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Telecommunication Reforms – Ghana's Experience

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1 Introduction

The global telecommunications services before the turn of the 1980-decade were supplied on monopolistic basis. In most of the developed countries, the monopoly was basically run by an administration or state-owned enterprise, while few countries opted for the system of issuing licenses to private state monopolies on a territorial or functional basis (ITU, 1995).

However, during the 1980s a wave of reform swept through the global sector. The reform included the privatisation of national companies either through share floatation or to strategic investors. In addition, there was a general opening of opportunities for private investments in different segment of the telecom market. Besides privatisation, the reform introduced liberalisation which sought to remove restrictions on competitive entry to allow many operators to provide services to the general public.

A number of factors have facilitated the sector's reform. Technological advancement and desire by large corporate organisations to expand their businesses, according to Izaguirre, were among the factors that underpinned changes in the traditional ways telecom were organised (Izaguirre, 1999). Increased application of microelectronics has led to the

convergence between telecommunication and computer, lately broadcasting. The convergence resulted in a plethora of services, opened a whole gamut of socio-economic activities and ushered in new economic entities which seek to take advantage of the niches in the market. The pressure from the large corporate organisation was stirred by high tariffs charged by telecom carriers for increasing data transmission, and more importantly the desire to reap from the innovative usage of the telecom services (Antonelli, 1999).

Socio-political groupings such as the European Union have contributed to reforms in the sector. The European Union (EU) has issued directives to all its member countries to liberalise their sectors by 1998. It is most likely that all countries have liberalised sector to avoid being sanctioned.

Reform activities began in USA when competition was introduced in the provision of long distance telecom services, following the break-up of the Bell system. This was followed by United Kingdom, Japan, Australia and New Zealand among others.

In the case of the developing countries, besides, the issue of technological changes in the telecom sector and abysmal performance of incumbent operators, pressure from the World Bank and other international organisations are also influencing the opening up of the sector to competition (Wallsten, 1999). The

main premise of the reform was to allow multiplicity of operators to take advantage of the technological innovations in the sector to provide services that will meet the different needs of subscribers.

In Ghana, as part of the general economic system adopted from the World Bank and International Monetary Fund in the 1980s, the government was to divest itself from direct participation in certain critical sectors of the economy and play more of a facilitatory role. Consequently, the telecommunication sector was reformed in addition to other state managed corporations. This paper examines the effects of the reform on the development in the sector.

2 Reform in Ghana Telecommunication's Sector

The kingpin of the telecommunication reform in Ghana was the Telecommunication Accelerated Development Plan (ADP) launched in 1994. This policy was meant to liberalise and revamp the sector through the participation of the private sector to meeting the changing needs of Ghanaians both in their social and business life, as well as ensuring effective integration into the global context (Atubra et.al, 1999).

Specifically the ADP among others was to:

- ensure sustained improvement in the availability, reliability and quality of public services,

- generate growth in employment opportunities in the sector,
- improve public access in rural and urban areas to telecom services through the provision of pay-phone facility,
- expand the coverage of mobile phones ,
- ensure that the telecom tariffs allow operators to recover the full cost of providing the service, while at the same time offering competitive prices to customers, and
- enhance Ghana's competitive advantage in the region through the provision of high quality communication services to the business community.

The strategies adopted to achieve these objectives included:

- privatisation of Ghana Telecom through the sale of a strategic stake to an international operating company,
- creating a competitive duopoly by licensing a second national network operator with similar rights and obligations as Ghana Telecom,
- liberalisation of value added services, mobile cellular telephone services, data transmission, paging and pay phones,
- establishment of a regulatory agency for the sector and
- allowing large corporate users to develop their own private networks.

Consequently, the reform in Ghana proceeded in the form of liberalization, privatization, creation of duopoly and establishment of independent regulatory body. We shall briefly discuss these and then look at the impacts on the sector's development.

Liberalization

Liberalisation of the telecom sector in Ghana began in the early 1990s when the Ghana government liberalised the sector to allow private participation to complement the activities of the then Ghana Posts and Telecommunications Corporation to increase coverage and enable the introduction of more value-added telecommunication services in the country (Frempong and Atubra, 2001). Mobile telephone services were first introduced as part of the policy and were followed in 1997 by licensing of a second national network provider. An indigenous company was granted a special permission to operate rural telephone services in the southern part of the country.

