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Adoption of Kenyan, Nigerian and Tanzanian Best Practices in Communication Services Provision to Liberalize Telecommunication Sector in Ethiopia

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Belay Feleke

Abstract

Globally, the telecommunication sector is under a regular reform process in the form of privatization and liberalization of the market as well as establishing an independent regulatory authority to foster competition and protect the interests of customers from unjust practices of operators. As part of the globe, the policy and regulatory framework of the sector in many African countries also encouraging the involvement of private operators within the sector provided that they fulfill the necessary requirements to provide the service to people. For example, the mobile, fixed-line and internet segments in Kenya, Nigeria and Tanzania had multiple operators that provide the services in a competitive way. The respective regulatory authority are easing the market entry through introducing convergence licensing framework in which operators can provide any types of services using any kind of technology if they can do so.

However, privatization, liberalization and other elements of telecommunication reform has not taken place in Ethiopian telecommunication sector even if private sectors are participating in resale services such as cyber café, tele-cente, cable work, etc. The country's policy and regulatory framework restricts the privatization of the incumbent and the involvement of private operators to provide mobile, fixed-line, internet and other telecommunication services. Instead, it allows the national monopoly of the sector and a single government-owned operator (Ethio-telecom) solely provides all these services to more than 80 million Ethiopian population. The volatile of the region, the lion share of the sector for financing other projects as well as unwillingness of private sectors to expand universal services to costly areas are the major reasons for over-handed of the sector by the government.

The general objective of this study, therefore, was to assess the experiences and best practices of Kenya, Nigeria and Tanzania in telecommunication service provision with the intention that Ethiopia can derive lessons to introduce reform elements in its telecommunication sector. The researcher employed both qualitative and quantitative approaches. The data gathered mainly from secondary sources and interview of the senior officials in Ethio-telecom and MoCIT.

The study found that Kenya, Nigeria and Tanzania had improved the accessibility and affordability of telecommunication services as a result of continuous reform of the sector. For example, the Kenyan mobile penetration reached 77.3 % in 2013. The regulatory environment protects the customers' interests since regulators are fully autonomous. In contrast, the monopoly market structure in Ethiopian telecommunication sector had negatively affected the penetration of services particularly, in mobile and internet services. The mobile penetration, for example in 2012, was as low as 20.42%. Moreover, various regulatory functions such as customer protection (e.g. through quality service monitoring as well as compliant management and resolution) are not properly implemented due to absence of independent regulatory authority for the sector and limited capacity of the incumbent. In addition, the telecommunication voice tariffs had not downwardly revised in recent years due to absence of competition within the market.

Based on these findings, the researcher has recommended (if government is willing) that, as part of the globe, the Ethiopian government and/or policy makers should consider the reality of the world and gradually introduce privatization and competition to the sector with establishment of an independent regulatory authority. The government should have separate entities for regulation and policy-making functions. Moreover, the regulatory environment should protect the customers' interest through implementing customers' charter and service level agreement to specified quality standards so that the incumbent is accountable when it failed to achieve.

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List of Abbreviations and Acronyms

AU	African Union
Br.	Birr
CCK	Communication Commission of Kenya
CDMA	Code Division Multiple Access
CLF	Converged Licensing Framework
Dbm	Decibels
EC	Ethiopian Calendar
EICTDA	Ethiopia ICT Development Agency
ETA	Ethiopian Telecommunication Agency
ETC	Ethiopia Telecommunication Corporation
FDRE	Federal Democratic Republic of Ethiopia
FRoN	Federal Republic of Nigerian
GATS	General Agreement on Trade and Services
GDP	Gross Domestic Product
GNI	Gross National Income
GPRS	General Packages Radio Service
GSM	Global System for Mobile Communication
GTP	Growth and Transformation Plan
ICC	International Chamber of Commerce
ICT	Information Communication Technology
IDI	ICT Development Index
IMT	International Mobile Telecommunications
IPB	ICT Price Basket
ITU	International Telecom Union
KPIs	Key Performance Indicators
KShs	Kenyan Shillings
MoC	Ministry of Communication
MoCIT	Ministry of Communication and Information Technology

MoFED	Ministry of Finance and Economic Development
MoIC	Ministry of Information Communication
MOS	Mean Opinion Score
M-tel	Mobile Telecommunication
MTN	Mobile Telecommunication Network
N.A.	Not Available; No Author
N.D.	No Date
NCC	Nigerian Communication Commission
Ngn	Nigerian naira
OECD	Organization for Economic Co-operation and Development
RIA	Research ICT Africa
RoK	Republic of Kenya
SDCCH	Stand-Alone Dedicated Control Channel
Sec.	Second
SIM	Subscribers Information Module
TCH	Traffic Channels
TCRA	Tanzania Communication Regulatory Authority
TShs	Tanzania Shillings
TTCL	Tanzania Telecommunications Company Limited
UAS	Universal Access and Services
UASLs	Unified Access Service License
ULF	Unified Licensing Framework
URT	United Republic of Tanzania
USD	United States Dollar
VAT	Value Added Tax
WTO	World Trade Organization
ZTE	Zhong Xing Telecommunication Equipment
3G	Third Generation
4G	Fourth Generation

CHAPTER ONE

Introduction

1.1 Back Ground of the Study

Since the 1980s, market reforms that functioned around the world have largely shaped the telecommunication sector (Gasmi, et al, 2011). Many countries have issued various rules, regulations and laws that claim the reform of the telecommunication sector for competition and gradual process of privatization of certain segments. This activity allows private sectors to become operators in many segments of the telecommunication sector and provide telecom services to their people. The opening of the market for competition and privatization of the incumbents were not enough to reform fully the sector. Rather it entails freedom from routine interference of the bureaucracy and political pressure through creating an independent regulatory agency. In other words, governments has designed a favorable regulatory environment with effective laws and policies, which has a direct effect on telecommunication and ICT sector and established an independent regulatory body for implementing these laws and policies to foster healthy competition among operators and keep the welfare of the customers. This regulatory body is responsible for promoting pro-competitive behaviors among multiple operators and protecting ant-competitive behaviors so that to make ICT and telecommunication sector effective enough at regional and global level.

Gasmi, et al supported this idea in that the reforms have liberalized the telecommunication sector which allows competition in fixed-line and cellular segments and immediate privatization of the fixed-line incumbent operators. Moreover, these changes have resulted for the creation of an independent regulatory agency with the aim of proving the roles of regulation and competition policy in which they can play in the market place (Gasmi, et al, 2011). Globally, there is high competition in provision of various telecommunication services and the numbers of independent regulatory authorities are increasing from time to time. For example, according to International Telecom Union (ITU), 92 percent of the services provision in the segment of mobile cellular and mobile broadband is competitive world-wide. At the end of 2011, 158 countries have established an independent regulatory agency to their telecommunication and ICT sector to promote competition and protect consumers' interest (ITU, 2012). The principal motive that countries give attention in introducing reform in their telecommunication sector is to improve the

performance of the sector and reduce the costs in provision of the services to the people. Since the telecommunication industry plays a major role for development of other sectors and the whole economy, many countries have attempted to improve its efficiency, access and affordability through continuous reform. When the sector is liberalized, it attracts private sectors for competition that, in turn, improves efficiency of telecommunication services provision with simultaneous reduction in price and offers the services in relatively affordable manner. Hope and Moore supported this idea in that the major reason that most countries made significant change to the institutional and regulatory framework of the telecommunication industry is to improve access and enhance efficiency (Hope and Moore, 2007).

The liberalization of the sector had a role in improving the accessibility and affordability of the telecommunication services. As the sector is opened for competition, multiple operators are engaging which, in turn, increases the competition within the sector. Operators are striving to retain the existing customers and acquired new once through setting attractive prices for the services. The reductions of the services prices can increase the accessibility of services.

In Africa, very few governments have still controlled the sector in which a single state-owned operator provides the telecommunication services. Surprisingly, all countries excluding Ethiopia have made liberalization in telecommunication sector and open for competition in which multiple operators are engaging in provision of services. The reform has reduced the call tariffs in many African countries. For example, Mowete, in review of Nigeria's telecommunication sector performance found that significant reduction of international tariff is the major achievement in the telecommunication reform which reduce from an average of Ngn 130 in 2000 (before market reform) per minute to less than Ngn 30 per minute in 2006 with indication of further reduction in the future (Mowete, 2007). Similarly, the Kenya voice tariff has reduced with an average of 22.5 percent from 2007 to 2013. For example, charge to the same mobile network (prepaid) had reduced from 14.5 Kshs in 2007 to 2.6 Kshs in 2013 (CCK, 2013). Therefore, according to Calandro, et al **'**telecommunication in Africa has become far more dynamic with liberalization, with the exception of Ethiopia which still maintains a government-owned integrated monopoly for mobile, broadband and fixed-line services'(Calandro, et al., 2010).

In Ethiopia, the introduction of telecommunication dates back to 1894. It is the oldest public telecommunication operator in Africa (ETC, 2005). Despite such long history of the sector, so far, the country has taken little reform elements in telecommunication industry. The current government is continuing to monopolize the sector and providing the telecom services by its own enterprise: the Ethio-telecom despite the pressure of international financial institutions for liberalization of the sector. 'The volatility of the region is one of the major factors that have contributed to the governments' heavy handed regulation of the ICT sector. Ethiopia and Eritrea are the last countries in the world where government owns the entire communications sector'(Adam, 2010 and Baron, 2010). Moreover, the abolition of the regulator agency i.e. Ethiopian Telecommunication Agency (ETA) since 2010, as per the proclamation No. 691/ 2010, has reinforced its monopoly power over the sector. The proclamation provided all ETA's duties and a power to Ministry of Communication and Information Technology (MoCIT) and, currently, the minister is the regulator of the sector (FDRE, 2010).

This phenomenon resulted the country to lag behind many African countries in services penetration though the cost of services is comparable with many countries. For example, the level of mobile and internet penetration is two and twenty four times less than to Kenyan in 2012 (CCK, 2012 and MoCIT, 2012 cited in (ITU, 2014)). Thus, this study focuses on global best practices in telecommunication service provision with great emphasis to Nigeria, Kenya and Tanzania that made extensive reform in their telecommunication sector. It aims to assess the best experiences and practices in which Ethiopia can derive lessons from these countries and introduce reform elements into the Ethio-telecom.

