronic Transactions Bill which are at different stages of consideration.

NATIONAL COMMUNICATIONS AUTHORITY ACT

The National Communications Act 524 of 1996, provided the establishment of the regulatory body to govern some aspects of the sector. The overarching objective of the Act is to regulate communications by wire, cable, radio, television, satellite and similar means of technology, for the orderly development and operation of efficient communications services in Ghana and to provide for related purposes. The Act made provision for the establishment of a Board with the responsibility of ensuring that the NCA performs its functions creditably.

The Act also made provision for the establishment of an independent regulatory authority, the National Communications Authority (NCA), to manage the sector. The specified functions of the NCA include licensing, spectrum management and tariff regulation. This authority is also required to advise the Ministry on policy formulation and development strategies for the communications industry.

The Act granted the Minister for Communications a supervisory role in terms of providing government policy directions and acting as the last reference point for conflict resolution among operators in the sector. This may raise conflict of interest, especially when the state is the owner of Ghana Telecom (the incumbent), and the Ministry therefore might find it difficult to take decisions that may affect its investment in the incumbent.

The Act also empowers the NCA to actively promote competition and investment in the sector by setting attractive entry conditions for new operators, and by ensuring an equitable settlement of issues such as interconnection and frequency allocation. NCA’s regulatory role covers telecommunication and some aspects of the electronic media in terms of the issuance of frequency spectrum. With the establishment of the NCA, all regulatory functions carried out by the Ministry, the then Ghana Post and Telecommunication Corporation (GPT) and the Ghana Frequency Registration and Control Board (GFRCB), were transferred to the NCA.

Currently, the 1996 National Communications Authority Act is being reviewed. The government has introduced a draft new NCA Bill that is receiving comments from stakeholders.
The National Media Commission (NMC) was established by the National Media Commission Act, 1993, Act 449. The promulgation of the NMC law was one of the mandatory provisions of the 1992 constitution of Ghana. This demonstrates the importance of the media in national development, and also the avowed desire of the framers of the constitution to protect the media from government manipulation. The passing of the NMC Act heralded the deregulation of the print media.

The Act gave the Commission the mandate to:

- Promote and ensure the freedom and independence of the media for mass communication or information;
- Take all appropriate measures including the investigation, mediation and settlement of complaints made against or by the press or other mass media to ensure the establishment and maintenance of the highest journalistic standards in the mass media;
- Insulate the state-owned media from government control; and
- Register newspapers and other publications, but without impinging on their professional integrity.

Ghana has two regulators for the ICT sector. However, current discussions on how to develop an effective and strong independent regulator have shifted focus from a single industry-specific regulator to a multi-sector regulator. The multi-sector regulation is basically the establishment of a single regulatory agency that has responsibility for the different utility services such as telecom, energy, water and transport. The multi-sector regulator has a number of advantages. It enables limited personnel with regulatory skills as well as material resources to be concentrated within this multi-sector regulator to ensure effective regulation of the sectors involved.

More importantly, convergence between telecom, computing and lately broadcasting, with the resulting plethora of services, especially multimedia services, has narrowed the regulatory gap between telecom and broadcasting, resulting in one large, complex industry. Due to this, many countries (South Africa and Tanzania, for example) have adopted a multi-sector regulatory approach to manage the versatile industry.

The diminishing regulatory margins between communication and media are making industry specific regulations anachronistic. For example, who governs multimedia services such as video, TV and radio broadcast, among others, mediated through Internet protocols? This question will not be a regulatory issue if there is a single multi-sector regulatory agency for the current and emerging ICT services.
DRAFT LAWS
A number of draft laws or bills are under various stages of consideration which, when promulgated, will provide a comprehensive legal framework for the whole ICT sector. These draft laws or bills include the Telecommunications Bill, the National Information Technology Agency Bill and the Electronic Transactions Bill.

TELECOMMUNICATIONS BILL
The draft Telecommunications Bill will regulate both telecommunications and broadcasting in the country. The objectives of the Act, among others, are to promote the development of the telecommunications and broadcasting sectors for the growth of the economy, and encourage foreign and local investment in the sector. Specifically the Bill is responsible for the establishment of a transparent licensing and authorisation regime in support of fully open, private and competitive markets for telecom and broadcasting services. It is required to institute a range of competitive measures to include an interconnection framework and numbering plan. The intention is to ensure universal service, and access for all communities and rural populations to a comprehensive range of broadcasting and telecommunication services.

An earlier version of the Bill gave the responsibility of managing, controlling and regulating radio spectrum for broadcasting purposes to the National Media Commission. This provision was removed when the attention of the Ministry was drawn to its technical implications.

ELECTRONIC TRANSACTIONS BILL
Another Bill which is at consideration stage is the Electronic Transactions Bill, with the objective of facilitating electronic communications and related transactions in the country. The bill seeks to provide the legal certainty and confidence in electronic communications and transactions essential to widespread take-up of such services.

NATIONAL INFORMATION TECHNOLOGY AGENCY BILL
The National Information Technology Agency (NITA) Bill is to establish an agency to regulate the provision of ICT services specified in the Electronic Technology Act. NITA is part of the national institutional design to develop, promote and regulate electronic transactions in the country, in addition to implementing the provisions of the Ghana Telecom Policy as the ICT4AD Policy does not fall within the purview of the NCA. In effect, it is established to prevent the Ministry of Communications directly involving itself in the implementation of its own policies and programmes. The critical issue is the need to succinctly demarcate between the authority and functions of this Agency and that of the NCA, to avoid organisational clashes such as happened between the NCA and the NMC in the late 1990s.
These are the laws that are guiding the development of ICTs in the country. It is hoped that the current Bills will receive the necessary attention to ensure their early promulgation to give a holistic legal framework in support of every segment and legal requirement of the ICT industry.

**Judiciary**

The existence of an effective and competent judicial system with the competence to handle ICT-related cases with distinction is crucial for the development of confidence among investors (both foreign and local) to invest in the sector. This could be demonstrated by the effectiveness with which the judicial system handles matters brought before it. In Ghana, there is no court specifically designed for telecom/ICT related disputes, but a Commercial Court (with the status of a High Court) has been established within the judicial system of Ghana. The court is to handle all commercially related cases, to provide a conducive legal environment for business development. The commercial court was opened in March 2005, and by March 2006 it had settled 164 cases of the 4725 brought before it. The court is still in its formative stage and hopefully it will be nurtured to give quick and sound judgments, so as to win the confidence of the business community.

---

Telecom Regulatory Environment Survey

One of the important contributions towards evolving an effective regulatory regime is the existence of a feedback system that will enable the regulators to receive some indication of the regulatory climate from the stakeholders of the sector. Consequently, the Telecom Regulation Environment (TRE) assessment provides a unique opportunity for regulators to receive feedback on their performance. It involves sampling the perceptions of sector stakeholders on the regulatory environment of the country, on indicators such as ease of market entry, interconnection regime, anti-competitive practices regulation, tariff regulation and frequency allocation and usage. Figure 1 summarises the perceptions of the various stakeholders on the telecom regulatory environment in the country.

FIGURE 1. RESULTS OF TRE

The majority of the respondents ranked the telecom regulatory environment in the country as fair. It had an average score of 37.3%, while the median score for a satisfactory environment was 25.1%. However, the number of those who were neutral in their judgements was significant (an average rank of 24.1).

There was an excellent score for frequency allocation and usage in the country. This perception does not deviate from the actual situation in the country where applicants who satisfy all the conditions for the licence are granted. This is confirmed by the number of licences NCA has issued to the various ICT operators, already mentioned in the report.

One significant revelation of the TRE survey is the indication of improvement in the interconnection regime in the country. In actual fact, since 2005 interconnection has improved remarkably, and this might have informed the perception of those who had seen improvements in the interconnection regime in the country. Figure 2 compares interconnection regimes of...
selected African countries. Apart from Nigeria and Côte d’Ivoire, which had positive scores for interconnection, the rest of the countries had negative scores. Ghana is placed fifth.