It also liberalised the telecom market for the sale and installation of consumers' premises equipment such as handset, fax machines, PABX and wiring. This was to overcome the inability of the incumbent operator to supply these equipment due to financial constraints. Liberalisation has facilitated the introduction and acquisition of the state of the art terminal equipment to meet the

increasing varied needs of subscribers. It has also opened the door for some of the world's leading telecommunications equipment manufacturers such as Motorola, Siemens, Nokia and Ericsson among others to be represented in Ghana.

Privatisation

The first step toward the privatization of the sector was the separation of the Posts and the Telecommunication Divisions into two autonomous institutions. This was carried out through the enactment of the Statutory Corporations (Conversion to Companies) Act, 1993, Act 461. The Act metamorphosed the Telecommunication Division into Ghana Telecom Company (a company limited by shares) with the Ghana government being a majority shareholder. In 1997, the Ghana Telecom (GT) was partially privatized through the sale of 30% share to G-Com Limited, a consortium led by Telekom Malaysia. The management of the company was given to the consortium.

Creation of Duopoly

As part of the strategy of ensuring rapid development of the telecommunication sector and also to break the monopoly of the GT, a second national network operator was licensed in 1997. The second network provider was to have similar rights and obligations as pertained to GT. Both companies were granted exclusivity rights for 5 years. This was to allow the

companies to have some measure of “monopoly” to recoup some of their investment. As part, of the exclusivity deal, Ghana Telecom and Westel were mandated to roll out 250,000 and 30,000 lines respectively within the 5-year period. To ensure the achievement of this target or keep the operators on track, specific number of main telephone lines was to be rolled out by these operators. The creation of duopoly was to introduce competition into the in fixed line telephone sub sector so as to enable subscribers enjoy the benefits of competition such as more, better and less costly services (Wellenius, 1997).

Establishment of Independent Regulator

Before the reform, Ghana Telecom acted both as a player and a referee. With the reform, an independent regulatory institution (the National Communication Authority) was established. The National Communication Authority (NCA) was established by the NCA Act, 1996, Act 524. Its general objective was to regulate communication by wireless, cable, radio, television, satellite and similar technology for orderly development and operations of efficient communication services in Ghana.

Specifically the objectives of the NCA among others were to:

- Promote fair competition among persons engaged in the provision of communication services,

- Protect operators and consumers from unfair conduct of other operators with regard to quality of communication services and payment of tariffs in respect of the services, and
- Protect the interest of consumers.

To achieve the above objectives, the Act spelt out a number of functions for the NCA, these include:

- Granting of licenses for the operation of communication system,
- Assigning, allocating and regulating the use of frequencies in the country in conformity with international requirements,
- Provision of guidelines on tariffs chargeable for the provision of communication services, and
- Advising on policy formulation and development strategies for the communication industry.

In exercising its authority, the NCA has issued licenses and assigned frequencies to all telecom operators (including those that were already in existence).

With the establishment of the regulatory authority, necessary environment had been put in place to ensure the development of a vibrant sector in the country.

3 Ghana's Experience

This section examines a number of critical indicators in the telecom sector. This includes, types of services available in the country, penetration, quality of service, tariffs, universal access and the level of competition in the sector among others.

Market Outlook

After the liberalization of the market, a number of operators were licensed to provide services in the country. Table 1 illustrates the various telecom operators in the country. It also shows the ownership structure, type of technology and services provided. With the exception of Capital Telecom, all the other telecom operators have various levels of foreign participation.

Penetration

There is an ample evidence to show that liberalization (and its attendant or threat competition) of the telecommunication sector in developing countries can positively influence higher network expansion. Statistical provided in section show a considerable growth in the telecommunication services penetration in Ghana.

Fixed Line Telephony

The fixed line telephone service of Ghana Telecom has registered considerable level of improvement since the mid 1990s. From table 2, the direct exchange lines (DELs) increased from over 48,000 lines in 1993 to almost 240,000 in 2000. Ghana Telecom actually met its mandatory roll out target

of 25,000 lines in the first few years of privatisation. However, it is doubtful if the company can meet the total target of 250,000 within the exclusivity period because of financial difficulties the company is undergoing.