1.2 Problem Statement

Many countries have ceased the monopoly market structure in various public sectors including telecommunication sector because of its limitations. The monopoly market structure is inefficient as it discourages the involvement of private sectors and results for the dissatisfaction of the customer in terms of quality, affordability, accessibility of services, etc. Scholars like Hartley and Murphree say that 'monopoly service provision does have significant weaknesses that many scholars and economists claim outweigh the arguments for it' (Hartley and Murphree, 2006). Unlike firms operating in a competitive environment, monopoly provider doesn't get any incentive to improve services and lower prices Wallsten (2004) cited in (Hartley and Murphree, 2010). Such and other problems of monopoly market structure results for the introduction of

privatization and competition within the sectors around the world. As the case in many sectors, the governments have implemented the reform in the telecommunication sector all over the world to improve the efficiency in service provision, accessibility, service quality and affordability. Zheng and R.Ward, supported that even in developing countries, competition and privatization of telecommunication operators are the main premises of telecommunication sector reform (Zheng and R. Ward, 2011). The introduction of reform in telecommunication sector has opened-up the market for private investment to bring their management skill, knowledge, innovations, etc. and reduced the monopoly power of the government in the sector. The OECD Communications Outlook supports this argument in that the trends towards liberalization have been associated with both declining state involvement in the ICT sector (particularly through privatization of state-owned entities) and market share dilution through the entry of new players (OECD Communications Outlook, 2005) cited in Esselaar, et al (2007). African countries also de-monopolize the telecommunication sector and paved the way for many operators to engage in provision of telecommunication services (mobile, fixed-line, internet etc) in a competitive basis. Calandro, et al has supported in that the international institutions such as ITU, WTO, AU and World Bank pressured most African countries to reform their ICT sector in aligning with global developments (Calandro, et al, 2010).

In Kenya, for example, four mobile GSM operators and various fixed-line and internet segment operators with different level of market share are providing the services to the people in a competitive manner (CCK, 2013). Similarly, Nigeria and Tanzania had nine and six mobile operators respectively and multiple players in their fixed-line and internet segment respectively (TCRA, 2013 and NCC, 2014). The respective national ICT/telecommunication policy had allowed the involvement of multiple operators within different segments of the sector. These polices established an independent regulatory authority to promote healthy competition and protect the interests of customers from unjust practices of operators. Generally, the process of privatization, liberalization and competition is regulated by these independent regulatory authorities. The telecommunication sector in all three countries had improved the affordability and accessibility of telecommunication services to underserved section of the society.

Despite such a tendency of growth in privatization and competition in ICT and telecommunication sector in Africa and the world at large, it is not evident in Ethiopia. The Ethiopian government fully monopolized the telecommunication-related services including

mobile, fixed-line and internet services and its single state-owned operator i.e. Ethio-telecom is providing all these services. Adam supported that the Ethiopia Telecommunication Corporation (ETC)-the current Ethio-telecom is the incumbent public telecommunication operator and has a monopoly over all telecommunication services/fixed-line, mobile, Internet and data communications in the country and continuing to be state-owned despite pressures from international financial institutions and unlikely that liberalization will take place in the short term (Adam, 2010).

The result of such market structure had negatively affected the sector in terms of improving the accessibility and affordability of various telecommunications services (mobile, fixed-line and internet) to unserved section of the society. Even though the pricing strategy of the Ethiopian government is pro-poor and very cheap (particularly the national call services), the tariffs is not regularly revised. The incumbent has not revised the tariffs of voice telecommunication services, downwardly in recent years. In mobile domestic calls, the last tariff revision was made during the period of partial privatization of the incumbent. The fixed-line tariffs have not revised quite a long period of time.

In Ethiopia, concerning competition and privatization of public enterprises, most researchers has studied either the process of privatization and competition or performance of privatized enterprises. Few researchers, if there are, have conducted their study with the objective of unveiling the problems of monopoly market on effectiveness of the sector and showing direction for government to introduce competition and transfer state-owned enterprises to private sectors. However, this study assessed neither the process of competition and privatization nor the performance of privatized enterprises. It focuses on the assessment of best experiences of Kenya, Nigeria and Tanzania in provision of telecommunication services so that Ethiopia can derive lessons (if government is willing) from these best experiences in accordance with its contextual reality and introduce gradual privatization and competition within the telecommunication sector in line with establishment of independent regulatory authority to improve the effectiveness of the sector.

1.3 Research Questions

In general, this study answered the following major research questions.

1. What is the state of telecommunication services provision in Ethiopia today?
2. What is the effect of the current monopoly market structure of Ethio-telecom on accessibility and affordability of telecommunication services?
3. What are the lessons learned from competitive supply of telecommunication services in Kenya, Nigeria and Tanzania?
4. Have Kenya, Nigeria and Tanzania benefited from competitive provision of telecommunication services?

1.4 Objectives of the Study

In Ethiopia, many researchers have studied on the issue of competition and privatization in many public sectors. However, one can see these studies from two angles only. Some studies assess the characteristics and challenges of the process of privatization and effectiveness of competition while others examined the performance of privatized enterprises. The objective of this study, however, is different as stated below.

1.4.1 General Objective

Thus, the general objective of this study is to assess the experiences and best practices of Kenya, Nigeria and Tanzania in telecommunication service provision with the intention that Ethiopia can derive lessons and introduce reform elements in telecommunication sector through gradual introduction of privatization and competition with establishment of an independent regulatory authority for the sector.

1.4.2 Specific Objectives

Under the umbrella of the above general objective, the following are the specific objectives of the study:

1. To evaluate the current state of telecommunication services provision in Ethiopia;
2. To assess the effect of the current monopoly market structure of Ethio-telecom on accessibility and affordability of telecommunication services;
3. To examine what regulatory bodies and conducive environments exist in Ethiopia and compare it with Kenya, Nigeria and Tanzania;

4. To present lessons learned from competitive supply of telecommunication services in Kenya, Nigeria and Tanzania;
5. To assess whether Kenya, Nigeria and Tanzania benefited from competitive provision of telecommunication services.

1.5 Methodology of the Research

1.5.1 Data Sources

The study has used both primary and secondary data sources. Primary sources include original sources mainly interview results and other unpublished documents. Similarly, secondary data sources included published sources such as regulations, proclamations, national ICT/telecommunication policy, statistical reports of the Ethio-telecom, annual/quarterly reports of Communication Commission of Kenya (CCK), Nigeria Communication Commission (NCC) and Tanzania Communications Regulatory Authority (TCRA), as well as reports and/or studies of Research ICT Africa (RIA) and International Telecommunication Union (ITU). However, the researcher has more employed secondary sources than primary sources. The justification for concentrating more on the secondary sources is due to the nature of the problem. The nature of problem forced the researchers to shape the type of methodology, methods and techniques in the process of the study. However, the researchers cannot adjust the existing problems as per methodology, methods and techniques they employed. Similarly, the nature of the problem also determines the type of sources used. In this study, the researcher has assessed the current state of the Ethio-telecom in the provision of telecommunication services as well as the effect of the monopoly market structure and the benefits the country would have acquired provided that if the government privatized the incumbent and opened the market for competition to eligible private operators. It also deeply assessed the experiences and best practices of Kenya, Nigeria and Tanzania in privatization and liberalization of the sector. Moreover, it comparatively, described the policy and regulatory framework of the Ethiopian telecommunication sector in allowing privatization, competition and creating impartial and independent regulatory authority to foster competitive provision of telecommunication services with Kenyan, Nigerian and Tanzanian.

Thus, the researcher can gather adequate data from secondary sources than attempting to collect from primary sources. In other words, the official reports of the sector and the countries' telecommunication policy and regulatory framework is compulsory to make a comparative policy and practice analysis with the telecommunication sectors of these countries and to

foreword feasible recommendations to Ethiopian government to introduce gradual liberalization and privatization of the incumbent in the future. In addition to secondary sources, primary sources mainly interview also used to gather data that had not been covered from secondary sources and to view the whole image of the problem.

1.5.2 Approaches to Research Design

The study applied both the qualitative and quantitative research design so as to have multi-dimensional and dynamic pictures in best practices and experiences in telecommunication services provision of Kenya, Nigeria and Tanzania in which Ethiopia can derive lessons and introduce gradual competition and privatization to improve the provision of telecommunication services. Thus, from qualitative approach, the researcher applied descriptive and analytical studies as well as from quantitative approach, statistical methods such as percentages, graph and tabulations.

1.5.3 Data Collection Techniques

In order to gather adequate data, the researcher has employed different techniques of data collection. Primary data have been collected through interviewing of senior officials (policy makers and politicians) in Ethio-telecom and Communication and Information Technology Standardization and Regulatory Directorate under the MoCIT that can give adequate data on behalf of the respective organizations. The assumption is that these officials are more familiar about government's policy and regulatory environment in the telecommunication sector as well as the competitive and privatization issues of the incumbent than any other employees. Moreover, the officials in both organizations (Ethio-telecom and MoCIT) can provide the latest and required data on the behalf of the organization they represent. Hence, the researcher interviewed these officials with the help of prepared and structured questions. However, the study did not include data from customers because the Ethio-telecom admits the dissatisfaction of customers with the services it provides. It firmly believes that the services are below the required quality standards. Thus, the debate is the reasons for such low quality of services since the incumbent never accept the monopoly market structure is responsible instead it relate with limited capacity of the existing network.

Similarly, the researcher gathered secondary sources through review of various materials including books, annual statistical bulletin and reports of Ethio-telecom, CCK, NCC, TCRA as well as studies/reports of RIA and ITU.

The researcher selected three African countries, namely Kenya, Nigeria and Tanzania that liberalized the sector and had experiences in provision of telecommunication services. The rationale behind in focusing solely on Kenya, Nigeria and Tanzania is that these countries are among the five largest African mobile markets (GSMA, 2012) with Ghana and South Africa. Among these, Kenya and Tanzania are neighbors to Ethiopia (Eastern African Countries) that can share approximately similar socio-economic and geographical areas with Ethiopia. This can help Ethiopia derive lessons from its neighbor countries more easily. In other words, the effectiveness of the telecommunication reform in Kenya and Tanzania enlighten that it can be effective in other neighbors countries that share similar socio-economic and geographical areas such as Ethiopia so long as they introduce and adapt to the contextual reality of their country. In addition, the study included Nigeria since it is the most populous country in Africa. Ethiopia can drive lessons from Nigeria how to provide adequate services to large population and improve the level of penetration in mobile and other telecommunication segments. In other words, Nigeria had best practices and experiences in provision of telecommunication services in a competitive manner even if its population is greater than that of Ethiopian population. The researcher also limited only to three countries in order to assess the best practices and experiences in depth as well as to limit the volume of the study.

1.5.4. Data Analysis Methods

In this study, the researcher employed both descriptive and analytical methods of data analysis. The researcher deeply described and interpreted the Kenyan, Nigerian and Tanzanian national ICT/Telecommunication policy through descriptive method of data analysis so that to screen the best practices and experiences in telecommunication services provision. In particular, it analyzed the policy framework of each country and its role in establishing an independent regulatory authority with adequate autonomy. Moreover, the study analyzed the regulatory environment of the countries in protecting customers from unjust practice of operators (such as availability and quality of services, excessive tariffs, etc). It emphasized on the role of the regulators in encouraging involvement of multiple private operators to the sector and foster healthy competition among these operators in provision of telecommunication services as well as gradual transfer of various telecommunication segments from government to private sectors.