**FIGURE 2. EFFICIENCY OF REGULATORY ENVIRONMENT – INTERCONNECTION AND FACILITIES: COMPARISON OF SELECTED AFRICAN COUNTRIES**

![Bar chart showing efficiency of regulatory environment in selected African countries](chart.png)

Source: Gillwald and Esselaar, (2007)

Generally, the ICT regulation in the country has seen some improvement, notably in the area of interconnection. The usual animosity and bickering that characterised the relationship between the incumbent and the other operators have subsided.
International and Regional Organisations

Ghana is a member of a number of sub-regional and regional organisations in Africa, a signatory to international protocols such as the WTO agreement on Basic Telecom Services. It is argued that one of the underpinnings of the telecom reform in Ghana in the early 1990s was due to the WTO agreement which Ghana had ratified.

The institutions with strong ICT focus in which Ghana is well represented include: Economic Community of West African States (ECOWAS), West African Telecommunication Regulators Association (WATRA), NEPAD’s e-Africa Commission, African Telecommunication Union and United Nations Economic Commission for Africa. Two institutions (ECOWAS and WATRA), which are of importance to telecom development in Ghana, will briefly be discussed in this section.

ECONOMIC COMMUNITY OF WEST AFRICAN STATES

The thrust of the ECOWAS ICT vision is to use ICT as a tool or vehicle to achieve development and integration goals, notably impacting positively on the well-being of the community and its citizenry. The emphasis is on developing ICT infrastructure (the networks, hardware, accessories, platforms and applications), as well as other infrastructural perspectives necessary for an integrated and effective ICT deployment (Ikhemuemhe, 2005).

The sub-regional organisation is also involved in the development and adoption of a community policy and strategy for ICT as well as harmonising broadcasting policy in member states. Further, ECOWAS is preparing for adoption a long term vision, and policies that provide road maps for the development of ICT within member countries and also on a sub-regional basis. The long term vision and policies it hopes to address will support the continuous reform of the telecom sector, modernise the sector in member countries, achieve universal access, introduce e-applications and ensure that youth and gender issues are well taken care of in ICT plans (Ikhemuemhe, 2005).

WEST AFRICAN TELECOMMUNICATION REGULATORS ASSEMBLY

The West African Telecommunication Regulators Assembly (WATRA) was formally inaugurated in 2002, with members being telecom regulators in the sub region. The main objectives for the establishment of WATRA include the establishment of model legal and regulatory structures, especially for countries that do not already have regulatory agencies for telecommunications services delivery within the sub-region;
these structures would serve the primary purpose of harmonising policies and regulations to stimulate telecommunication and ICT development and regional market integration. Human resource and capacity building efforts aimed at addressing the shortage of indigenous skills, competencies and capabilities in emerging ICTs in the sub-region are a major focus of the organisation, but there has not been nearly sufficient activity to address the current backlogs.\textsuperscript{10}

ICT Market Outlook

The telecom market in Ghana has two national fixed-line telephone network operators (Ghana Telecom (GT) and Westel) and four mobile telephone companies (Areeba Ghana Limited, Millicom Ghana Limited, GT One Touch and Kasapa Telecom). Interestingly, the market is characterised by a vibrant mobile telephone sub-sector and a docile fixed telephone market segment. The docility in the fixed-line telephone sub-sector is the result of developments in the post-liberalised and post-privatised sector. The fixed-line telephone sub-sector is now 100% owned by the government, as a result of the government’s buy-back of the shares of Telekom Malaysia (the strategic investor in GT) and that of Western Wireless Incorporated. Westel was a joint venture between Western Wireless Inc (US) and the Ghana National Petroleum Corporation, a public institution. This was as the result of a management crisis which hit the two companies and led to the withdrawal of foreign investors from the two companies. In effect, the country has returned to the monopoly era, but in line with policy, efforts are being made to further liberalise the sub-sector for more private sector participation. The government has put up Westel for divestiture, while in the case of GT, the government has advertised for a consulting company in telecom to advise and assist the government to successfully transfer 51% of shares in GT to a commercial basis. Plans are well advanced to sell some of the GT shares on the Ghana Stock Exchange.

There are a host of other ICT companies providing various services in the country. At the end of 2005 there were 29 companies actively providing Internet services, 25 public/corporate data operators, 57 VSAT data operators, and 84 FM stations operating in the country (NCA, 2006). Others have been involved in the sale and servicing of ICT customer premises, equipment and ICT related activities such as web design, hosting, domain name registration and construction of local area networks. The overview of the ICT market will look at indicators such as investments, access to ICT services, broadband and Internet services.

**Investment in ICTs**

Investment is the basis of developing a vibrant ICT sector in the country. Investments will enable the acquisition of the state-of-art technologies, as well as facilitating the expansion of services.

Unless it is a result of a sale of public assets or a listed company, data on investments made in the ICT sector is notoriously difficult to come by. However, according to the International Telecommunications Union database, over US$24 million was invested in the mobile telecom sector between 2000 and 2002. Media reports in recent times give some indication of investment coming into the mobile telephone sub-sector. It was

---

11 In November 2006 Westel was given license by NCA to operate a mobile telephone service in the country.

12 The data did not indicate whether the amount involved represents the investment made by all the mobile telephone operators or not.
reported that Millicom Ghana Limited is to spend US$40 million, in addition to the US$60 million it has already spent to improve its operations and expand services to cover the entire country, while GT negotiated a loan of $65 million from Societe General to undertake the second phase of its nationwide mobile telephone expansion programme. In addition, GT has spent US$75 million on expansion works on its mobile and fixed-line telephone networks.

In June last year, Scancom Ghana Limited, the then operators of Areeba, obtained a $40 million credit from the International Finance Corporation to finance its mobile telephone expansion programme in the country.

In the case of the fixed-line telephone sub-sector, it is only GT which is investing in the market. The company has also obtained separate loans from the World Bank and the Chinese government to support the expansion programme of the company. The World Bank has granted GT a US$40 million loan, while that from the Chinese government is US$30 million. The loans, according to the Minister of Communications, are to help the government to bridge the digital divide between urban and rural areas through accelerating the deployment of the fibre optic network across the country. It is concluded that the paucity of data on investment makes it difficult to assess the performance of the sector in terms of capital injection. Though these investment data may not give a comprehensive picture of the level of investment into the sub-sector, they still give some indication of the level of investments in the sub-sector.

**ACCESS TO ICT SERVICES**

In this section, we shall discuss access to a number of ICT services, notably fixed-line telephone, mobile telephone and Internet (including dial-up and broadband) services.

**FIXED-LINE TELEPHONE**

There has been growth in the fixed-line telephone sub-sector of 9.4% off a very low base. GT remains the dominant provider of fixed-line telephone service in the country. It holds about 99% of the market (see Figure 3). Its dominance is due to the failure of the second national network operator (Westel) to meet its licence obligations. Westel failed to expand its services beyond Accra/Tema and has not been able to increase its subscriber base beyond 3,000. The non-performance of Westel is largely due to a management crisis which arose between the shareholders of the company. This negatively affected the company’s investment in the fixed-
A line telephone market segment, and thus contributed to the increasingly entrenched position of the incumbent.

**FIGURE 3. MARKET SHARE OF FIXED-LINE TELEPHONE OPERATORS**

The deployment of fixed-line telephone service is biased towards the urban areas. The deployment of the service had followed the colonial pattern where the service was extended to towns and areas of commercial and security importance (Frempong 2004). For example, the first telephone line linked Cape Coast to Elmina Castles and was then extended to Christianborg Castle at Osu, Accra, to facilitate security at the seat of government and the castles (PORSPI 1993). Later, the service was extended to Tarkwa (a goldmining town), Sekondi (a harbour town), Cape Coast and Dodowa. The pattern has not changed much after independence, as most of the telephone services have been concentrated in a few urban and commercial towns in the country, namely: Accra/Tema, Kumasi and Takoradi.

**Distribution of Fixed-line Telephone Services.** The extent to which telecom services are distributed across the country determines also the extent to which the digital divide between the urban and the rural areas is bridged. As at 2005, about 83% of GT services were concentrated in the urban areas of the country with only 17% in the rural areas (see Figure 4). This emphasises the entrenched divide in access to basic telephone service in the country, which should be bridged to provide equitable access, especially in a country where about 62% of the population lives in the rural areas.
In terms of regional distribution of fixed-line telephones, the bulk (64%) is in the greater Accra region, but mainly in Accra (the national capital) and Tema.