Table 1 Telecommunication Services Operators

Company & Ownership	Date of Issue of License	Year of Commencement of business	Technological Employed	Type of Services provided
Ghana Telecom * Government of Ghana 70% * G-Com 30% (Telekom Malaysia)	20th June, 1997	19th Oct.,1995	Cable, wireless and satellite, GSM	All (national network operator) cellular mobile telephone
Western Telesystems Ltd. (Westel) * Western Wireless Int. (USA) 56% *AC Int. (USA) 10% * GNPC (Gh) 34%	January, 1997	January, 1999	Wireless	All (second national network operator
Capital Telecom Ltd. * wholly Ghanaian private Company	Still negoiating	Feb., 1997	Wireless	Rural telephony
Millicom Ghana Ltd (Mobitel) * Millicom Int. Luxembourg 90% * Ghanaian private 10%	1991	1992	AMPS	Cellular mobile telephone
Celltel Ltd. * Ghanaian Priv. 95% * AT&T (USA) 5%	1993	1996	TACS	Cellular Mobil telephone
Scancom Limited (Spacefon) * Investcom (Lebanese Consortium) 67% * Ghanaian Private 33%	1995	1996	GSM	Cellular mobile telephone

Source: Compiled from data provided by the various companies

Table. 2 Telephone Penetration, Ghana Telecom, 1993 - 2000

	1993	1994	1995	1996	1997	1998	1999	2000
No. of Connected DELs (in '000)	48.7	50.0	63.1	77.9	105.5	133.4	157.0	237.2
No. of payphones	25	26	27	453	483	1,815	3,044	3,163*
Teledensity per 100 inhabitants	0.3	0.3	0.4	0.4	0.6	0.7	0.9	1.2**

**As at August, 2000*

Sources: Ghana Telecom, 1999, ITU Basic Data, 2000

On regional basis, telephone penetration is skewed towards the urban areas especially in Greater Accra Region which hosts the national capital. It has the highest teledensity of 3.2 (see table 3) with the rest below the national average.

With regard to the two other fixed line operators, the level of their subscriber lines may not significantly alter the telephone penetration situation in the country. For example, as at November 2000, Westel had 3,000 DELs all located in the Accra – Tema metropolitan area while Capital Telecom for the same period, had roll out 583 DELs at its three operating hubs (Akatsi,

Akim Oda and Mpraeso). It should, be noted that only 42% of the telephone lines are basically residential lines[1]. Westel is far away from attaining the mandatory target of 30,000 lines. The problems among others could be financial.

Table 3 Regional Distribution of Telephone Lines (1998)

Regions	No. of Subscribers	Teledensity
Greater Accra	93,422	3.2
Ashanti	17,172	0.5
Western	6,046	0.3
Eastern	4,921	0.2
Central	4,100	0.3
Northern	2,083	0.1
Brong Ahafo	1,908	0.1
Volta	1,783	0.1
Upper West	1,000	0.2
Upper East	992	0.1
Total	133,427	0.7

Source: Compiled from data provided by the various companies

4 Comparing Ghana to Other Countries

With the exception of South Africa and to some extent the North African countries, the penetration of telephone in the whole of Africa is low as compared with the levels in the developed countries. Teledensity in Africa is most often under 1 telephone per 100 inhabitants. By African standards, Ghana's perform-

[1] ITU: World Telecommunication Development Report 1999.

ance is relatively credible. In table 4, teledensity in correlation with GDP per capita in Ghana is at an average level compared with other African countries. It can be argued that the performance could have been better if the operators were able to meet their mandatory roll out targets as contained in their licenses.

Table 4: Comparison of Teledensity of Selected African Countries (1999)

Countries	Teledensity	GDP/per capita (US$)
South Africa	12.5	2,969
Egypt	8.1	1,424
Senegal	2.8	512
Zimbabwe	2.1	520
Cote d'Ivoire	1.8	818
Ghana	*1.2*	*372*
Kenya	1.0	309
Cameroon	0.6	664
Tanzania	0.5	263
Uganda	0.3	284
Mali	0.3	246

Source: ITU, 1999, Yearbook of Statistics

5 Mobile Telephony

Cellular mobile telephony has made an impressive entry into the Ghanaian telecommunication market barely ten years after introduction. The total level of subscription has increased from 1,700 in 1993 to about 75,000 in 1999 (see table 5)