After analyzing the policy and regulatory frameworks, it continued through presenting and describing the outcomes of privatization and liberalization with independent regulatory authority

in improving accessibility of the services (mobile, fixed-line and internet services) and the cost of usage of these services i.e. affordability with great emphasis to voice services i.e. mobile and fixed-line. Globally, these services have higher subscriptions than that of data services (internet). For example, according to ITU estimate, at the end of 2013, the mobile cellular subscriptions (excluding fixed-line segment) will reach 6.8 billion while the internet users will only 2.7 billion (ITU, 2013). It aims to illustrate the role of reform in telecommunication sector in improving its effectiveness in terms of accessibility and affordability of these services and to demonstrate the communication gaps exist in Ethiopia in relation to Kenyan, Nigerian and Tanzanian as a result of the monopoly market structure in telecommunication sector.

In line with this, it described the Ethiopian national ICT/ telecommunication policy and level of penetration in mobile, fixed-line and internet segment and cost of accessing in voice services in the current monopoly market structure as well as the future plan of the government in introducing gradual privatization and competition within the sector. Moreover, the study comparatively analyzed the Ethiopian telecommunication policy and regulatory environment in its role to establish an independent regulatory authority and discharging the core regulatory functions with Kenyan, Nigerian and Tanzanian. On the other hand, the researcher applied analytical method of data analysis to elicit beyond the presented facts and figures and make a critical analysis.

1.6 Scope of the Study

The Ethiopian government had provided due emphasis for the expansion of the telecommunication services as its redistributive justice policy for rural part of the country under the monopoly market structure. Thus, this study covered the state of Ethiopian telecommunication services provision (mobile, fixed-line and internet services) under the current monopoly market structure and the performance of the incumbent in improving the accessibility of services in affordable manner to the underserved section of society. It also covered the role telecommunication policy and regulatory framework in encouraging the involvement of private operators to the sector in comparison with Kenya, Nigeria and Tanzania. It presented and analyzed whether Kenya, Nigeria and Tanzania had benefited in competitive provision telecommunication services to increase the accessibility and affordability of services with great emphasis to the role of the independent regulatory authority in ease the market entry for the private sectors. The study focused and used the latest available date in Ethiopia as well as Kenya,

Nigeria and Tanzania. This is because these latest available data can show the current state of the country's telecommunication services and effectiveness of Ethio-telecom in comparison with the telecommunication of stated countries.

1.7 Significance of the Study

The Ethiopian government applied for membership of WTO in 2003 with the target of accession date in 2009. This needs to participate in the General Agreement on Trade in Services (GATS) and negotiate a schedule of specific commitments on trade and services, including telecom and financial services, transport, tourism and others. However, lack of liberalization of Ethiopia's telecommunication markets is an obstacle to the country's entry into the organization **(**Baron, 2010). Therefore, this study can inform the concerned body to give attention for the benefits that the country can acquire provided that the market is liberalized (opened for competition) and the incumbent is privatized in the form of attracting innovative private sectors with adequate management skills, technologies, investment etc that can add value to the services. Besides, this study can show the costs that Ethiopia is incurring in terms of low penetration in comparison with other African countries. Moreover, this study contributes to the existing literature through probing the roles of the reform in telecommunication sectors to improve its effectiveness with regard to improving accessibility and affordability of services. Finally, the scholars in this field who want to research further in the future on the topic and related problems may get the study as reference.

1.8 Limitation of the Study

The researcher has faced with various challenges while conducting this study in which all have their own effects on the process of the study. The first and most significant challenge was the difficulty in getting updated and latest statistical data about the telecommunication sectors of Kenya, Nigeria, Tanzania and Ethiopia. Secondly, unwillingness of the officials in Ethio-telecom and MoCIT to provide necessary documents (such as quarterly/annual reports) with the fear of the objective of the study has played its negative role in the progress of the study. Finally, shortage of time was other constraint while conducting the study. To minimize the effects of the aforementioned challenges, the researcher employed the following techniques. First, the researcher exhaustively searched out all the necessary materials (including electronics materials) so as to get sufficient data. Second, the officials accepted the academic purpose of the study after

negotiation with the researcher and provided sufficient data for the study. Lastly, the researcher had properly utilized his time to complete within the schedule set.

1.9 Organization of the Thesis

The study has four chapters. Introduction is the first chapter and comprises background of the study, statement of the problem, research questions, objectives and the methodology of the study. The second chapter, reviews of related literatures, explains various concepts with regard to liberalization and privatization of telecommunication in depth around the world. The third chapter presents the analysis and interpretation of data. The final chapter, chapter four, covers conclusions and recommendations based on the analysis and findings. Bibliography follows the fourth chapter. Finally, appendixes appear at the end of the thesis.

CHAPTER TWO

Review of Related Literatures

2.1 Introduction

Telecommunication reform, if the state applies properly, plays a key role to improve the affordability and level of penetration of services within the sector**.** Liberalization of the sector (opening of the market to private sectors for competition) and gradual privatization of the incumbents to private operators can pave the way to bring innovative technology and skills as well as investment to the sector. When multiple operators and service providers enter to the sector, competition becomes foster among these players with objective of keeping the customers' interests and acquisition of new subscribers. This can be done through improving the affordability (reducing cost of services usage) and accessibility of services. The reduction of the cost in accessing the services can bring those who were, previously, underserved to use these services and this, in turn, leads to increase the penetration level in the sector. Moreover, the presence of multiple players within the telecommunication sector can create healthy competition if and only if there is strong and independent regulatory agency that protects the customers' and operators' right from undue practices of the dominant operators with their excess market position. Establishment of an independent regulatory authority to regulate the telecommunication sector is also part of the reform process in the telecommunication sector. Therefore, as it is described in the succeeding sections, the telecommunication reform in terms of privatization, liberalization and establishing an independent regulatory authority is an important element to improve the affordability and accessibility of telecommunication services.

Therefore, this chapter presents different literatures which are relevant to the study. It covers various issues including elements of telecommunication reform, models of telecommunication reform and global trends of telecommunication reform. In addition, the approaches of regulation of the telecommunication services and elements for effective regulation of these services as well as the scopes and trends of Universal Services and Universal Access (UAS) also included. Finally, it covered the trends of telecommunication reform in Africa and overview of the reforms of the sector in Kenya, Nigeria, Tanzania and Ethiopia.

2.2 Elements of Market Reform in Telecommunication Sector

Three key elements/components recommended in the telecommunication reform initiatives including: (1) Privatizing the state-owned monopoly provider (2) Liberalization/introducing competition and (3) Creating an independent regulatory administration. These three elements can be implemented in many ways and the degree of implementation can be in greater or lesser extents. For example, since the government often holds some ownership of the incumbent (at least initially), privatization is never complete. Mostly, government constrained the competition process intentionally. The government may provide an exclusive period to newly privatized sectors (at least in wire line services) which banned competition for a certain years. 'Finally, regulation can take many forms and its details can have large impacts on the performance of the sector and the ability of the incumbent to exercise market power' (J. Wallsten, 1999). The following section discusses the detail for each element.

2.2.1 Privatization

Telecommunication privatization is a system of introducing private capital and management into the telecommunication sector through the sale of the state company or award of new licenses to private operators (Ndukwe, 2005). Previously, the telecommunication operators were state-owned in most countries of the world which lasts for over three-quarters of the last century. However, privatization of telecommunication has started in 1980's in United Kingdom with privatization of British telecom. This phenomenon has continued increasingly in late 1980's and intensified throughout the 1990s (ITU, 1999a, ITU, 1999b and Pyramid Research, 2000) cited in (Li, et al., 2001). With objectives of raising revenues, strengthening incumbent's balance sheet for future investments and helping the incumbent to become a more robust competitor, government may decide to sell a stake in incumbent operator to outside investors (ICC, 2004).

Many countries sell their incumbent operators (at least partially) to private and sometimes foreign investors which pave the way for local and foreign private sectors to engage in the telecommunication industry. 'On top of this, the growth of new technologies and services such as the internet, cable television, new broadcasting services and new switching and transmission technologies has enabled new participants to enter the telecommunication market.' Countries have also participated in privatization rather than attracting private and foreign investment into the telecommunication sector. The major objective is to improve the existing infrastructure to satisfy unmet demand and to benefit from the rapid introduction of new products and services

(ITU, 1999a; ITU, 1999b and Pyramid Research; 2000) cited in (Li, et al., 2001). However, privatization is not an obligation rather it is one of the options. When the operator is separated from the government agencies that regulate the operator, the government may maintain ownership of the incumbent. On the other hand, when the incumbent become an integrated part of the government, conflict of interest is created between government's policy role and incumbent's operator role. In addition, unless privatization is done carefully, it can create certain problems as the investors in the incumbent may request the extension of monopoly rights. Whatever the debate, the monopoly rights should, under no circumstances, extended to data, internet or value-added services since they are key drivers for business and national economic growth (ICC, 2004).

2.2.2 Liberalization

Telecommunication liberalization is '…introducing competition into the telecoms sector by allowing commercial enterprises to setup new telecommunication businesses as long as they comply with certain government-defined policies, rules and regulations. It is a fundamental shift in the way a government, at the national level and through international treaty agreements, regulates the provision and use of public telecoms resources' (ICC, 2004). It also refers a system of introducing a competition in the sector where the services previously delivered in the monopoly market structure. It is, mostly, facilitated by the government action i.e. regulatory interventions to promote competition on account of advancement in technology (Ndukwe, 2005).

Some people use the term liberalization and deregulation interchangeably as if they are alike, but there is difference between them. '[…] a country that has not liberalized its telecoms market needs no regulation because the incumbent operator is usually owned by and directly accountable to the government. Liberalization, on the other hand, requires establishment of a market driven policy framework and pro-competitive regulations or rules of the game that will apply to all market players.' Similarly, liberalization is not the same as the term privatization. When the liberalization of the telecommunication market takes place, privatization of the incumbent may not be an obligation and government may want to maintain the ownership of the sector provided that there is a clear separation between the operator and the government agencies that regulate the telecoms sector (ICC, 2004). Though there are variations among countries, they introduce liberalization in the telecommunication sector with the following objectives including,: promoting innovation; advancing national infrastructure; getting more new investment;

generating jobs; advancing services, pricing and choice for the end-user community; improving universal access. However, liberalization and competition are a means, but not an end per se. While deciding and articulating objectives of liberalization and competition, the government should consult the relevant stakeholders. 'Not every government will want to develop a mission statement or an illustration of its goals, but it is essential to work out in advance why the country is liberalizing its telecoms sector. This will help to make sure the objectives are not lost along the way' (Ibid).