Ashanti Region, the second most important commercial region, has only 15% of the fixed-line telephones (see Figure 5). However, in the case of public telephones, there seems to be a more equitable distribution. The most deprived regions (ie the Upper East and Upper West) have 2% each of the public telephones, while Greater Accra’s dominant share has reduced to 39% (see Figure 6).
One of the reasons for the internal digital divide between urban and rural areas is the issue of market failure. It is a fact that the majority of Ghanaians who live below the poverty line of US$2 per day are found in the rural areas. However, in Frempong et al (2005), it is argued that there is an emerging telecom market in the rural areas mainly served by private resellers of telephone services. The level of expenditure by rural dwellers on telephones is encouraging and with a slight improvement in the rural economy, there might be substantially increased rural consumption of telephone services. From the study, 39% of respondents from the rural areas spent ¢25 000 (US$2.76) per month, while 31% of respondents from other urban areas spent the same amount of money per month on telephones.

The government is the most important single customer of the fixed operators, notably GT. This is based on the large numbers of ministries and their decentralised offices, departments and agencies. A survey carried out as part of this study revealed that 17 out of 21 ministries had a minimum of 313 fixed-lines at their headquarters only, and the number would be appreciably higher if one adds their departments, agencies and other parastatal organisations whose telephone bills are settled by the Ministry of Finance and Economic Planning.17

In a way, this may restrict usage by potential private subscribers, as preference will always be given to a government agency over private subscribers in the allocation of telephone lines. This is largely due to the limited capacity of GT, especially in the prime areas of the major cities, to supply adequate fixed lines to meet the demand for its services. For example, in spite of the proliferation of mobile telephones in the country, GT had an active waiting list of over 95 000 potential subscribers at the end of 2005. The figure could be higher if one takes into

---

17 A survey was conducted as part of this sector performance review to find out the extent to which government is using ICT services in its administrative machinery.

18 Hidden demand refers to a situation where someone wants a telephone service but might not apply due to the perception that he/she might not get the service. The need may not be expressed due to a lack of confidence in receiving the service.
consideration hidden demand for the service,\textsuperscript{18} and this calls for the expansion of the market to take care of this demand.

One of the policy objectives of the NTP is to expand the telecom market by allowing new entrants into the market. This is based on the premise that more operators will facilitate the expansion of the service to increase access and competition in terms of price, quality and good customer care among others (Wellenius and Rosotto, 1999).

In line with the policy, the NCA has divided the country into five zones, with a stipulated number of licences they intend to issue to prospective investors in the fixed-line telephone network (see Table 2). According to the NCA’s policy, two licences each will be issued to Greater Accra, Ashanti and Western Regions; however companies are to be allowed to bid for licences to operate in multiple zones.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Regional Combinations</th>
<th>No of Licences</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Greater Accra</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Ashanti</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>Western central</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Eastern and Volta</td>
<td>2</td>
</tr>
<tr>
<td>E</td>
<td>Brong Ahafo, Northern, Upper East and Upper West</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: NCA, 2006

The zoning is based on the premises of achieving:
- Socio-economic balance
- Accelerated multi-media penetration
- Enhanced competitiveness (NCA, 2006)

Though the NCA has stated these objectives as underlying their zoning of the country, the process itself was never based on any market research analysis; there is therefore no scientific basis for the zone demarcation. What is the basis for allocating two licenses to each zone? What is the size of the market in the country and in each of these zones? What are the likely operational or market difficulties to be encountered by the new entrants? A comprehensive market analysis should have formed the basis for zone allocation and would also serve as an input for developing incentive packages to assist operators who will bid for licences in distressed areas. Countries like Chile and India have used the zoning principle to achieve greater access to ICT services, therefore Ghana could benefit from the experience of these countries to ensure the success of the process. In all, five companies have been shortlisted to submit detailed proposals\textsuperscript{19} for final consideration. However, the process has been suspended on the instruction of the Ministry of Communications.

\textsuperscript{19} The pre-qualified companies are Oraleom (Ghana) Limited, Adhace Voice Systems, National Telecoms Cards Company, Skidlab Ventures Newland Telecommunications Systems Limited and Omniascom Internet Ghana.
The government’s decision to stop the process was to enable it to gain more money from the sale of GT, something the government has been working on assiduously for some time.

When the technical issues are resolved the further liberalisation of the market may help to address the urban/rural digital divide. However, it must be cautioned that policy measures need to be put in place to ensure that the service reaches the rural areas. This is where the telecom fund, as a general principle, can be used to give incentive packages to operators who will extend their services to the rural and unserved areas.

**MOBILE TELEPHONE SUB-SECTOR**

The mobile telephone service is the most pervasive voice communication service in the country. By the close of 2005, there were almost three million mobile telephone subscribers in the country, with Areeba controlling about 50% of the market (see Figure 7). The growth rate for mobile telephone subscription from 2000 to 2005 is 87.4%.

**FIGURE 7. MARKET PERFORMANCE OF MOBILE TELEPHONE COMPANIES (2005)**

![Diagram showing market performance of mobile telephone companies (2005)](image)

Source: NCA, 2006

Mobile telephone penetration also followed the pattern of the fixed-line telephones. The service is largely urban-based with a small subscriber-base in the rural areas. According to Frempong et al (2005), about 99.6% of respondents of the Household and Individual ICT Access and Usage Survey who had mobile telephones came from the urban areas, while only 0.4% were from the rural areas. The level of rural participation could be increased if communities adjoining major highways, where most mobile transmission facilities pass, could utilise the signals for communication. Although “unintended subscribers” of mobile service operators, these could still contribute to reducing the urban/rural divide. The only setback which can be addressed through policy intervention is the issue of electricity. Most rural communities are not hooked to the national electricity grid, and therefore might have difficulty in recharging the batteries of their handsets.
Another problem that will be discussed later is cost. Though call charges have fallen over the years, they still remain high, especially for on-net calls. It is therefore important that the mobile telephone companies draw up strategic plans to take on board these unintended but critical subscribers in the rural areas.

The two sub-sectors have experienced some level of growth, but the mobile sub-sector grew faster. The sub-sector grew by 87.4% for the period 2000-2005, while the growth rate of the fixed-line sub-sector was only 9.4%. Figure 8 shows the combined trend in growth of both mobile and fixed-line telephones over the period.

FIGURE 8. COMBINED TREND IN TELEPHONE PENETRATION, 2000 – 2005

The low growth in the fixed-line sub-sector might be attributable to a combination of non-performance of Westel and the inability of GT to raise the capital needed for its expansion programme.

One of the factors which led to the cancellation of the management contract between GT and Telekom Malaysia in 2002 was the non-achievement of the roll-out target of 225 000 fixed telephones by the end of 2001.20 In the current management contract with Telenor from Norway, the government’s objective of expanding telecom and other ICT services across the country featured prominently. Consequently, Telenor was mandated in 2002 to roll out 400 000 and 750 000 fixed-line and mobile telephones respectively by 2005. At the end of 2005 Telenor had not been able to achieve the roll-out target, adding only 41 857 fixed telephone lines (representing 10.5% of the target) and 412 618 mobile subscribers (which represented 55% of the target). One of the critical factors which

---

20 By the end of 2001, 126 800 lines were added to GT’s network under the management of Telekom Malaysia.
derailed the achievement of the targets was capital. To achieve these targets, the company required an investment of between US$500 million and US$800 million. The government was not able to raise the capital needed to fund the expansion programme. It is still sourcing capital from both bilateral and multilateral sources, as well as from local banks, to support the expansion project. The government also intends to list GT on the national stock exchange for public participation in the ownership of the company.