Table 5 Penetration of Cellular Mobile Telephones (in '000)

	1993	1994	1995	1996	1997	1998	1999
Mobitel	1.7	3.3	3.6	10.0	16.9	22.3	33.0
Celltel			2.5	3.8	5.0	4.5	-
Spacefon				0.4	7.0	13.0	38.0
Total	1.7	3.30	6.1	14.2	28.9	39.8	75.0

Source: Data collected from Operators

Current ITU data, put the total subscription at 130,000, teledensity of 0.64 and this represents about 35.4 percent of the total telephone subscribers in the country. It is most likely the figure may dramatically improve with the launch of GT mobile telephone service recently. However, this does not necessarily mean that many more homes or enterprises have a telephone connection. It may just as well be the same people that have both a fixed line and a mobile connection.

Internet

Typical of a developing country, Internet penetration in Ghana is woefully low compared to the rich developed countries. In spite of Ghana's performance in the global context, Internet penetration has been on the increase in the country though not as rapid as in the mobile telephony. The subscriber levels of the two main providers (Network Computer System and Africaonline) have showed some growth. The subscription at the Network

Computer System (the pioneer provider) has increased from 518 in 1995 to 10,000 by 1999 while that of Africaonline, from 150 in 1996 to 1,472 for the same period. Currently, the estimated Internet users in the country are around 20,000.

One of the main problem affect Internet penetration is lack of concessionary telephone rates from the operators and also seemingly high annual subscription fee charged by the Internet service providers. For example, the Network Computer System charges for $50 subscription and $30 for monthly rent). This figure is considerable higher for many potential subscribers whose monthly salaries are a little above $100. Unlike the developed countries, there are no concessions granted by the telecom operators for Internet users. One pays normal the rate for Internet use just like for voice.

Notwithstanding, the lack of concessionary rates, Internet connectivity also depends on the availability of telephone lines at the required place and the quality of the backbone service.

The Internet cafe concept is being used for increased Internet access. Network Computer Systems has 50 Internet cafes, Africaonline operates through communication centres under the name of “e-touch” has 179 cafes. Even here, the coverage is restricted to few commercial towns in the country.

6 Quality of service

Fixed Line Network

The discussion here will centre mainly on Ghana Telecom (even here the data is old and may not reflect realities on the ground), since there are no data on the other operators.

There have been relatively some improvements in the quality of service provided viewed as against the situation in 1992. However, the quality of service, especially call completion rates for both local and trunk calls began to fall from 1998. Though, there is no available data to show the current situation, indications from the market can be pointers. There have been incessant complaints about fallen quality in the services provided by Ghana Telecom. Recently, the Ghana Internet Service Providers Association buttresses this point when its president complained about the poor service Ghana Telecom as a backbone provides to them[2]

[2] See General news of Thursday 7th June 2001, http//www.ghanaweb.com.gh

Table 6 Quality of Telephone Service

NO.	Performance indicators	ITU Standard	Yearly Performance			
1.	Call Completion rates (%)		1992	1994	1996	1998
	Local	90	54	74	83.3	81.7
	Trunk	90	43	52.2	70.3	65.5
	International Out-going	80	51	45.2	64.5	67.6
	International In-coming	80	25	14.4	30.3	60.7
2.	Fault per 100 per lines per year (%)		159	176	86	-
3.	Average Down-time (days) per line per year	5	30	9.2	6.5	-

Source: Ghana Telecom

Mobile Operators

There is also no available data to measure the quality of service of the mobile operators. However, a cursory survey (as in the case of the fixed line telephony) at the market provides some indication about the quality of service. In recent past, there had been persistent public (including the former parliament) tumult about the quality of the service the mobile companies were offering their subscribers. High congestion within the network and poor reception are some of the problems encountered by subscribers. The likely cause of this situation might be rapid expansion of the service without corresponding increases in the capacity of the network to carry the increased traffic. As will be

discussed later, the issue of capacity had been a bone of contention between the mobile operators and Ghana Telecom.

7 Telecommunication tariffs

Tariffs are paramount in determining access to the service as well as extending the service. The fundamental point to consider is how to marry social good with the economic interests of the operators so that the level of tariffs charged might be in consonance with the socio-economic realities of the country. To ensure this balance, the NCA Act enjoined the National Communication Authority to establish guidelines for determining tariffs. Though the NCA is yet to establish guidelines for general tariffs regime in the country, licenses of each operator provide some directions, conditions and levels of tariffs to be charged. In this section, the tariffs of all the operators are discussed.