2.2.3 Independent Regulatory Authority

There are various definitions for the term regulation but for this case we use the definition given by Ndukwe which is establishment of an agency in the telecommunication sector for encouraging and managing competitive market as well as protecting consumer interests in accordance with the government policies (Ndukwe, 2005). While transforming the monopolistic telecom market to the competitive market, one of the key issues to be considered is establishment of effective and independent regulators coupled with fair and efficient judicial appeal systems. When the incumbent enters to the competitive market and provides the essential facilities upon which competitive services depend in a monopolistic basis, regulation is particularly important (ICC, 2004). Regulators become the main actors in the telecommunication sector in 1990's because of rapid technological change, low performance of incumbent operators and the world trade organization agreement on basic telecommunication services (Baudrier, 2001).

However, the telecommunication regulator should be independent enough to achieve its objective effectively. H. Melody supported in that effective separation of the basic functions of policy making, regulation and operator management is the most fundamental issues in achieving effective telecom reform (H. Melody, 1997). In other words, viable competition is unlikely to emerge unless there is effective regulatory authorities and fair judicial systems (ICC, 2004).

In the past two decades, the telecommunication regulation has showed a dramatic transformation around the world as a result of technological innovations. More than 150 countries, worldwide, have either introduced new telecommunication legislation or modified existing regulations towards deregulation and replaced the old way of administratively assigning spectrum rights with the competitive bidding process under the organization of the

regulators (Li and Xu, N.D.). 'The implementation of an effective regulatory framework has resulted in greater economic growth, increased investment, lower prices, better quality of services, higher penetration and more rapid technological innovation in the sector. In fact, investors consider the regulatory environment to be a critical factor in their analysis of whether or not to invest in a country ' (Blackman and Srivastava, 2011).

2.3 Emerging Models in Telecommunication Reform

There are various approaches for privatization and liberalization of the telecommunication sector which opens the way for many countries to adopt different models in accordance with their political and economical situations. However, recently four common models are emerging as discussed below (A. Pisciotta, 2010).

2.3.1 *Model 1*: Privatization with Full Competition

In this model, the administrators take place the combination of privatization and liberalization of the incumbent. Countries such as New Zealand, Chile and others have brought affirmative result in the form of lower prices and accelerate infrastructure investment through adopting this model. In this model, some operators in the sector may not get sufficient benefits for a certain period of time and the success of the competition depends on the regulatory effectiveness of the regulator. Thus, the regulatory authority is highly responsible to control market abuses of dominant carriers and other players through anti-trust enforcement and regulatory control and other mechanisms around interconnection and pricing policies to maximize the opportunities and benefits of competition. Many countries such as New Zealand, Chile, Malaysia and Philippines have reformed their telecommunication sector through this model.

2.3.2 *Model 2*: Privatization with Phased-in Competition

Under this model, a few strategic investor consortiums are given an exclusive right (protected from competition) for a certain period to operate in the national carrier in basic telecommunication services and at the beginning, only fringe services are liberalized. Though there is various numbers of variations on this theme, 'countries that pursue this model usually either want to maximize the value of the sale of the national carrier or believe that a private monopoly operating under strict regulatory scrutiny for a period of years is the best way to achieve universal service through infrastructure build-out.' Among countries that adopt this model include United Kingdom, Japan, Argentina, Mexico, Venezuela, Peru, Bolivia, Belgian, Czech, Denmark and Hungarian.

2.3.3 *Model 3*: **Liberalization without Privatization**

Under this model, still, the incumbent is in the hand of the government. But the administrators want to liberalize the sector to get the benefits of liberalization. When the sector liberalized, it is open-up to foreign investors which gives an opportunity for introduction of advanced technology and management expertise. The privatization process has various constraints from many interest groups such as workers and unions (who want to secure their job), military and defense (who want to secure their control over the communication sector), legal impediments by constitution (as was the case in Brazil) and insufficient interest of investors. When privatization of the sector is practically difficult due to these or other reasons, many administrations open-up their markets to private sector participation and competition. Even without privatization, countries like Finland, Sweden, Colombia and other countries have reformed their telecommunication sector using this model. They have efficiently lowered prices, increased infrastructure investment and implemented of new technologies. In this model, the issue of interconnection is not possible because the sector is in the hand of the government. Therefore, the regulatory authority should protect the competitors from the unjust competition because of the market dominance and its special position and privileges of the incumbent carrier.

2.3.4 *Model 4*: **Private Sector Participation without Privatization or Liberalization**

In the fourth model, the government does not introduce privatization and liberalization. However, the government attracts the investors and the expertise to get sufficient technology, skills, funds, etc. Under this model, the government employed certain techniques such as endowing the franchises to private sectors to operate certain facilities and provide certain services. In addition, the national operator also enters to contract management and consultation arrangement with private sectors to improve the telecommunication sector in terms of profitability, operation and technology. In this case, the government doesn't face the political risk and transaction costs as it get adequate capital from the private sector. Though the ownership right is still in the hand of the government, the private sectors are involved to develop a project and to operate the system for a certain period. The participation of the private sectors in such arrangement can increase the rollout of the infrastructure investment. However, the government cannot attain the optimum benefit of privatization and competition. Thailand, Saudi Arabia and the Peoples Republic of China are examples that adopted this approach.

In general, the first model (privatization with full liberalization) requires strong regulation to protect market abuses and the success of the reform depends on the effectiveness of these regulators. Countries such as Kenya, Nigeria and Tanzania have reformed their telecommunication sector through the second model (privatization with phased-in competition). The respective national ICT/telecommunication policy provides exclusive rights for a certain period of time from competition. However, at the end of the period, the markets become fully liberalized and operators are freely engaging within the sector and the incumbent gradually privatized. Thus, it is preferable for Ethiopia to reform the sector through this model. Because the first model requires very strong regulation for the success of the reform where it take long time establish such regulation. In addition, Ethiopia may not gain the full benefits of liberalization and privatization through the third and fourth model.

2.4 Effective Regulation of Telecommunication Sector

There are various functions for telecommunication regulations, but according to ITU, its core functions typically focus on three areas**:** ensuring fair market entry and competition, promoting investment and universal access and protecting customers (ITU, 2012). Thus, in order to achieve these core activities, certain components are required. Among various components for effective regulators, the most critical attribute is its independence (Blackman and Srivastava, 2011). Currently, there are three major elements for regulatory effectiveness (Infodev and ITU, N.D.).

2.4.1 Structural Independence

'A regulator can function in an effective manner in a given market within a range of organizational structures' (Infodev and ITU, N.D.). In the telecommunication sector, the regulatory agency should not wholly depend on the line minister with regard to telecom policy. Instead, it should separate from operator as well as insulted from external pressures and free from political or industry capture (technological management group, 2006*).* A regulator which has a structural independence reduces excessive political interferences in its affairs and this, in turn, helps it to make decisions objectively and transparently (Infodev and ITU, N.D.).

2.4.2 Financial Independence

The level of financial independence of a regulator has an important impact on its independence, efficiency and cost of regulation. Countries are using two primary vehicles to fund a regulator's budget. The first mechanism is a formal allocation from government's budget. This approach has benefits such as promoting the role of government in directing regulation and launching policies

to support the overall economic objectives of a country. The second mechanism is allowing the regulator to collect monies from industry through fees and contributions such as spectrum or licensing fees, penalties resulting from enforcement or charges associated with administrative tasks e.g. providing numbering resources. 'Although a country may use one or the other, funding for the regulator comes from some combination of the two sources' (Infodev and ITU, N.D.).

2.4.3 Functional Independence

Functional independence is the 'ability of regulator to carry out its daily activities effectively' (technological management group, 2006). The power delegated by the state to the regulatory authority determines its mandate and competences as well as its relationship with government and other market players. However, the degree of delegation of power depends on the country's political tradition and on the political will to establish an independent and competent regulatory authority. These factors influence the effectiveness of regulatory authority in performing its specific activities. Even if 'independence' is nearly impossible to completely attain, the regulator should be given sufficient independence to implement regulations and policies without excessive interference of interested parties (politicians or other government agencies) i.e. functional independence (Infodev and ITU, N.D.).

2.5 Models for Telecommunication Sector Regulation

After establishing regulators' competences and mandate, the next step is deciding the institutional design and its relation with government, industry and public. 'The institutional design of the regulator affects the structure of the regulator, including its leadership and management organization and its organizational and administrative structures'. However, there is no successful institutional design per se but certain principles (such as the functional aspects of the regulatory authority, decision-making processes, accountability, consumer protection as well as dispute resolution and enforcement power) should be considered in designing the institutional structure (Blackman and Srivastava, 2011 and Infodev and ITU, N.D.). In other words, there is no single regulatory framework which is suitable for all countries. But, some models are more successful to foster liberalization, privatization and competition than others (GIPI, 2002*)*. In general, there are four main models for designing and creating telecommunication regulatory entities (Blackman and Srivastava, 2011).

2.5.1 Single-Sector Regulator

In this model, the function of regulator is solely overseeing the telecommunication sector (sometimes postal sector) with other agencies that focus on issues of broadcasting and information technology (Blackman and Srivastava, 2011 and technological management group, 2006). The telecommunication regulators are authorized to remedy the behaviors that break the rules and policies of the sector policies and laws and respond to particular complaints (Intven, et al., 2000). This model is advantageous in that it is easy to recruit staffs with adequate and relevant skills related with telecommunication issues. Besides, as the staffs are the former government-owned post, telegraph and telephone, they have a thorough understanding of technical issues and core professional skills which are important especially in the areas of complex network issues. This model is expensive and staffs are biased towards the incumbent operator as they are employees of former state-owned sectors (Blackman and Srivastava, 2011).

2.5.2 Converged Regulator

In converged regulatory model, all communication services (telecommunication, radio communications, broad casting and media and sometimes postal services) are managed under a single operator with a converged institutional design (Blackman and Srivastava, 2011). 'The technological changes have blurred the boundaries between broadcasting, telecommunication and other communications technology related areas that were previously regulated separately and so there is a need to bring all of these activities under one regulatory umbrella' (E. Hewitt, 2004). The converged regulator avoids the main disadvantages of a single regulator in which it emphasis solely on the telecommunication sector and meets the challenges posed by service convergence. It is also strong in specialized engineering skills-a critical skill to deal with a complex network (Blackman and Srivastava, 2011).

2.5.3 Multi-Sector Regulator

Under this model, the regulators are responsible to administer other industry sectors that considered public utilities (water, energy, transportation…) besides telecommunication sector (technological management group, 2006 and Blackman and Srivastava, 2011). This option is favored in that it effectively regulates the infrastructure of different industries and sectors based on economics of scale and staffs can also be used to supervise many industries /sectors. It also reduces duplication of a range of costs including staffing, administrative, technology, machinery, furnishing, office building, etc which, in turn, reduces the per unit cost of regulation. Thus,

developing countries with small population and limited resources can fit with this model as it reduces their fiscal expenses or requirements for regulatory fees (E. Hewitt, 2004). On the other hand, difficulty to address the next generation communications technologies; transferring tariff and spectrum management among the industries as well as the disproportionate share of cost with other sectors such as electricity and gas that never produce revenue for the regulator are among the disadvantages (Blackman and Srivastava, 2011).