The implication is that the government’s objective of increasing access to ICT services, especially providing telephone and Internet services in every town where there is a senior secondary, technical or teacher training school, may be handicapped, as the basic backbone (fixed-line telephone service) has not been deployed as rapidly as envisaged, or unless a different platform (VSAT) is employed. However, it has been reported that 52% of senior secondary schools in Ghana have been connected to the Internet.21

**Broadband Internet**

Broadband service is quite new in Ghana. The service, especially ADSL, was commercially rolled out in 2003 by Internet Ghana. Currently, companies such as Africa Online Ghana Limited, Engineering Systems and Services, Zipnet, Busy Internet and Ghana Telecom, among others, are providing the service in the country. ADSL is the main broadband technology with GT as the leading provider. GT’s broadband service (Broadband4U) was launched in 2004 and is limited to 10 telephone exchanges in Accra.22 Wireless use (WiMax) is also gaining credence. Companies such as Africa Online, Internet Ghana, Zipnet and Engineering Systems and Services are providing wireless broadband services in the country. The subscription base of three companies providing ADSL service is 4,700, while three companies providing wireless broadband have 220 subscribers.23 The failure of the ISPs to cooperate with the study restricts the research from gaining a true picture of Internet subscription in the country.

By way of comparison between urban and rural access, there is a great digital divide in access to and use of broadband services. Most of the services are concentrated in Accra/Tema and to a lesser extent in Kumasi, with the rest of the country excluded. Presently, the SAT3 fibre optic band which is to provide the backbone for rolling out broadband, Internet and multimedia services has remained only in Accra. Also, the

---

21 During a question time in parliament in November 2006, the Minister of Communications said that 251 out of 485 senior schools have been connected to the Internet.


23 Most of the Internet Service Providers (ISPs) declined to respond to the request for data on subscription, cost and revenue.

24 The Volta River Authority has installed a 600 km stretch of fibre optic cable on its high voltage transmission lines to link its major transmission sites to facilitate communication. In 1999 the VRA established a subsidiary, the Volta Telecommunications Company, to assume ownership and manage on a commercial basis the excess capacity of its fibre optic network. However, not much of the excess capacity has been commercialised to support access to broadband, Internet, data transmission and multimedia services in the country.
The fibre optic ring of Volta River Authority (VRA) remains under-utilised.\textsuperscript{24} Positively, the government has shown some commitment to extend the SAT3 fibre optic band across the country to serve as the foundation for the country’s digital development. This has led the government to source funds from both bilateral and multilateral sources to fund the deployment of the fibre network. At the moment, a Chinese company, Huawei Technologies SA Limited has been contracted to upgrade and extend the VRA fibre ring to serve as the national backbone system.

**Dial-up Internet**

The NCA has licensed 163 companies to provide Internet services in the country, but only 29 are currently in operation. The key operators are Africa Online, Internet Ghana, Network Computer System and Intercom Digital Network, among others. Most of these operators are migrating to the provision of broadband service.

There has been growth in the use of Internet service in the country. Internet users per 100 inhabitants have grown from a level of 0.15 in 2000 to 1.81 in 2006, but still lag behind Senegal and Nigeria (ITU, 2006). In 2005, Internet density in Senegal was 4.63, while that of Nigeria was 3.80. As already mentioned, there is paucity of data on the level of Internet subscription in the country; however, data from three ISPs put their subscription at 2 602.

Access to Internet service is largely through Internet cafés and workplace/school. From the Household and Individual ICT Access and Usage Survey, the majority of respondents who had access to the Internet received it through either the workplace or school. Only a small proportion had residential access. This maybe an indication of high cost access or unavailability of Internet infrastructure which is largely based on a fixed-line telephone network. It is argued here that the low residential access is not due to infrastructural problems but largely to the cost of the service. For example, residential subscribers of GT form about 68.9% of its total subscriber base.\textsuperscript{25} There is therefore a high probability that a greater percentage might subscribe to the service should the charges be competitive.

However, where infrastructure is a problem, technology development in wireless and satellite communications, as well as business innovations, are providing alternatives. For example, ISPs such as Africa Online, Internet Ghana and Busy Internet among others, are using wireless technology to provide Internet service to unserved areas in Accra and Tema. In addition, mobile companies such as Areeba, Tigo and Kasapa are utilising GPRS platforms to provide Internet access. With a computer and a GPRS modem the mobile telephone network can be used to access the Internet.

\textsuperscript{25} This figure is exceptionally high; possibly some businesses are operating from homes.
The critical question is, are the mobile telephone companies providing concessionary rates for Internet browsing? The Areeba Wireless Office modem cost $2.5 million, and browsing costs $500 for every 100 KB of data. In the case of voice communication, an Areeba subscriber pays $1440 per minute for peak period talk time, and this represents almost 300% of the cost of Internet browsing. It is difficult to state whether the tariff for mobile Internet use is a concessionary one since one has to take into consideration the speed of access, unless that tariff is only paid when downloading that quantum of data.

**LEVEL OF GOVERNMENT INTERNET ACCESS**

The use of the Internet in the public sector is essential for achieving efficiency in government business as well as communication between government ministries, departments and agencies (MDAs), as well as being the infrastructure for e-government. Therefore, it is important that Internet service is available in all MDAs to facilitate the machinery of governance.

Table 3 shows the general level of Internet connectivity in government ministries and public organisations. In total, about 72% of government ministries and public sector organisations have access to the Internet, while of that total 54% of government ministries have Internet access compared to 91% of the public sector organisations.26

<table>
<thead>
<tr>
<th>Percentage of Organisations with Internet access</th>
<th>All Sectors</th>
<th>Government Ministries</th>
<th>Public Sector Organisations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage with Internet access</td>
<td>72%</td>
<td>54%</td>
<td>91%</td>
</tr>
<tr>
<td>Percentage without Internet access</td>
<td>28%</td>
<td>46%</td>
<td>9%</td>
</tr>
</tbody>
</table>


In Table 4 the use of the Internet by the staff of MDAs to support their work is presented. About 50% of the government ministries indicated that below 10% of their staff used the Internet to support their work, while that of public sector organisations was 39%. Only 4% of the government ministries’ staff used the Internet, with a figure of 22% for public organisations. While none of the Ministries had their entire staff complement using the Internet for their activities, in the case of the public organisation, 13% of those organisations had all their staff using the Internet. In effect, the staffs of the public organisations have more access and usage of the Internet services than their counterparts in the ministries.

26 The data presented is the result of a survey conducted in 2003 by the National ICT Policy and Plan Development Committee.
TABLE 4: LEVEL OF USAGE OF INTERNET BY STAFF OF MDAS (2003)

<table>
<thead>
<tr>
<th>Staff (Percent)</th>
<th>Government Ministries (Percent)</th>
<th>Public Sector (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>29</td>
<td>13</td>
</tr>
<tr>
<td>Below 10</td>
<td>50</td>
<td>39</td>
</tr>
<tr>
<td>About 25</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>About 50</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>About 75</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>About 100</td>
<td>0</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: National ICT Policy and Plan Development Committee, 2003

However, the likelihood of increased access and usage of Internet service, especially broadband, in the government ministries in the near future is strong, as the government has shown a keen interest in using the Internet to support good governance and efficiency in government service delivery.

BROADBAND INTERNET ACCESS

Government’s usage of broadband facility has been encouraging. Its usage is in line with its policy objective of using ICT to facilitate operational effectiveness and efficiency in service delivery, as well as to enhance e-government (Ghana Government, 2003). From the e-government survey, 14 out of 17 (representing 82.4%) ministries had broadband access with a minimum speed of 256 KBps. ADSL tops the list with nine ministries subscribed to the service, followed by the use of VSAT.

The government has made an appreciable investment in broadband access. In 2005, about €4.8 billion was invested in construction of local area networks, acquisition of equipment and subscription to broadband service, which is largely ADSL, although some ministries are using wireless broadband systems. About 77.1% of the computers in the ministries sampled had been networked to ensure flow of information and efficient use of the broadband service. Also, the ratio of a networked computer to staff was almost 1:2, indicating a high access to networked computers. In terms of ICT investment per staff, the government spent a minimum of €3.1 million on staff in each of the headquarters of the 17 ministries in 2005.27

With respect to government usage of dial-up Internet systems, this is gradually moving to broadband due to bandwidth, and more importantly the dial-up system cannot support local area networks. Only three out of 17 ministries surveyed were still using the dial-up system to access the Internet. However, dial-up Internet systems may be widespread in the regions and districts, where it remains the only entry point to the service. The paucity of data makes it difficult to determine the uptake of Internet

27 The figure could be higher, because not all the 17 ministries which responded to the questionnaire could indicate the investment made in ICTs for their ministries.
and broadband services in the country. However, it is evident that the two services are becoming increasingly important in the socio-economic and governance spheres. Also, the emerging mobile platforms, if well packaged and priced, could improve Internet access in the country.