Ghana Telecom

The license of Ghana Telecom placed a price cap on the tariffs of the company within the exclusivity period. Below is a selected aspect of the tariffs regime of Ghana Telecom.

Table 8: Ghana Telecom's Tariff[3]

Basket B services	***US$ Per Minute***
Local Telephone Calls	0.007
0 – 32 km	0.01
32 – 80km	0.02
Above 80 km	0.03
Above 160km	0.04
<u>International Direct Dial</u>	
ECOWAS	0.3
Direct – UK, US, Kenya, Canada, Japan, Germany Italy, France, Holland	0.5
All other countries	0.5
Line Rental (per month)	1.5
Connection Charges	$43*

Source: Ghana Telecom

Westel

Westel operates on a prepaid system based on the use of recharge vouchers. The company is charging almost the same tariffs as Ghana Telecom. The difference is that Westel tariffs are not as distance-specific but required a high initial investment to get connected to the Westel system. One has to pay an installation charge of US$109 as against US$43 charged by

[3] These were the tariff the company was charging when it was a public entity. However, recently a new tariff regime has been approved for the company by the National Communication Authority. At the time of preparing this paper, the researcher has not had access to the new rates.

Ghana Telecom.[4] Further, the line rental of Westel is higher than that of Ghana Telecom. Westel charges US$ 1.5 while Ghana Telecom charges US$ 0.4.

Table 9 Tariffs Charged by Westel

Item	Charges (in US$)
Subscriber Connection Fee	109
Line rental per month	1.5
Call Charges (per minute)	
• Local call	0.007
• Trunk call	0.03
• International call	0.4

Source: Westel

Capital Telecom

Discussing the level of tariffs in relation to the three fixed telecommunication operators, the tariffs of Capital Telecom are relatively higher than those of Westel and Ghana Telecom. From table 10, a rural residential subscriber has to pay about US$ 328 as equipment and installation charges while a subscriber in Accra connected to Westel would pay about $109.

[4] One interesting dimension of the installation charges is that where Westel service is available, the subscriber does not need to buy poles for connection because of the wireless technology it is using. However, in the case of Ghana Telecom, if the subscriber is far off the service poles of the company, he/she has to pay for the poles and cables used for the connection. Though the installation charge of Ghana Telecom is cheaper (a minimum of $43), one might invariably spend a fortune to have the services especially for residential and new sprawling areas.

Capital Telecom's call charges are also higher than what pertains in the urban areas. It charges US$ 0.07 per minute for the peak period, US$ 0.06 for the standard time and US$ 0.02 during the off peak per four minutes respectively. The local call charged by Ghana Telecom for the same period of time is US$ 0.03.

Table 10 Tariffs of Capital Telecom

Items	Charges in US$
Equipment and Installation - Communication centres - Business - Residence	346 328 328
Deposit - Local - IDD	- 45
Line Rental Equipment Rental	1.5 3
Call Charges per minute - Communication centres i. Within hub ii. National - Others i. Peak ii. Standard iii. Cheap (off peak) - Mobile	 0.06 0.06 0.07 0.06 0.02 0.1

Source: Capital Telecom

The tariffs level may not be affordable to the majority of the people in the rural areas where there is a high incidence of

poverty as evidenced in the National Poverty Studies. For example, the poverty level in the rural areas in the south of Ghana was about 42 per cent, while in the urban south (including Accra) it was 15.4 per cent (Statistical Service, 2000). In effect, rural telephones might be physically available in some rural communities but their real accessibility might be questionable due to high tariffs.

8 Mobile Operators

The table 11 illustrates some of the tariffs charged by the three of the four mobile phone companies in the country.

The standard call charges for the three companies ranges between US$0.4 and US$0.5 for the peak period and US$0.2 and US$0.3 for the off peak period (see table 11). There appears to be some form of trade cartel among the operators. Since commencement of operations (at different times though) the standard call charges of the three cellular mobile phone companies have remained the same. In effect, there is no competitive tariff system in the sub sector, as every operator feels secured with the level of tariff charged. However, recently, some of the companies have started reduction of tariffs at weekends or special occasions to obtain a competitive edge over the others.