2.5.4 No Specific Telecommunication Regulatory Authority

Unlike the above organizational structure, this option doesn't create any telecommunication-specific regulator and apply any detailed sector specific rules and institutional designs (Blackman and Srivastava, 2011). In other words, it is not 'actually a regulatory authority at all but an approach in which general competition policy is the main method of controlling or overseeing the telecommunication sector' (technological management group, 2006). This model is not expensive and can be easily implemented. 'Moreover, reliance on economy-wide rules and institutions to regulate the sector promotes a coherent treatment between telecommunication and other sectors. Currently, there is no any country in the world adopting this model (Blackman and Srivastava, 2011*)*. In general, due to the blurring of the boundaries that exist among various services, countries prefer to adopt the converged regulators model. For example, the national ICT/telecommunication policies of Kenya, Nigeria and Tanzania have allowed their independent regulatory authorities to regulate various related services together (telecommunication, broadcasting, postal, etc.). Thus, it is preferable for Ethiopia to lesson these experiences to establish strong regulation within the sector.

2.6 Licensing and Authorizing Telecommunication Services

Telecommunication license is the major rights and obligations of licensees (telecommunication operators) and defines the terms and conditions in provision and operations of telecommunication services and telecommunication facilities. It is the process of authorizing an entity to provide telecommunication services and operate telecommunication facilities (Intven, et al., 2000). International Chamber of Commerce also defined it in a similar fashion as'[…] the act or document which authorizes an entity to provide telecoms services and/or to operate telecoms facilities' (ICC, 2004). The introduction of licensing in telecommunication market is a recent development in many countries of the world (E. Miedema, 2007 and Intven, et al., 2000). An authorization regime of a telecommunication sector is one of the major defining features of the

sector as it establishes the range of technologies and services provided to the consumers. The level of competition in telecommunication is expressed in terms of the numbers of service providers authorized to serve customers, i.e. a function of the number of service providers to customers (E. Miedema, 2007).

2.7 Approaches to Authorizing Telecommunication Services

Today, approaches to authorizing the telecommunication providers and services can be divided into three types of categories (Intven, et. al., 2000).

2.7.1 Individual Authorization (operator-specific licenses)

This type of license comprises detailed conditions in customized manner and granted to a single provider in the form of competitive selection process. It is licensed to scarce resources and rights. In addition, it is issued when the regulator wants the service provided by a single operator through a special manner. It is usually issued to basic public switched telephone network services in monopoly market, mobile and fixed wireless and any services requiring spectrum.

2.7.2 General Authorization (class licenses)

The general authorization license is issued to all qualified entities without a competitive selection process to provide services or operate facilities. It is applied when the individual authorizations are not justified but where there are objective of regulation is best achieved through establishing the general conditions. It is also called class license. This type of authorization issued to data transmission services, resale services and private networks.

2.7.3 Open-Entry (no authorization requirement)

Under this type of license, there is no licensing process and qualification requirement beyond the provisions and rules applied to the general ICT sector. It is […] 'useful where an activity is technically caught within the definition of activities subject to regulation (e. g. offering a telecommunication services to the public) but where there is no justification for imposing license requirement.' Internet service providers and value added services are under this type of authorization (Intven, et. al., 2000). Generally, as the evolution of market and technology (mainly, the developments in internet and mobile technologies), the traditional boundaries and distinction among various telecom services become blurred. 'At the same time, digitalization and expansion of network capacities have enabled network convergence namely, the transmission of information technology , telecommunication and broadcasting services on the same networks,

e.g. voice over internet protocol' (N.A., 2007). Thus, the licensing regimes adopted in many countries are tend to converge which is derived from global experiences (Blackman and Srivastava, 2011). Moreover, many countries are easing the licensing requirements for many services with the aim of boost competition and removing barriers to market entry (TU, 2004).

2.8 UAS and Quality of Services in Telecommunication Sector

Though the term universal services and universal access are interchangeably used, they have some conceptual differences. Universal service is a policy of government that makes the telecommunication services including advanced services available at affordable price so that they are either available or easily accessible to all, including people with special needs regardless of geographical or physical locations. On the other hand, universal access is a policy of government that makes the telecommunication services available, at affordable price, to many people in common points or end-user facilities like public-call offices, pay-phones libraries, schools, health-centers and community center (TRASA, 2002). For Blackman and Srivastava, universal service is 'services at the individual or household level, e.g., typically a telephone in each home whereas universal access is a publicly shared level of service, e.g., through public payphones or Internet telecenters.' Since many countries applying universal service and universal access as the same time, it makes sense to use the generic term Universal Access and Universal Service (UAS) (Blackman and Srivastava, 2011).

The telecommunication services provided should be given at a required level of quality. Quality of services in telecommunication sector is 'collective effect of service performance which determines the degree of satisfaction of a user of the service' ITU (N.D.) quoted by K. Daniel (2010). It has certain parameters. These parameters (such as speed, accuracy, availability, reliability, security, simplicity, satisfaction) are important to ensure the users of a services are getting quality of services levels matching what they are paying for as well as develop and implement service level agreement (service level agreement: it is signed between service providers or between service providers and their customers and define service characteristics, responsibilities and priorities between parties). For example, in fixed-telephony and mobile services (no significance difference) the parameters include: service supply time, fault report rate, fault repair time, call success rate, call set-up time, billing accuracy, call connection delay, ratio of working payphones completed calls, dropped calls, blocked calls, speech quality, call set-up time, handover success rate, received signal strength, etc. In data/internet services,

bandwidth, latency, jitter and jitter variations, throughput, data transmission success rate, internet session login success rate are some parameters of quality of service. However, data networks and internet quality of service parameters cannot be isolated from mobile and fixed-line telephony parameters due to convergence of technologies (K.Waturu, 2010).

2.9 Global Trends in Telecommunication Reform

Historically, the government has provided the telecommunication infrastructure and services in a monopoly market structure. They considered the plain old telephone service as the main services to be offered (ICC, 2004). It had experienced the heavy hand of government for a long time and a single entity and usually government-owned operated organizations have given all services (A. Petrazzini, 1997 and B. Stanley, 1997). The operators of telecommunication were counted as part of public Administration along government services such as postal, road transportation and other government services and licenses were not considered necessary (Intven, et al., 2000). The government-owned post, telegraph and telephone administration combined the roles of policy-maker, regulator and operator. However, in 1980's and 1990's, the technological advancement in computer and digital technology created an opportunities for a range of competitors for market entry which radically changed the telecoms sector (ICC, 2004).

Many authors, further, mentioned various factors that pressed the telecommunication reform. For example, A. Pisciotta stated that technological change and a growing urgency to attract financial investment for sector development are the major reasons for telecom reform throughout the world. He added that countries have various motives to privatize the telecommunication sector. For example, countries such as Argentina sold the national telephone network as a means of gaining revenue. In Nicaragua, sale of the sector can be used as a means to further a social agenda. Some countries like Venezuela privatize mainly to improve the quality and penetration of telephone services. Still others like Britain and New Zealand have reformed as part of the implementation of a new political and economic agenda (A. Pisciotta, 1997).

In general, 'economic stimulation and the need to attract investment in the telecoms infrastructure became the catalyst for governments to start the telecommunication liberalization process.' The telecommunication sector has further under taken a radical transformation (new paradigm) from an industry which is based on plain old telecommunication service to one that includes voice, data, internet access and multimedia applications. This gives an opportunity for service providers to offer bundles of ICT services of voice, broadband internet access and

broadcast services-'triple play' in one monthly price package (ITU, 2004). By late 1990's, the telecommunication sector reform has been taken place in developing countries with the aim of creating more transparent and stable legal and regulatory frameworks. The major emphasis was establishing a national regulatory authority and opening of certain market segments for competition (e.g. mobile voice) to attract investment access to basic telecommunication services (ITU, 2008). Especially, the year 2004 marks a major milestone for telecommunication liberalization and opened the basic telecommunication services (local, long distance and international services) for competition (ITU, 2004). Globally, 54 percent of basic services are under competitive conditions. However, there is a regional difference with regard to the level of competition in the provision basic services. For example, Arab States still retains monopoly status in local, long distance and international services which accounts 90 percent, 80 percent and 86 percent respectively. This figure is reversed in Europe where local (85 percent), long distance (73) and international services (74) are opened to competition (ITU, 2004). Despite the differences among various regions, the level of competition in basic services is growing and reached 70 percent at the end of 2011(ITU, 2012).

The telecommunication reform didn't limit only in liberalization and opening of the sector for competition but many countries also established an independent regulatory agency to promote healthy competition. As a result, globally, countries that established a regulatory authority had increased from time to time. For example, in 1990, only 14 countries have established regulatory authority. However, after 16 years, this figure has increased to 106 in 2000 (ITU, 2008). At the end of 2011, there were 158 countries that have a regulatory agency in their ICT sector with the aim of promoting competition and protecting consumer (ITU, 2012). Moreover, government has taken an intensive reform in the national regulatory authority and can be expressed as follows:

> *Increasingly, policy-makers are revamping licensing frameworks to make them more flexible and more 'converged'. At this juncture, there are various approaches- and it is good to let a thousand flowers bloom. Some approaches favour a 'generic' or 'converged' license for all providers of telecommunication services, regardless of what technology they deploy or what specific service niche they target. Other governments have developed new, functional categories, establishing different licenses for network operation and service provision. Still others have questioned whether licensing, as we traditionally knew it, is necessary at all in a liberalized environment. Some services are being provided under class licenses or general authorizations. Operators may be asked to simply notify regulators or register their services. In some cases, previously licensed services are subject to no licensing requirements at all (ITU, 2004).*

Similar trend has been taken place in privatization of the incumbents. By mid-2008, more than 125 ITU member countries had ether fully or partially privatized the national fixed-line incumbents. The highest percentage of private ownership is found in Europe (78 %), Americas (74%) and Asia-Pacific (53%) respectively (ITU, 2008).

2.10 Telecommunication Reform in Africa.

2.10.1 Liberalization & Competition

Traditionally, as it was the case in many parts of the world, the African governments run the telecommunication systems. After their independence, the existing telecommunication infrastructure of the colonial area was inherited by the state. The economic thinking of the 1970s that promote huge investments in key sectors and estimated to stimulate economic growth, inflated the public ownership of the telecommunication sectors (Ebang and ILEAP, 2005) cited in (Keck and Djiofack-Zebaze, 2006). Over the last decades, the global trend towards liberalization have been associated with both declining state involvement in the ICT sector (through privatization of state-owned entities) and their market share dilution through the entry of new players (OECD Communications Outlook, 2005) cited in (Esselaar, et al, 2007).