**COMMUNITY INFORMATION CENTRES**

The Community Information Centres (CICs) concept is one the strategies enunciated by the Ghana’s ICT4AD to increase access and bridge the digital divide, especially between the urban and rural/unserved areas of the country. The CICs are to provide basic ICT services such as telephones, Internet connectivity, word processing, photocopying and general literacy training.

The CICs are intended to serve the purposes of meeting the information needs of the communities and enhancing national integration, creating ICT awareness in the rural communities and disseminating information which might be necessary for the general well-being of the people. In effect, these centres are to support economic activities in the rural areas by providing information on market and credit facilities.

The project is funded by the government through HIPC funds with technical support from the UNDP. The government plans to establish CICs in all the 230 constituencies in the country. The project was implemented in 2005 and is expected to be completed within three years. As at November 2006, only 15 centres were operational, while construction of ICT infrastructure for 40 centres is at an advanced stage, and might be completed in the early part of 2007. For the backbone support, where there is G7 service, leased lines are acquired, while in the unserved areas VSATs are used.

To enable the CIC to meet their objectives, the coordinators have been trained in computer literacy to the first level of International Computer Driver’s Licence Certificate, while the District Chief Executives have been advised of the importance of the CIC operations. Ownership and management of the CICs has been devolved to the District Assemblies. The effectiveness of this arrangement is questionable; communication centres across the country have been spearheaded by the private sector, and this sector therefore might have the skills and experience in managing such ventures. A possible solution could be a public-private partnership under which the government could lease the setup to the private sector to run, while providing technical back-up services for the centres. In this way, the CICs will benefit from the pool of experience gained by the private sector over the years in the business, while enjoying the technical and financial support from the government.
The Ghana Investment Fund for Telecommunication (GIFTEL) is one of the strategies for bridging the rate of exclusion from ICT services and is aimed at developing communication infrastructure in rural and unserved areas of the country. It was relaunched in November 2004 and is to be capitalised through contributions from the telecom operators in the country, namely Ghana Telecom, Westel, Areeba, Tigo, Kasapa and the other new entrants into the market. The Fund is to be used for a number of activities, including:

- Facilitating partial investment of companies and entrepreneurs willing to implement eligible projects in under-served areas;
- Supporting initial capital investments and start-up costs in funded projects, subject to performance guarantees and safeguards to ensure that funds are only spent as designated.

Approval of financial incentives for a project will be based on successful assessment of its long-term financial sustainability and its ability to contribute to achieving the objectives of the NTA. Priority will be given to projects in under-served areas that support basic rural connectivity, access to broadband services, development of relevant local content and government services (MOC, 2004).

A board-run GIFTEL Secretariat has been established outside the NCA. The members of the board are drawn from the stakeholders and chaired by the Minister of Communications. This gives the stakeholders some leverage into how the secretariat is run and the Fund managed. The minister’s position is to represent the government, and cannot influence the activities of the Board in favour of one operator or another. All the projects funded by GIFTEL undergo a bid process, and the best offers are selected through a transparent process.

The GIFTEL Secretariat has drawn up a model by which distressed areas are to be selected. The model also involves request for proposals from interested telecom companies to provide telecom service in the identified unserved area(s); these will be evaluated to identify their cost effectiveness.

The Fund has moved away from providing incentives in the form of subsidies to operators who are selected to provide telecom service in the identified unserved areas. GIFTEL support will be in the form of the construction of the base station, which could be shared among operators who might decide to enter such localities. The operator would then have the responsibility of construction of the local loop and purchase of switching equipment. Currently, two areas, Nandom in Upper West and Fetentaa in Brong Ahafo, have been selected on a pilot basis. Tigo provides the service in Nandom and Kasapa in Fetentaa. Hopefully the service in the two areas will be operational early next year. Between 2005 and 2007

---

28 An attempt was made to establish the fund in the latter part of 1990, but it collapsed due to the refusal of the operators to continue contributing to the fund. Their decision was due to misapplication of the initial contribution to the fund by the NCA.
2007, the Fund has plans to provide telecom service in 52 localities across the country. The Secretariat has concluded arrangements with the operators to extend services to the following rural areas: Fumbisi (Upper East), Gwolle (Upper West), Maame Krobo (Eastern Region), Daboya (Northern Region), Nfuom (Central Region) and Omanpe (Greater Accra).

It is argued that the establishment of an independent secretariat that is physically detached from NCA and the Ministry will reduce the fears of operators about the hijacking of the Fund to undertake unapproved projects, or government interventions in the use of the Fund. This gives the board a free hand to utilise funds based strictly on its approved modalities. One critical problem that faces the Fund is sustained contributions from the operators, and effort must be made to remedy this situation.
Cost of ICT Services and Usage

Increased deployment of ICT facilities and services is the underlying premise of every ICT policy. ITU (1999) raised the issue that to achieve this objective prices should be set in such a way that potential subscribers can afford to use the service, while on the other hand, investors recover cost and accumulate profits for new investment. Atubra et al (2001) argues that a dynamic balance between affordability and sustainability is paramount to ensure rapid development, deployment and exploitation of ICT services. Therefore, in pricing ICT services, the economic interests of ICT operators should be married with those of social interest. In this regard, pricing of services should be done in a way that could help to satisfy government’s social obligations, ie increased access to and use of ICT services (Atubra et. al, 2001). Consequently, pricing of ICT services should address accessibility and affordability; this is crucial to achieving universal access.

Pricing of Telecommunication Services

The determination of prices of fixed-line telephone service is regulated by the NCA. On the other hand, mobile telephone service is not regulated and it is left to market forces to shape the level of pricing. In this section, we shall discuss pricing of services by fixed-line and mobile telephone operators.

Pricing of Fixed-line Telephones

For a long time, pricing of telecom services was underlined by the principle of cross-subsidisation – a situation where revenues from international and long-distance services were used to subsidise domestic services.

Frempong (2004) argues that since 2003, tariff rebalancing – a situation where the price of the service reflects the cost of providing it – has become preeminent in fixed-line telephone pricing in the country. In the 2003 tariff revision, charges for local and short-distance calls were increased, while those of long-distance calls were reduced and international call charges remained unchanged. The increase in local and short-distance calls was to make callers pay for the actual cost of providing the service, and in that sense reduce (if not remove) the cross subsidy burden on long-distance and international calls. With the current tariff, there is no price distinction between local and long-distance calls – both attract the same rate of €500 per minute for GT and €600 in the case of Westel. For international calls, the GT price has fallen from €3 100 to €1 400 for calls terminating in fixed-line telephone networks in most foreign markets. Table 5 illustrates the tariff structure of GT and Westel.
The cost of terminating calls from fixed-line telephone networks into mobile telephone networks has fallen from e1 800 per minute to e1 400 for both GT and Westel. With the current tariff structure, it is cheaper (especially with GT network) to make long-distance fixed-line calls than to make local ones. This indicates that Ghana is gradually incorporating global industry developments, where cost of telecom services is progressively falling to allow as many as possible to use the service to enhance their socio-economic activities. Also, there is a shift from distance-specific tariffs to respond to global development, in which tariffs are becoming less sensitive to distance and time (OECD 2005). Ghana has abandoned call charges based on distance and now uses a flat rate for all national (domestic) calls.

### Pricing of Mobile Telephone Service

The mobile sub-sector, as already stated, is not regulated and therefore market forces should shape and propel pricing of the service. The question is whether market forces alone can change the market. Since 2003, price reductions have occurred in the mobile telephone market due to competition. Tables 6A and 6B illustrate mobile telephone tariffs in 2003 and 2006. The cost of a one minute peak time on-net call via Areeba in 2003 was e1 875; this has dropped to e1 440 in 2006, a percentage change of about 23%. The charges for off-peak on-net calls dropped by 28% over the same period. In terms of off-net calls, reductions were also recorded, with the highest reduction from Areeba (46.7%) for off-net calls. With the exception of Kasapa, the other networks have also reduced their tariffs but Kasapa has the lowest on-net call charges in the country.
These reductions are a positive manifestation that the mobile telecom market is now competitive. However, call charges still remain high vis-à-vis the income levels in the country. This can be seen in the RIA!’s comparative analysis of pricing across several African countries reflected in the tables below. Using an OECD method to establish the cost of a basket for low mobile users which would be aligned to African mobile usage than their middle or high user baskets, that prices remain high. When nominal comparative prices are adjusted for purchasing power parity. There are obvious caveats to the pricing in the table, as all markets are not evenly liberalised or tariffs rebalanced. So the very low prices in Ethiopia with its very low penetration rates are unlikely to reflect cost based prices.