Table 11: Summary of Tariffs of Cellular Mobile Telephone Operators in 2000 (in US$)

Charges	Mobitel	Spacefon	Celltel
1. Connection Charges	75.0	150.0	41.0
2. Call Deposit			
- National	40.0	100.0	61.0
- IDD	61.0	350.0	810
3. Line Rental Charges	25.0	25.0	22.0
4. Standard Call Charges			
i. Peak	0.50	0.40	0.50
ii. Off peak	0.30	0.30	0.20

Source: Compiled from data provided by the Mobile Telephone Operators

What might have contributed to this phenomenon is that the mobile companies have indexed their tariffs against US dollars. The advantage of this practice is that companies do not suffer much from inflation and depreciation of the local currency

9 Competition

One of the offshoots of liberalization is to introduce competition into the provision of telecommunication services in the country. The rationale is foster the provision of high quality service and also allow the market to determine the demand for the service.

Competition in the telecommunication sector is taking place on two fronts – among the fixed operators on one hand and between mobile operators on the other. It is difficult to measure the incidence of competition between the two fixed line network operators. Ghana Telecom is still the dominant player in the sector (controls over 95 percent of the market). This situation, it is argued might remain unchanged for considerable period of time as Westel has not exerted any meaningful impact on the Ghanaian telecom market (Frempong and Atubra, 2001). Financial difficulties seem to affect the capacity of the company to compete. Its operation is still limited to Accra – Tema metropolitan area. Even within this area, it has not been able to take advantage of the niches in the market especially in the new sprawling areas of the capital where the services of Ghana Telecom are absent. To this end, the magic of competition is not being experienced in Ghana due to the non-performance of Westel

The inability of the new operator in Ghana to compete effectively buttresses the criticism against duopoly that it usually dif-

ficult for a new entrant to successfully compete with the entrenched operator. Since the entrenched operator has advantage in terms of already developed network, control on the market and in the absence of a strong regulatory framework could price out new entrants Frempong and Atubra, 2001). This is evident in the difference in the levels of the initial subscriber's commitment required by Ghana Telecom and Westel.

As a measure of gingering competitive life into the sector, the government has indicated its intention not to grant exclusive right to the two companies when their existing licenses expire.

Contrarily to what is happening in fixed line services, there is seemingly a strong competition within the mobile phone sub sector. Within a period of ten years, the service is almost available in all the 10 regions of the country. The recent launch of Ghana Telecom mobile service, caused a stir in the market. Within three months of operation, it had registered 15,000 subscribers. Some of these subscribers might be "cross carpeters" since the service is alleged to have a wider coverage the others. It must noted that the spread of the service is more of a rush to acquire "virgin lands" and not necessary outclassing each other with good services as well as innovative tariff regimes.

10 Interconnectivity

Interconnectivity between competing telecommunication operators has been the bane of global reform of the telecommunication sector. The inherent interdependence of the network and the inherited overwhelming entrenched position of the established operators makes interconnection negotiation a difficult process (Melody, 1997). This has characterised all interconnection negotiations because the new entrants have nothing to offer except the threat of taking a portion of the market of the former monopoly.

As already discussed, Ghana Telecom controls almost the whole telecommunication market and it also controls the means of access to the majority of subscribers in the country. It means that the other operators in the country have to rely on Ghana Telecom for the delivery of service to a higher proportion of end-users. Added to the above is the fact that the size of Ghana Telecom's network invariably provides it an entrenched position in negotiations of interconnectivity This was evident in some of the negotiated connectivity with some of the operators. Below are some of the negotiated interconnection agreements between the operators. However, these arrangements are subject to periodic reviews.

Ghana Telecom and Westel

- Local calls: 50% - 50 % for both operators
- Trunk calls: 30% (the network where the call terminates – 70% (originating network)
- International in-coming calls: 20% (the network where the call terminates) – 80% (for the gateway where the call was routed).