As a result, in Africa, numerous privatization and liberalization initiatives have been undertaken in the context of structural adjustment programmes (Keck and Djiofack-Zebaze, 2006). Africa has followed the international trend towards increased competition, particularly, in mobile segment. During the period of 1995 to 2004, the level of monopoly in the mobile market has decreased from 70 percent to less than 10 percent (ITU, 2004) cited in Keck and Djiofack-Zebaze (2006). Practically, African countries have three to four mobile services suppliers (Keck and Djiofack-Zebaze, 2006).'Thus, Telecommunication in Africa has become far more dynamic with liberalization, with the exception of Ethiopia, which still maintains a government-owned integrated monopoly for mobile, broadband and fixed-line services' (Calandro, et al., 2010).

2.10.2 Towards a Unified-Licensing Regime

Historically, service providers have delivered various services such as voice, video and data offerings by using different types of networks and end-users have used different equipments to receive these services. However, technological developments have changed this situation and boundaries between different wire-line and wireless transmission technologies, including those using the internet protocol have been blurred. The licensing requirements to provide a certain

types of services become simplify and remove barriers to market entry and enhance competition. General authorizations are increasingly used for a growing number of services instead of requiring individual licensing and lengthy application procedures (ITU, 2004). In Africa, similar fashion is undergoing since many countries are undertaking complex restructuring of ICT policy and regulatory frameworks to liberalize and privatize the sector. For example, South Africa, Namibia and Uganda created converged regulators, typically with responsibility for regulating the broadcasting, telecommunication and postal sectors. In addition, Uganda, Ghana, Botswana, South Africa, Tanzania, and Kenya have already implemented a technology-neutral horizontal licensing framework. These countries firmly believe that the unified licensing framework is an instrument to boost competition (Calandro, et al, 2010). Moreover, the converged approach to licensing and regulatory frameworks promotes affordable access to the entire range of communication services from voice to high-speed internet access (ITU, 2004). The following table presents the trends of converged licensing frameworks in selected African countries.

Table 2.1: Converged Regulator in Selected African Countries

Country	Converged Regulator	Service & Technological Neutral Licenses
South Africa	Yes	Yes
Nigeria	Yes	Yes
Kenya	Yes	Technologically neutral
Ethiopia	No	No
Botswana	Yes	Yes
Ghana	Yes	No
Namibia	Yes	Yes
Senegal	Yes	Yes
Tanzania	Yes	Technologically neutral
Tunisia	Yes	Technologically neutral
Zambia	Yes	Yes

Sources: Calandro, et al. (2010)

2.11 Overview of Telecommunication Reform in Kenya, Nigeria, Tanzania and Ethiopia

2.11.1 Kenya

Prior to 1997, the Kenyan telecommunication services were jointly managed as common services under the East African Community regional network which consists of Kenya, Tanzania and Uganda. Following its collapse in 1977, the Kenyan government established Kenya posts &

Telecommunication Corporation. In 1997, the government issued the telecommunication policy statements which set out the vision of the country in telecommunication development in 2015. The government issued guidelines for telecommunication and postal sector policy that create an environment for competition in several market segments. This phenomenon paved the way for enactment of the Kenya Communications Act of 1998. The challenge, during this time, was transferring the monopoly policy structure to another policy that entertains a liberalized telecommunication market and the ICT industry in general (RoK/MoIC, 2006 and RoK, 2008).

The Kenyan Communications Act of 1998 which provides the current framework for regulating the communications sector in Kenya, unbundled the former Kenya posts & telecommunication corporation into five separate entities: Communication Commission of Kenya (CCK)-regulator of the sector, National Communications Secretariat (a policy advisory body); Communications Appeals Tribunal; Telkom Kenya Limited and Postal Corporation of Kenya (RoK, 2008 and Waema and Ndung'u, 2012).

In 1998/99, a new telecommunication sector reform launched to introduce competition in certain market segments. This new policy has three major components: policy and regulation (separation of roles in sector management) liberalization (creating a multi-operating environment) and privatization (eliminating the operational role of government in the sector). From 1999 to date, the implementation of pronounced government policy has resulted number of structural changes in Kenya ICT sector including: redefining and clarifying roles of policy making, marketing regulation, dispute resolution and operation of services among multiple players in a competitive environment with protection of consumer interests (RoK, 2008). The country's policy and regulatory framework promotes liberalization and competition within the sector. For example, the 2006 national ICT policy permits the liberalization of various market segments of the telecommunication sector. Attracting and stimulating investment is the key elements of the new telecommunication policy under the national ICT policy. To achieve this, the government, among others, designed appropriate regulatory framework and promote competition with in the sector (RoK/MoIC, 2006).

2.11.2 Nigeria

In 1886, the colonial administration established the Nigerian telecommunication sector with objective of discharging administrative functions. Between 1960 and 1985, the telecommunication company consists of department of posts and telecommunication and the

Nigerian external telecommunication limited responsible for internal network and external telecommunication services respectively. In January 1985, the posts and telecommunication was split into postal and telecommunication divisions. The postal division was reconstituted into the Nigerian postal service while the telecommunication was merged with Nigerian external telecommunication to form a limited liability company: Nigerian telecommunication limited. Its objective was to provide accessible, efficient and affordable services, rationalize investments in telecommunication development and harmonize the planning and co-ordination of the internal and external telecommunication services (FRoN/MoC, 2000). The telecommunication sector during the pre-reform period was characterized by government ownership of a monopoly telecommunication company; government funding of telecom infrastructure development; slow pace of network rollout; long waiting line for services; consumers limited to only one service provider and delivery of low quality services (Ndukwe, 2005). In 1992, the government of Nigeria initiated the liberalization of telecommunication industry with establishment of an independent regulatory body: the Nigerian Communications Commission (NCC) (FRoN, 1992b) cited in (FRoN/MoC, 2000).

The Decree of 1992 of NCC provides to NCC a semi-autonomous power to regulate the telecommunication sector. In 2003, the Nigerian Communications Act 19 of 2003 repealed and replaced the NCC Decree of 1992 and provides full autonomous power to NCC to license and regulate both private and government operators (FRoN, 1992b; FRoN, 2003) cited in (Odufuwa, 2012). The process of Nigerian telecommunication reform is the substitution of competition for monopoly (de-monopolization or deregulation). 'With this, apart from offering 60% share of Nigeria telecommunication limited and mobile telecommunication limited to private individuals and organizations, private investors are licensed to operate side by side with Nigeria telecommunication limited.' The reform process has three major components: privatization, deregulation and liberalization (Olumide, 2011). Currently, the Nigerian telecommunication sector is characterized by fully liberalized telecom market; restricted role of government to policy formulation and sector regulation; a strong and independent regulatory authority; competition in all segments of the market; minimal government funding of telecom infrastructure; massive private sector investment to the sector; improved availability and quality of service and continuously innovating telecom environment with introduction of new services (Ndukwe, 2005).

2.11.3 Tanzania

Prior to liberalization, the Tanzania telecommunication services were the monopoly of the Tanzania telecommunication company limited, a state-owned company, under the Tanzania posts and Telecommunication Corporation. The Tanzania telecommunication company limited was responsible for provision of the communication services and regulation of the telecommunication sector. In accordance with the wider liberalization economic policy of the country, the Communications Act of 1993 paved the way for liberalization of the communications sector which leads for splitting of the previous monopoly Tanzania posts and Telecommunication Corporation into the following legal entities; Tanzania posts corporation, Tanzania telecommunication company limited and Tanzania communication commission. In 1997, the national telecommunication policy was launched and pushed the sector for further reform which made the telecommunication sector one of the most liberalized sectors of the economy in the country. Moreover, regulation of Tanzania communication commission and the Tanzania broadcasting commission activities were subsumed under one agency, the Tanzania Communications Regulatory Authority due to the convergence of ICT and related services. The establishment of regulatory authority manifested a new era for the communications sector in Tanzania which can be characterized by growth of investments and operations including penetration (Materu-Behitsa and D. Diyamett, 2010). The 1997 national telecommunication policy encourages competition in the telecommunication sector, within a defined market structure and license the new market player. The document clearly states the gradual divestment of the government's share holder in dominant operator with the aims of increasing customers' choice and investment (URT/MoCT, 1997). The process of the telecommunication reform has a policy, legal and regulatory basis. As a result, now the Tanzanian telecommunication sector is fully competitive (Materu-Behitsa and D. Diyamett, 2010).

2.11.4 Ethiopia

2.11.4.1 Brief History of Telecommunication Sector (1894-2010)

In Ethiopia, the introduction of telecommunication services dates back to 1894, during the reign of Emperor Menelik II, when the construction of telephone line from Harar to Addis Ababa inaugurated. It is the oldest public telecommunication operator in Africa (ETC, 2005 and Ethio-telecom, 2013). The sector has passed various stages and structured differently by successive

Ethiopian governments. During the reign of Emperor Minilik II, the telecommunication sector has named in various terms. Up until 1907, the service called as central administration of telephone and telegraphs system of Ethiopia and was under the control of imperial court. During this time, the general manager of the service was Mr. Stevenin (a French citizen). From 1907 to 1909, the service was renamed as the central office of post, telegraph and telephone system of Ethiopia and administered by Mr. Al Fred Ilg (Swiss man), advisors of Emperor Menilik II. Later, in 1910, the service was renamed as ministry of post, telegraph and telephone. Mr. Leo Shafno (French Citizen) administered the service. However, he was replaced by Lij Gizaw Bezabih and Lij Beyene Yimer, consecutively, and their successors –the first Ethiopian administrators (Ethio-telecom, 2013).

Since the Ethio-Italy war destroyed the telecommunication network, the telephone, telegraph and postal services was re-organized after the end of the war in 1941. In 1952, the imperial board of telecommunication of Ethiopia established with full financial and administrative autonomy and with duty of provision and expansion of telecommunication services in Ethiopia (ETC, 2005).

Under the Dergue regime, the Ethiopian telecommunication sector was also renamed to provisional military government of socialist Ethiopia telecommunication services in October, 1975. Later, in 1981, again it renamed as Ethiopian telecommunication authority which lasts up until November, 1996. During this time, the telecommunication services had made a major change including the application of automatic to digital technology (Ethio- telecom, 2013).