**TABLE 6B. PREPAID MOBILE TELEPHONE TARIFFS AS AT 2006**

<table>
<thead>
<tr>
<th>Operator</th>
<th>On-Net (¢) Peak Period</th>
<th>On-Net (¢) Off Peak</th>
<th>Off-Net (¢) Peak</th>
<th>Off-Net (¢) Off Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areeba</td>
<td>1,440</td>
<td>900</td>
<td>1,500</td>
<td>1,500</td>
</tr>
<tr>
<td>Tigo</td>
<td>1,550</td>
<td>1,000</td>
<td>2,100</td>
<td>2,100</td>
</tr>
<tr>
<td>One Touch</td>
<td>1,400</td>
<td>1,000</td>
<td>1,900</td>
<td>1,900</td>
</tr>
<tr>
<td>Kasapa</td>
<td>900</td>
<td>900</td>
<td>1,740</td>
<td>1,740</td>
</tr>
</tbody>
</table>

US$1 is equivalent to c9300
Source: Data collected from Operators


Source: Esselaar, Gillwald and Stork (2007)
For example, the mean annual household income in Ghana in 2000 ranged between ₋979,000 (lowest quintile) and ₋3,025,000 (the highest quintile) (Ghana Statistical Service 2000). Though there are annual upward adjustments in salaries, income structure levels have not dramatically changed. Also, the high inflation rate in the country erodes any increase in salaries.

The cost of mobile telephone service has become important due to the new dimension mobile telephones have assumed – platforms for Internet access. The introduction of GPRS modems has the potential of increasing Internet access and usage across the country, and therefore pricing should be attractive to ensure high patronage. This has the potential to reduce the exclusion rate in Internet usage, especially in the rural areas where there are mobile signals and electricity. However, if mobile telephone charges remain high, only a few people can take advantage of this technological innovation.

In Ghana, apart from fixed-line telephones, tariffs for the other services are unregulated. Prices of the other ICT services mentioned in this paper are dictated by the dynamism of the market. However, experience in Ghana has shown that the market cannot be the only driving force in determining the pricing of ICT services. For example, between 1996 and 2001 Ghana had three mobile telephone companies, but there was no price competition among them. Their call charges remained unchanged throughout that period, and this had the semblance of cartelism. Price competition emerged when GT launched its mobile service in 2001 and the other operators saw One Touch as a major threat to their operations. There is a need for policy intervention to galvanise mobile telephone pricing in the country, as it is becoming an increasingly important communication technology platform to increase Internet access to all areas where mobile telephone signals exist, especially the rural areas.
Southwood (2006) argues that mobile operators have not reached the bottom of the price elasticity curve, and are in a dilemma as to whether they can raise more revenue from lower rates (with increased usage) or whether they can devise a way of lowering their rates for particular groups of people (market discrimination). Southwood argues further that most African markets have more mobile telephone companies; however, there is usually only a small percentage difference in price between the cheapest and the most expensive. Most of the operators have chosen the option of lowering on-net call charges for the benefit of their subscribers. The development is to enable subscribers to communicate cheaply with friends and relations in a particular network. In effect, the high subscription levels achieved in mobile telephone markets could be largely due to multiple subscription, and therefore do not give a true picture of mobile subscription in the country.

**Pricing of Internet and Broadband Services**

For broadband (both ASDL and wireless), varying levels of tariffs are charged by operators for different speeds. Tables 7 – 10 show the pricing levels of some of the ISPs in the country.

<table>
<thead>
<tr>
<th>TABLE 7. GT BROADBAND4U MONTHLY CHARGES (2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEED(Kbps)</td>
</tr>
<tr>
<td>Download</td>
</tr>
<tr>
<td>Residential</td>
</tr>
<tr>
<td>School</td>
</tr>
<tr>
<td>Business</td>
</tr>
<tr>
<td>Business Plus</td>
</tr>
<tr>
<td>Business SOHO</td>
</tr>
<tr>
<td>Business Plus Pro</td>
</tr>
</tbody>
</table>


In general, GT Broadband4U charges are the lowest in the country. In comparison with GT and Internet Ghana, GT charges approximately US$192 per month for a broadband speed of 512/128 KBps for its business category, while Internet Ghana, the premier broadband provider, charges US$240 per month. In the case of broadband for schools, GT charges US$93 for a speed of 1020/256 KBps, while Internet Ghana charges US$290 for a lower speed of 256/128 KBps (see Tables 7 and 8).
Africa Online charges a minimum of US$395 per month for a broadband speed from 32 KBps per month for both its wireless and ADSL broadband, but gives discounts of 5% and 10% for prepayment for six and twelve months respectively (see Table 9). The price levels are very expensive in relation to the speed the company is offering.

### TABLE 8. INTERNET GHANA BROADBAND CHARGES PER MONTH (2006)

<table>
<thead>
<tr>
<th>Speed Rating KBps</th>
<th>DSL at Office</th>
<th>DSL at School</th>
<th>Pre Paid DSL Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Download speed up to 512KBps &amp; 128KBps upload</td>
<td>Browsing Speed of 256KBps/128KBps download &amp; upload</td>
<td>Browsing Speed of 256KBps/128KBps download &amp; upload</td>
</tr>
<tr>
<td></td>
<td>Set-up fee with ADSL modem = US$240</td>
<td>Monthly contract 3 months = US$110</td>
<td>Monthly contract 6 months = US$200</td>
</tr>
<tr>
<td></td>
<td>Monthly fee = US$225</td>
<td>3 months = US$110</td>
<td>6 months = US$200</td>
</tr>
<tr>
<td></td>
<td>2 012</td>
<td>600</td>
<td></td>
</tr>
</tbody>
</table>

US$1 is equivalent to ¢9 300

Source: www.internetghana.com

### TABLE 9. AFRICA ONLINE BROADBAND CHARGES PER MONTH (2006)

<table>
<thead>
<tr>
<th>Broadband Wireless Access</th>
<th>Broadband Leased line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilises National Telco’s copper lines</td>
<td></td>
</tr>
<tr>
<td>Bandwidth speeds ranging from 32KBps to 2MBps</td>
<td>Contract period of 1 year</td>
</tr>
<tr>
<td>Pricing ranging from minimum $395 per month</td>
<td>Pricing ranging from $395 per month</td>
</tr>
<tr>
<td>Customer premises equipment (CPE) cost of $1 100</td>
<td></td>
</tr>
<tr>
<td>One off Installation/hook up fee of $600</td>
<td></td>
</tr>
<tr>
<td>Discounts of 5% for 6 months prepayments and 10% for 12 months prepayments</td>
<td>Discounts of 5% for 6 months prepayments and 10% for 12 months prepayments</td>
</tr>
</tbody>
</table>

US$1 is equivalent to ¢9 300

The ISPs, especially those providing ADSL, have accused GT of using predatory (lower) prices to push them out of the market, as GT offered more bandwidth for less money. Some of the companies depend on GT for backbone support; as a result they cannot retail the service at the rates offered by GT to its broadband customers. It is most likely that a substantial increase in the level of subscription may bring prices down, as the cost of providing the service may reduce with the large subscription.

Negotiation for wholesale prices for a port on SAT3 resulted in a high level of acrimony between the Ghana Internet Service Providers Association (GISPA) and GT. GT initially offered 2 MB duplex with IP for US$12 00 per month, but GISPA managed to negotiate to US$5 00 and US$4.50 for leased circuit. This was achieved through political lobbying of the NCA, Minister for Communications and eventually parliament.