Ghana Telecom and cellular mobile operators

- 80% - 20% (for cellular mobile operators and Ghana Telecom respectively)

Ghana Telecom and Capital Telecom

- All calls 75% - 25% (for Ghana Telecom and Capital Telecom respectively)[5]

As can be predicted from the experiences elsewhere, interconnection negotiations in Ghana have been a difficult exercise between Ghana Telecom and Westel, on one hand, and Ghana Telecom and the cellular mobile operators, on the other. The cause of these difficulties has been in the share of derived revenue as in the case of Westel, and interconnection capacity in relation to the cellular mobile companies Frempong and Atu-

[5] Indication is that for all this time, no formal agreement has been signed between Ghana Telecom and Capital Telecom but some sort of arrangement has been made in this regard. As things stand now, Ghana Telecom seems to be benefiting more than Capital Telecom. It is hoped that the ongoing negotiation between the two companies on interconnection will yield more equitable rates.

bra, 2001). The interconnection controversy between Westel and Ghana Telecom delayed the former in launching its service.

The interconnection controversies between Ghana Telecom and the cellular mobile operators have been in the area of E1 links. The E1s are the interconnection links used for the physical interconnection. The cellular mobile operators have accused Ghana Telecom of refusing to grant them more E1s to facilitate the management of increased traffic, improve quality of service as well as expand their network. This has in a way affected the capacity of the companies to expand their services. The contention of Ghana Telecom was that the mobile companies had expanded beyond the negotiated interconnection capacity and raised the issue of cost sharing in the installation of more E1s.

Problem of interconnection controversy erupted when Ghana Telecom launched its mobile telephone services. Westel and the mobile operators instituted a legal action in the courts for what they claim as Ghana Telecom's intransigence to follow agreed conditions for interconnection.

Interconnection difficulties have serious repercussions on profitability of the operators in the country. Restrictive interconnection agreements may affect the performance of the weaker op-

erator, since most of its profits may be used to settle financial commitments arising from the agreement. A case in point is Ghana Telecom and Capital Telecom. Though no formal interconnection agreement has been signed between these companies, as has been mentioned earlier, the informal agreement between them is heavily tilted in favour of Ghana Telecom. Ghana Telecom is entitled to about 75 percent of the revenue. This may affect the profitability of the company to generate more revenue to expand its network in the rural areas. The only option available to Capital Telecom is to adjust tariffs to a level to enable them to break even. This may have serious negative consequence on the subscriber base of the company and invariably affects access to the service in the rural areas.

11 Universal service

Different methods have been adopted by the various developing countries to meet its universal service/access commitments. In Ghana, it is one telephone to community of 250 people. This is different from countries such as Burkina Faso where the aim is to provide a telephone within a distance of 20 kilometers, and South Africa where the goal is a telephone within a 30 minutes traveling distance (ITU, 1998).

One of the strategies Ghana has adopted to achieve universal access is through increased access to payphones in both the

rural and urban areas. In the urban areas, economic criteria were to be the basis for providing the service, while in rural areas the long-term objective is to provide at least one payphone to every community of 250 people. Table 12 shows the geographic spread of payphones in the country.

Table 12: Regional Penetration of Payphones (August, 2000)

Region	No. of payphones
Greater Accra	1,447
Ashanti	633
Western	334
Eastern	212
Central	120
Northern	100
Brong Ahafo	82
Volta	81
Upper West	53
Upper East	100
Total	3,163

Source: Compiled from data provided by the Telephone Operators

Considerable improvements have been made in the deployment of payphones in the country. From a level of 25 (all located in Accra) payphones in the country in 1993 (see table 2), the number increased to over 3,000 in 2000. However, as evidenced in the table (and following similar trend in the distribution of DELs) almost half of the payphones are located in the Greater Accra Region. In spite of substantial increase, it is still

far away from the goal of a telephone in every village of 250 inhabitants. The contributions from the other operators might not change the picture significantly. For example, Westel and Capital Telecom had 116 and 16 pay phones respectively by the end of 2000.

Generally, there has been significant penetration of payphones in the country. Evidence however shows that majority are located in the urban areas which have relatively good access to other telecom services. If the situation is not reversed, it might take a long time to achieve the objective of a telephone for every rural community of 250.

However, the necessary framework has not been fully put in place. A three-point strategy enunciated to facilitate the penetration of payphones in the country to achieve universal access is yet to be completely implemented. It involves:

- Creation of a separate business entity to manage payphones of Ghana Telecom – the company was granted authority to seek a private partner to assist in the installation, operation and management of the payphones network.
- Licensing a new public payphone operator for each region – the authorised public payphones operators will be given non-exclusive rights to provide the service in each region,

and allowed to site payphones at important public places such as airports, railway stations, sports stadiums etc.