2.11.4.2 Establishment of Ethio-telecom (2010)

Under the government of Federal Democratic Republic of Ethiopia (FDRE), the telecommunication sector has re-established in 1996 and two separate and independent entities were created: ETA and ETC by Proclamation No. 49/1996 and Council of Ministers Regulations No. 10/1996 respectively (FDRE, 1996 and Ethio-telecom, 2013). In 2010, however, this regulation has been repealed and Ethio-telecom was established as public enterprise by council of ministers regulation No.197/2010. The regulation states that the telecom shall be governed by the public enterprises proclamation No. 25/1992. The purposes for the establishment of the Ethio-telecom, inter alia, includes: providing and accessing next generation network based world class standard information technology services; building a competent next generation network based manpower with adequate knowledge, skill, attitude and work culture to offer world class telecom services; constructing, operating, maintaining and expanding of telecommunication

networks and services; engaging in provision of domestic and international voice, data, video, and other related value-added services (FDRE, 2010). Even though the telecommunication sector, in Ethiopian, has such a long history, it has never privatized to private sectors since its establishment. Instead, all telecommunication services have been monopolized by the government and a single state-owned incumbent operate the telecommunication facilities and provide these services to the people. Adam in 'Ethiopian ICT sector performance review (2009/2010)' and the company in its 'corporate profile' support this idea in that Ethio-telecom is the sole telecom operator and it provides the mobile, internet and fixed-line services in a monopoly market structure (Ethio-telecom, 2013 and Adam, 2010).

2.12 Growth and Transformation Plan (GTP) in Telecommunication Sector

2.12.1 Strategic Directions

The five year GTP had designed various strategic directions to achieve the objectives of the telecommunication sub-sector, in particular, and the ICT sector in general. It includes, among others, accommodating emerging latest information technologies through upgrading the already built ICT network; improving the quality of network and expansion of services; ensure all inclusive telecommunication service delivery and ICT assisted development; develop the capacity of the sector's workforce; expansion of fixed-line and mobile telephone service provision, digitalize all telecommunication infrastructures; make accessible the internet service to Woreda cities, academic institutions (high schools and universities), research institutes, social organizations and the private sector; building a high capacity fiber optics transmission line; expanding the ongoing all inclusive universal telecommunication access program; expanding the types of services provided by rural telecom centers and integrate the services with ICT and other programs (FDRE/MoFED, 2010).

2.12.2 Objectives

The major objectives of the telecommunication sector during the GTP period are finalizing the construction of ongoing network infrastructure and applications to expand services; improve and maintained the quality of fixed-line, mobile phone, internet and data service provisions; expand rural universal telecommunication access program; creating a suitable environment for the application of the latest telecommunication technologies; ensure fair and economic utilization of national frequency spectrum, telecommunication numbers and internet protocol addresses (FDRE/MoFED, 2010).

2.12.3 Major Targets

The following table presents the targets that the telecommunication sub-sector will achieve in five year GTP period (2009/10- 2014/15).

Table 2.2: The GTP Targets in Telecommunication Sub-sector

Description of Targets	Annual Targets					
	2019/10	**2010/11**	**2011/12**	**2012/13**	**2013/14**	**2014/15**
Number of fixed-line telephone subscribers (mn)	1	1.25	1.56	1.95	2.44	3.05
Number of mobile telephone subscribers (mn.)	6.52					40
Fixed-line telephone tele-density (%)	1.36	1.6	2	2.4	2.8	3.4
Number of internet service subscribers (mn.)	0.187	0.34	0.62	1.12	2.03	3.69
Mobile telephone coverage (%)	8.7	11.9	16.6	23.1	32.2	45
Wireless telecom service coverage (%)	<50	56	63	71	80	90
Global link capacity (Gb/s)	3.255	4.68	6.729	9.675	13.91	20
Rural telecom access in5km radius of services (%)	62.14					100

Source: Adapted from FDRE/MoFED (2010)

2.12.4 Implementing Strategies

In order to attain the above stated objectives in the telecommunication sector, the Ethiopian government has designed various implementing strategies during the five year GTP period. It includes devise and executes human resource capacity building; design and implement a strategy to prevent, maintain and improve the failure of integrated system; design a system to measure the flow and quality of network. Besides, develop and implement a customer compliance strategy; design a strategy to obtain additional funding for the sector; improve utilization and control of frequency spectrum; develop the control system for the quality of telecom services and its network capacity; improve the quality of international lines services and traffic capacity have given due consideration as implementing strategies. Moreover, intensive work on sales and acquire additional customers through designing and implementing appropriate strategy; improved expansion work to provide quality services in fixed line, mobile and internet market segments; enhance the monitoring system of telecommunication services provision distribution to rural Kebele and implement strategy of administrative support are also additional implementing strategies to achieve the objectives in telecommunication sector during the five year GTP (FDRE/MoFED, 2010).

2.13 Telecommunication Reform in Ethiopia

In Ethiopia, the first telecommunication reform has begun in 1996 when the government established ETA as an independent agency in accordance with proclamation No. 49/1996. Following this, the ETC established as public enterprise as per the Council of Ministers Regulation No. 10/1996 with monopoly over telecommunication services (FDER, 1996). As far as the liberalization of the sector is concerned, the monopoly operator has practically controls over telecommunication services. The application of any other telecommunication technology that might bypass the local network is strictly forbidden. No private operators licensed to sell or resell telecommunication services (basic or enhanced). Moreover, voice over internet protocol and call back services are illegal activities in Ethiopia (Baron, 2010). The ETA has prepared a document entitled with 'license directive for resale and telecenter in telecommunication services'. The directive clearly states that telephone, fax and/or internet services are the telecommunication services permitted for resale. Accordingly, this market segment is liberalized and various street phone shops and cyber cafes are providing the services in competition manner. The document also describes the license application procedures, conditions, license fees**,** requirements, etc so that the licensees fulfill to be eligible to resale these services. The licensees also obliged to realize the roll-out targets and services target as per the national ICT policy (ETA, 2002 EC).

In order to allow the participation of private operators into the telecommunication industry, the Ethiopian government amended the investment proclamation No.57/1996 in 1998. Accordingly, on 11th, June 1998, the amended proclamation No.116/1998 issued which permits the engagement of investors, in partnership with government, into the telecommunication and defense sectors (FDRE, 1998). In accordance with the amended proclamation No. 116/1998, the Ethiopian Privatization Agency, has invited the international investors to gain a 30 percent stake and management control in ETC. A number of companies have expressed their interests following the invitation of the Agency. However, no further forward step up until mid-2005 when the government announced a new plan to sell off 49 % of the incumbent. 'Under a new chief executive office, however, this plan was once more taken off the agenda. As a first step towards privatization, ETC awarded a two-year management contract to France telecom in February 2010 after it won a tender against South Africa's MTN and BSNL from India [and paid] an annual management fee' (Baron, 2010).

CHAPTER THREE

Data Analysis and Interpretations

3.1 Introduction

This chapter goes on through analyzing the current state of telecommunication sector in four Africa countries: Kenya, Nigeria, Tanzania and Ethiopia. It begins with assessing the policy and regulatory environment of the telecommunication sector of the respective country. As it is discussed in detail in each country, the national ICT or/and telecommunication policy that encourage reform in the sector can pave the way for competitive provision of services and the gradual selling of the incumbent to private sectors with establishment of independent regulators that foster healthy competition. In other words, the presence of liberalized policy and regulatory framework can play a key role to introduce reform within the sector (privatization, liberalization and independent regulatory authority) and this chapter deeply analyzed the policy and regulatory framework in the first part of each country's experience. This sub-section continues with describing the market players in mobile, internet and fixed-line segments followed with the outcomes of the policy in terms of improving the accessibility of services to underserved section of the society and reducing the cost of usage of these services. The assumption is to show the best experiences in telecommunication service provision of these countries to Ethiopia and inform the government or/and policy makers to adopt, in accordance with the country's reality, these best practices into its telecommunication sector (Ethio-telecom) through gradual introduction of competition and privatization with establishment of independent telecommunication regulatory authority.

The second part of the chapter evaluates the current state of telecommunication service in Ethiopia. This can illustrate the communication gaps between Ethiopian on one side and Kenya, Nigeria and Tanzania on the other side as a result of the structure of the sector. The final section of the chapter ends by describing the sector policy and regulatory comparative analysis between Ethiopia on one side and Kenya, Nigeria and Tanzania on the other side. The comparative analysis gives special emphasis to national ICT and/or telecommunication policy, autonomy of the regulatory authority and execution of core regulatory functions.

3.2 Experiences and Best Practices of Kenyan, Nigerian and Tanzanian in Telecommunication Reform

These three countries had many best practices and experiences in telecommunication reform. They have liberalized the sector and multiple operators are engaging in mobile, fixed-line and internet markets and providing the services in a competitive manner. Moreover, all have established independent regulatory authorities with full autonomy to regulate the telecommunication services and foster competition. This section proceeds by describing the best experiences of Kenyan, Nigerian and Tanzanian in telecommunication sector reform to open for private investment. Mainly, it focuses on policy and regulatory frameworks, market players within the sector and its outcomes in improving the accessibility and affordability of services.

3.2.1 The Kenyan Experience

3.2.1.1 Policy Framework

The 2006 Kenyan national ICT policy, with a vision of 'a prosperous ICT-driven Kenyan society', explicitly liberalized various segments of the sector including telecommunication services, postal services, broadcast services, etc. in which multiple operators can provide services in competitive manner. In particular, part five (V) of the policy provides detailed guidelines and directions for telecommunication sector in which private operators allowed to engage in many segments of the sub-sector to offer the services. It provides due emphasis in attracting and stimulating investment through designed appropriate regulatory frameworks and promoting competition. The Kenyan government comprehend that the provision of modern telecommunication (critical component of ICT industry) infrastructure and information network plays a major role for rapid economic and social development. In this sector, the government has the objective of optimizing its role for Kenyan economy development through promoting the access of efficient, reliable and affordable telecommunication services throughout the country (RoK, 2006). From the Kenyan telecommunication policy framework, it is possible to understand that the sector is liberalized and open for competition to attract private investment and improve its performance. Since the Kenya government recognize the major role of ICT sector (as the case in Ethiopia and many countries of the world) in attaining the rapid socio-economic development and eradicating poverty throughout the country, it liberalize the industry as a whole and its sub-sectors including telecommunication. Moreover, it recognizes that the telecommunication sector is a critical component for the growth of the ICT industry. As a result,

the provision of efficient, reliable and affordable telecommunication service to the whole people is the major task of the government. To this end, the national ICT policy liberalized various telecommunication segments and opened the sector for private investors. Accordingly, multiple firms can be licensed to provide the telecommunication services. This implies that, the market structure of the Kenyan telecommunication sector is designed in such a way that it can attract additional investments and new innovations to improve the quality of services, customers' choice, improves the accessibility and affordability of telecommunication services.

3.2.1.2 Regulatory Framework

The Kenya Communications Act, 1998 established the CCK as national regulator with objectives of regulating and licensing the telecommunication and other related services such as radio-communication and postal services. The Act has provided the Commission all powers necessary for the performance of its functions (RoK, 1998). Since its establishment, the CCK has performed various activities to label the playing field and ease the market entry for multiple operators. For example, in 2004, the CCK announced (become effective since 2008) its intention for implementing a Unified Licensing Framework (ULF) with the objective of harnessing the technological opportunities and addressing regulatory challenges. Since the global technology-converged trend in the ICT sub-sector made technological-oriented licensing approach (technology and service-specific) untenable, the CCK adopted the principle of technology and service-neutral licensing framework whereby licensees are allowed to provide any type of service by using any type of technology i.e. service and technology neutral so long as they are capable of providing the services (CCK, 2008; CCK, 2010 and CCK, 2012).