**DIAL-UP INTERNET**

Internet pricing until recently was mainly post-paid. Companies such as NCS, Internet Ghana and Busy Internet have introduced prepaid systems into the sector. The NCS prepaid voucher costs c100 000 and allows 10 hours’ browsing time. On average, for a dial-up Internet service the ISPs charge a one-off connection fee of between US$40-US$50 and a monthly subscription rate of US$35-US$40 for unlimited Internet service.
TABLE 11: AFRICA ONLINE DIAL-UP INTERNET SERVICE CHARGE PER MONTH

<table>
<thead>
<tr>
<th>Premium Plus</th>
<th>Premium</th>
<th>Basic</th>
<th>E-mail Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Connection speed at maximum 56Kbps</td>
<td>– Connection speed at maximum 56Kbps</td>
<td>– Connection speed at maximum 56Kbps</td>
<td>– Connection speed at maximum 56Kbps</td>
</tr>
<tr>
<td>– Allows for 400 hours of connect time</td>
<td>– Allows for 70 hours of connect time</td>
<td>– Allows for 3 hours of connect time</td>
<td>– unlimited email connect time</td>
</tr>
<tr>
<td>– Able to browse</td>
<td>– Able to browse</td>
<td>– Able to browse</td>
<td>– Unable to browse</td>
</tr>
<tr>
<td>– Minimum payment of 3 months</td>
<td>– Minimum payment</td>
<td>– Minimum payment</td>
<td>– Minimum payment of 3 months</td>
</tr>
<tr>
<td>– Set up fee of</td>
<td>– Set up fee of</td>
<td>– Set up fee of</td>
<td>– Set up fee of</td>
</tr>
<tr>
<td>US$43.48</td>
<td>US$43.48</td>
<td>US$43.48</td>
<td>US$43.48</td>
</tr>
<tr>
<td>– Fixed charges per month US$44.74</td>
<td>– Fixed charges per month US$44.74</td>
<td>– Fixed charges per month US$44.70</td>
<td>US$25.00</td>
</tr>
<tr>
<td>– Hours in excess of 400 hours billed at US$1.75 per hour</td>
<td>– Hours in excess of 70 hours billed at US$2.43 per hour</td>
<td>– Hours in excess of 3 hours billed at US$4.43 per hour</td>
<td>– Discount of 5% on 6 months’ prepayments and 10% on 12 months’ prepayments</td>
</tr>
<tr>
<td>– Discount of 5% on 6 months’ prepayments and 10% on 12 months’ prepayments</td>
<td>6 months’</td>
<td>6 months’</td>
<td>6 months’</td>
</tr>
</tbody>
</table>

However, as seen in Table 11, Africa Online does not provide unlimited access but gives quantum hours for usage, beyond which the subscriber pays an additional tariff. For example, a subscriber to the Premium category is allocated 70 hours per month and pays an additional US$2.43 per hour for excess time used. Table 12 shows the cost of Internet service by selected ISPs in the West African sub-region.

TABLE 12: COST OF INTERNET SERVICE BY SELECTED ISPS IN WEST AFRICA (2003)

<table>
<thead>
<tr>
<th>Country</th>
<th>ISP Name</th>
<th>Dial-up 12 months (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td><a href="http://www.fasonet.bf">www.fasonet.bf</a></td>
<td>360</td>
</tr>
<tr>
<td>Ghana</td>
<td><a href="http://www.internetghana.com">www.internetghana.com</a></td>
<td>609</td>
</tr>
<tr>
<td>Senegal</td>
<td><a href="http://www.sonatel.sn">www.sonatel.sn</a></td>
<td>594</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td><a href="http://www.aviso.ci">www.aviso.ci</a></td>
<td>701</td>
</tr>
<tr>
<td>Nigeria</td>
<td><a href="http://www.linkserve.com.ng">www.linkserve.com.ng</a></td>
<td>554</td>
</tr>
<tr>
<td>Togo</td>
<td><a href="http://www.togotel.net.tg">www.togotel.net.tg</a></td>
<td>250</td>
</tr>
</tbody>
</table>

US$1 is equivalent to c9 300
Source: Hesselmark, 2003

The cost of Internet service by Internet Ghana was among the highest of
the selected ISPs. For a 12-month subscription, Internet Ghana charged the equivalent of US$609, and it was only lower than that of Aviso from Côte d’Ivoire. The ISP from Togo showed the lowest charge of US$259.

GT has recently set up its dial-up service (Dial-up4U) and charges ¢150 per minute without a subscription payment. According to the company, once one has an Internet-enabled computer, dial-up connection is achieved by connecting the telephone cable. The company has discontinued the payment of a one time subscription and monthly fees charged by most ISPs providing dial-up Internet services. The success of this service will have a debilitating effect on the operations of the ISPs where subscriptions as well as telephone accounts are charged. The effect could still be significant on ISPs that have introduced a pre-paid system. For example, on the NCS prepaid system the user still has to pay for the telephone connection, in addition to buying the voucher for ¢100 000.

Osiakwan (undated) argues that there is a high demand for Internet and networked services in the country, but the low uptake of the service is due to the high cost of the service, and this has persisted in spite of the numerous ISPs in the market. Since the late 1990s, most of the ISPs have charged a one-time connection fee of US$50 and a monthly subscription of between US$30 and US$40 for an unlimited dial-up service. The retail price of broadband services does not show any competition as most of the prices are high, and it is therefore only public institutions and corporate organisations that are able to subscribe to the service.

The recent price reductions by some ISPs are basically due to technological innovations in the global industry rather than market dynamism. Prepaid systems have been introduced into the Internet market and these have led to repackaging the cost of the service to provide some leverage to users.

In general, the high cost of Internet subscriptions accounts for low residential subscriptions in the country, and it is hoped that GT’s relatively low price might increase residential usage. The high price of ICT services has serious implications for the country, especially in increasing access to ICT services. The deployment of mobile technologies across the country could make mobile telephones a platform to increased Internet access. The introduction of GPRS by most of the companies provides an avenue for rural areas where the mobile signal is available, to use the platform to access the Internet. However, the cost level is a discouraging factor.

There is therefore, the need for operators to reduce their cost of operation, especially through the establishment of Internet exchange points, so as to reduce the high cost incurred in routing their traffic through Internet exchange points in Europe and US, in order to pass the savings on to their customers.
One of the factors which has contributed to the high cost of ICT services in the country is the absence of a strong ICT consumer association. Such a group acts as the mouthpiece of consumers and serves as a pressure group to ensure competitive pricing of ICT services, as well as ensuring improved quality of service provided by the operators. Though one of the functions of the NCA is to protect consumers from exploitation by operators of ICT services, little has been done in this regard. Apart from organising consumer forums in 2005 and 2006, no mechanism has been developed for consumers to report their grievances and dissatisfaction, or seek redress for unacceptable service from the ICT operators. It is therefore important that an ICT consumer group is formed and nurtured in the country. In countries where such a movement exists, its contribution to ICT development is not limited to advocacy but contributes to policy formulation.
Conclusion and Recommendations

The study has looked at the performance of the ICT sector in Ghana since the 2000s, and it is obvious that some improvements have been registered in the sector. Unlike countries such as South Africa and Cameroon, the fixed-line telephone sub-sector registered continuous growth, though the level of growth was lower than expected. Ghana is also among the few African countries that has a definite policy to expand the deployment of the fixed-line telephone services. Characteristically, the mobile telephone sub-sector improved rapidly during the period. In fact, it was during this period that mobile telephone subscription levels outpaced those of fixed-line telephones. However, the current trend of subscription to multiple mobile telephone operators does not accurately reflect mobile telephone deployment in the country. This trend requires detailed investigations to determine its spread.

Continuous investments are crucial, especially in an industry characterized by rapid technological changes and growth. It is revealed in this study that some investments have been made into the sector; however, the paucity of data makes it difficult to determine the level of investment in the sector over the period. The low levels of information on investment data provided in this study may not give a comprehensive picture about the level of investment made in the sector. The inability of some of the ICT operators to cooperate in the study by providing financial and subscription data is an important setback, and does not allow for sub-regional and regional comparisons.

Also, the paucity of data on dial-up Internet and broadband users in the country constrained the study in providing a good picture of uptake of the two services in the country. Nevertheless, it can be argued that Internet and broadband use has improved in the country. This conclusion is based on the improvement of Internet densities over the years, lagging, however, behind Senegal and Nigeria. It is very important that the NCA implements its function of collecting all data on ICT indicators in the country. The economic interest of the operators can be protected by the NCA publishing composite data on ICT indicators in the country.