- Use of customers' lines - subscribers will be permitted to resell their lines (Ministry of Transport and Communication, 1994).

With the exception of the third strategy, the rest remained to be implemented. Private individuals have been allowed to operate communication centres in both the urban and rural areas to provide the populace access to telecommunication services. According to Atubra et. al (2000) technical hitches had delayed the implementation of the two strategies which were to be supported with a World Bank grant. Lack of interest and problem of getting consultants with the requisite expertise have delayed the take off. For example, tenders were opened in 1996 but the consultant who won the bid lost interest in the job while the recent one was disqualified for lack of the expertise. It is hoped that this technical constraint would be addressed to enable the projects to commence.

National Communication Authority (NCA)

The Act establishing the NCA gave it wide-ranging powers to regulate and manage the sector. Section 41 (1) of the Act, granted it the authority to make regulations in relation to rules and

guidelines on tariffs, international accounting systems, terms and conditions for interconnectivity, technical standards in the provision of the telecom service and general regulations for the sector, among others.

The NCA has not been too successful in managing the sector. Most of the industrial disputes had been resolved through ministerial intervention this might partly due to the non establishment of the NCA Board which serves as the final arbiter. Another contribution to this situation is that most of the operators are well seated in the political system of the country. As a result, negotiations are tortuous and settlements very difficult to arrive.

However, cognizance should be taken of the basic handicap facing the Authority. The NCA is not well constituted. There is no substantive director- general It is grappling with the problem of putting critical structures in place to regulate and manage the sector efficiently as it lacked requisite personnel to handle specific aspects of its works. For, example, the Authority has not been able to formulate guidelines for tariffs or general regulations to manage the sector. In the absence of these, it depends on the general rules of the International Telecommunication Union to operate.

12 Summary and Conclusion

Ghana has reformed its telecom sector within a general economic framework and also as an attempt to reap benefits of opening up the sector for private participation. The changes in the sector to some extent have positively bolstered growth in the telecom sector. Direct telephone exchange lines has moved from a level of over 48, 000 lines to about 237,2000 (debatable) in 1993 and 2000 respectively. Prior to reforming the sector, teledensity had stabilized around 0.3 per 100 people. However, this has moved to over 1 per 100 people recently. The liberalization has also opened the market for private participation and this has relatively improved access to varied services (eg. Mobile and Internet) in the country.

In spite of these initial positive results, the situation could have been better if Westel had lived to expectation. Its services are still limited to Accra – Tema metropolitan area. Even that, its total number of subscribers are so low that they cannot cause changes in the telecommunication market. As it stands now, it is difficult to identify effective competition between the two national network operators; consequently the expected benefits to be derived from competition are yet to be realized in sector. It is hope that Westel could come out of the doldrums and build visibility in the telecom market in the country.

Just like fixed line telephony, the discussion has shown the growth of the sub sector in the country. Though, there is some level of competition among the operators, it is not reflected in the quality of service nor innovative tariff regimes. What is happening in the country can be described as a mad rush for “virgin lands”. The mobile operators have expanded rapidly because of huge unmet demand for telephone services in the country. It seems to buttress a point that lower penetration of telephone services is not the issue of affordability on the part of the subscribers but the availability of the service. The arrival of Ghana Telecom in the mobile sub sector, it is hoped, could propel some form of innovativeness and sustained efforts to improve upon quality of service and not only geographic coverage.

Added to the above, conscious efforts should be made to encourage an equitable spread telephone services country especially payphones in the less economic endowed areas in the country to facilitate the achievement of universal access in the country. It is agreed that major strides had been made since 1993. Payphone population has increased from a woeful level of 25 in 1993 to over 3,000 in 2000. Sadly, the highest concentration is in the urban areas especially in Greater Accra region which already has the highest number of DELs in the country. Consequently achieving universal service by providing

every community of 250 people of payphone is yet to be achieved.

Finally, the lack of a strong regulatory agency in a way is not facilitating the development of the sector. The NCA has not been able either to sanction the mobile fixed line network operators for poor performance. It is hoped that the NCA will be strengthened to become a full fledge independent regulatory institution.

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