It is concluded that government usage of ICT services is encouraging. From the e-government survey, it has made appreciable investment in ICTs, especially in broadband and dial-up Internet services, and has high levels of network-computers per staff complements.

Recommendations

To support the rapid development of the sector, the following recommendations are made:

31 Initially GT and Westel provided international gateway services; however the gateway service was finally granted to Areeba and Tigo as part of the licence granted to them by the NCA in the latter part of 2004. Interestingly (with the exception of One Touch) none of the mobile telephone companies had been licensed by NCA since their inception of business in the 1990s.
As mentioned in this paper, the Ghana government has bought back the investments of Telekom Malaysia (the strategic partner of GT) and Western Wireless Inc (joint venture partner of Westel). The decision to buy back these shares was due to managerial crises that rocked the two companies, and it was the best option to avoid protracted and costly litigation that could jeopardise the fortunes of the companies. Consequently, Ghana has returned to the situation of about 10 years ago – a fully state-controlled telecom sub-sector. Though there are two national network operators, GT controls 99% of the market, and has lost only one percent through liberalisation.

The fully state-controlled companies in the sub-sector pose regulatory challenges, as these companies (with the knowledge of state backing) could adopt entrenched postures which might require a very strong regulatory body to handle them. This is amply exemplified in the developments that led to 2003 tariff revisions. The state’s majority share (at that time) in GT gave the company the leverage to adopt an entrenched position to the extent of unilaterally fixing its own interconnection charges with cellular mobile telephone operators. Without approval from the NCA, GT advertised in the national newspapers its “new interconnection charges” with the cellular mobile telephone operators. Though the NCA eventually brought the company to book, GT’s behaviour in the whole tariff revision exercise exemplified the regulatory dilemma one should expect when dealing with a strong state-owned company.

The regulator may also find it difficult to take a drastic administrative or even legal decision whose implications might affect the interest of government. In 2002 the NCA imposed a penalty on Westel and GT for not meeting their licence obligations: roll-out and quality of service targets. The penalty imposed on Westel was US$71 million for failure to meet its mandatory roll-out target, while GT had US$44.6 million imposed for only partly meeting the roll-out and quality of service targets (Frempong, 2004). The NCA’s failure to take legal action to redeem the fine or sanction the companies was simply due to the fact that it was dealing with two companies in which it had a pecuniary interest.

Again, the decision by NCA to allocate international gateway licences to other telecom operators was stalled for sometime due to GT’s spirited representation to the NCA on the negative consequences that decision will have on its operations and revenue.31

For example, GT projected a loss of US$10 million to US$15 million annually should the international gateway service be opened to other operators. The company argued further that it would be compelled to lay off between 800 and 1 300 of its labour force of 4 100 if the NCA liberalised the international gateway services which would lead to reduction in its

revenue from international calls. This attempt by GT delayed the whole process, and eventually the NCA granted Areeba and Tigo licences to operate international gateway services. The active participation of the government in fixed-line telephone networks poses real challenges to effective regulation of the sub-sector. It is recommended that action should be expedited to reduce the state dominance of the market, especially in Ghana Telecom

**Development of ICT Consumer and Civil Organisation**

The importance of strong ICT consumer and civil organisations cannot be overstated due to their immeasurable contribution to ICT development. The organisations serve as the mouthpiece of consumers and can act as pressure groups to ensure that high quality of service is provided by ICT operators. A strong and vibrant ICT consumer and civil organisations could also serve as a feedback system by which regulators can solicit opinions from consumers on regulations, management and general performance of the sector. Regulators such as the UK Office of Communications (Ofcom) and the US Federal Communication Commission (FCC) have established mechanisms for ICT users to lodge complaints.

Ofcom has a Consumer Advice link on its website designed to provide information to consumers on different segments of the market. The link provides information on prices, quality of service information, links to relevant websites and advice on how to choose between different offers and suppliers. The Consumer Inquiries and Complaints Division of FCC provides intervention to resolve individual consumer inquiries and complaints against ICT operators. The division receives, reviews and analyses complaints and responses to informal consumer complaints. These avenues, apart from resolving individual complaints, can serve as an important feedback mechanism to tap the experience of consumers, their perceptions and inputs into the regulation of the sector. The absence of a similar mechanism poses a regulatory challenge to the NCA, as the authority has no way of collating the perceptions, experiences and complaints of consumers which provide input for effective regulation. The case for a feedback system is great and this can be effective through the existence of vibrant, articulate and empowered consumers.

The point being emphasised is that the NCA should work towards the development of vibrant ICT consumers who could contribute towards the development of the sector.

**Establishment of Multi-Sector Regulator**

It has been argued in this study that convergence between telecoms, computing and the media has dramatically changed the regulatory environment. The existence of the single industry-specific regulator has been rendered anachronistic, as the distinction between these services and

33 [http://www.ofcom.org.uk/advice/approach](http://www.ofcom.org.uk/advice/approach)
34 [http://www.fcc.gov/edcc.html#CICD](http://www.fcc.gov/edcc.html#CICD)
the platforms for providing them have become increasingly integrated. The adoption of a single multi-sector regulatory approach will potentially lead to better regulation of the sector and reduction of institutional conflicts. The situation in the past where only NCA allocated frequency spectrum to the electronic media, but could not control what the frequency is used for, or where the MNC could only regulate the content of the media but had no hand in who should be given a frequency spectrum, resulted in a conflict between the two institutions. Though an administrative solution was found, it is argued that the ICT sector might be better served under a single multi-sector regulator.

One dilemma that will confront the establishment of a multi-sector regulator is that the establishment of the MNC is a mandatory provision of the 1992 Constitution of Ghana, and therefore its merger with other institutions with ICT regulatory functions might require a constitutional amendment. The way out of this dilemma is to cede some of the functions of the MNC to the new multi-sector regulatory body that will be established, while it concentrates on its core mandate of insulating the media from government manipulation.

**STRENGTHENING THE NCA**

It is a fact that with the reconstitution of the NCA Board in 2003, some regulatory successes have been achieved. Interconnection problems have been minimised and there seems to be trade peace among the operators in the sector. The NCA has organised periodic meetings with the ICT operators on an individual basis with the aim of providing a forum for frank discussions on the market.

Further, the NCA is gradually gaining a foothold in the industry by ensuring that the operators live up to their licence obligations. This is evident by the sanction of Areeba for poor quality of service. However, the achievement of high quality ICT services in the country remains a serious indictment on the operations of the NCA. Call drop-outs, poor reception, frequent breakdown of service, delays in rectifying faults and poor customer relations still plague the sector. It is recommended that the NCA with its new strength should continue to sanction operators who do not meet their licence obligations. There is the need for the NCA to establish its independent mechanism of collating views and assessing the quality of service of operators.

**PRICING OF ICT SERVICES**

Generally, considering the poverty levels in the country, one can argue that ICT pricing is expensive for the bulk of the population. In the area of mobile telephones significant price reductions have occurred since 2003. However, off-net call charges remain high and this is reducing inter-network communications. Some Ghanaians have resorted to multiple subscriptions so as to optimise their mobile telephone expenditures,

---

35 The MNC is one of the institutions mandated by the Constitution to be established within six months of assumption of office by the president of the country.
thus distorting mobile telephone penetration in the country. Southwood’s argument that mobile operators have not reached the bottom of the price elasticity curve is very instructive. Also, since the mobile telephone has become a platform for Internet access which has the possibility of reducing the Internet exclusion rate in the country, it is imperative that mobile telephone charges become competitive to ensure high patronage.

Further, the level of tariffs paid for some broadband speed, and the general tariffs for Internet usage in the country, are iniquitous, and need to be addressed to ensure increased access and uptake of the service. In this regard, the policy of allowing market dynamism to determine some ICT service pricing also needs attention, and it is important that some policy measures are introduced to aid ICT pricing in the country.

REFERENCES


Ikhemuemhe, G (2005) “ECOWAS plans 10% teledensity; to establish GSM roaming facility” www.ghanancapitaladvice.com


Ministry of Communications (2004), National Telecommunications Policy, Accra