Under this framework, the service providers and operators are licensed into three categories for provision of ICT services to the market. Network facilities providers: authorized to operate or/and provide any form of communication infrastructure (both for long distance and local services) within the country. Applications service providers: authorized to provide any and all types of services to end-users by using the network services of network facilities providers. Contents services providers: authorized to provide all contents services like information services and data processing (CCK, 2008). Thus, like its policy frameworks, the Kenyan regulatory framework also promotes competitive provision of telecommunication services among multiple operators. Particularly, the implementation of a ULF in Kenya is an important forward step in aligning its telecommunication and ICT sector with the trends of the global regulatory

convergence (see section 2.7.3) in the digital world. The ULF can improve competition among operators since it eases the market entry and open for many operators to involve within the market. The presence of various service providers promotes competition within the telecommunication market and can increase innovation and service quality as well as reduces the prices to access the services. The decline of price, consequently, promotes the accessibility and affordability of the services to underserved and undeserved section of the society. CCK, for example has supported in that competition in telecommunication market is continued to thrive. This could be attributed with introduction of the ULF since September 2008 (CCK, 2010). 'There was a sustained decline in number of licensees in the old licensing framework [i.e. technology and service specific] as more licensees in this category migrated to the ULF' (CCK, 2012). Moreover, as a result of ULF, the CCK allowed the mobile operators to become the biggest internet service providers in Kenya (Waema and Ndung'u, 2012). This means that the licensed mobile operators are freely providing the internet service without additional license for the later service given that they have capacity to do so.

In general, as opposed to the old licensed framework (technology and service-specific), in the ULF, the licensees did not require multiple licenses for each and every service they would provide. For example, if an operator wants to provide the services of mobile, fixed-line, satellite, data and voice services together under the old license approach, s/he should get the issuance of separate license from the CCK for all these services. But in the ULF approach, s/he may not require to get such lengthy procedures of license; instead, the regulator i.e. CCK can merge these services into clusters of services. In other words, if all services fall in one category (e.g. network service providers), the CCK issued a single license to the licensee/s and is expected to issues a maximum of three licenses if the services grouped in different license categories. Therefore, under ULF, the first task of the regulator is checking whether the services are in the same category to ease the licensing procedures for licensees.

Another notable aspect in the new licensing framework (ULF) is that the CCK has abandoned the beauty contest network operation in preference of open market-based licensing since the later, particularly in liberalized market, was unnecessary, undesirable and inconsistent with market dynamics. This was among the notable features of the ULF (Waema, et al, 2010). This implies that any operator can be licensed without any form of bidding process so long as it is capable of providing the required service. An operator that comes first can obtain the operation

license whether there are other potential operators if it meets the required potential in the provision of services. This measure can level the players' field to get a simple issuance of license in a short period of time without lengthy procedures of bidding process.

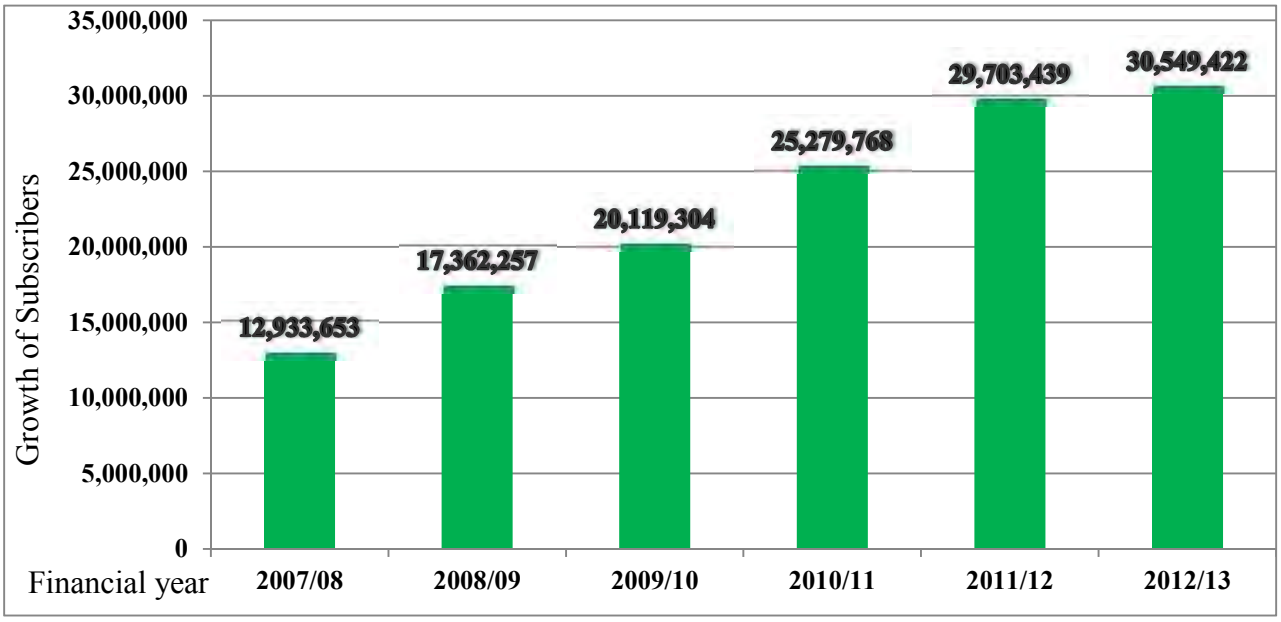
3.2.1.3 Market Players in Kenyan Telecommunication Sector

The CCK has licensed various operators in many segments of the telecommunication sector including mobile, internet/data and fixed-line, etc to provide required services to the Kenyan people. In accordance with the national ICT policy framework, many operators are engaging in various segments of telecommunication sector. The following section describes the state of private operators' participation in mobile, fixed-line and internet/data segments in Kenya.

3.2.1.3.1 Mobile Market

According to the CCK annual report of 2012/13 financial year, there were four mobile GSM operators providing mobile services in Kenya: Safaricom Kenya, Airtel Networks Kenya, Telkom Kenya (Orange) and Essar Telcom Kenya (Yu) with different level of market share and number of subscribers. The competition in mobile market segment is continued among these four network operators. The following graph shows the growth of mobile subscribers during the last six consecutive financial years.

Graph 3.1: The Kenyan Mobile Subscribers* Growth Trend (2007/08-2012/13)



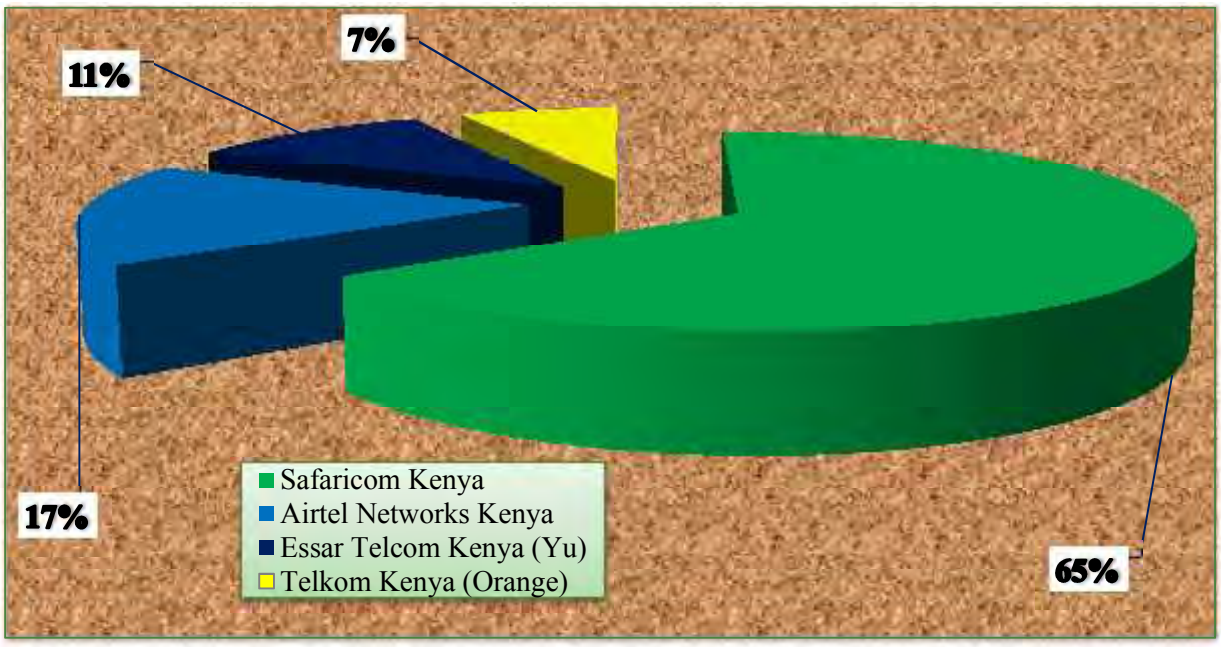
Source**:** Adapted from CCK (2008), CCK (2009), CCK (2010), CCK (2011), CCK (2012) & CCK (2013)

* ***(1)*** In 2012 the Kenyan population was 40.7 mln ***(2)*** CCK did not report the urban and rural subscribers separately.

As it is shown in the above graph, the Kenyan mobile subscribers had increased continuously since 2007/08. During 2008/09 financial year, the number of subscribers has increased to 17,362,257 from the previous 12,933,653 with a 34 percent annual growth. In similar trend, the market has recorded a 16 percent, 26 percent and 17 percent annual growth in 2009/10, 2010/11 and 2011/12 respectively.

However, in 2012/13, the subscriber number growth was only 2.8 percent which was less than the average annual growth (23 percent) of the previous four consecutive financial years though it still showed increments. According to the CCK's 2012/13 financial year report, such marginal growth is attributed with the direction of the Kenyan government to deactivating all the unregistered SIM cards in early 2013 that led to the switched off of 2.4 million SIM cards. With regard to the market share, all of the four mobile operators had their own share with different level of dominancy within the segment. In its report of 2012/13 financial year, CCK had publicized that among the four mobile operators, Safaricom Kenya had a dominance position (65.1 percent) followed by Airtel Networks Kenya (16.9 percent). Essar Telcom Kenya (Yu) was a third dominant mobile operator with a market share of 10.9 percent followed by the Telkom Kenya (Orange) that takes a market share of 7 percent. Thus, the two operators: Safaricom and Airtel Network Kenya are controlling 82 percent of the mobile market (see Pie Chart 3.1 below).

Pie Chart 3.1: Market share of Kenyan Mobile operators as of March 2012/2013 (3rd quarter)



Source**:** Adapted from operators' returns cited in CCK (2013)

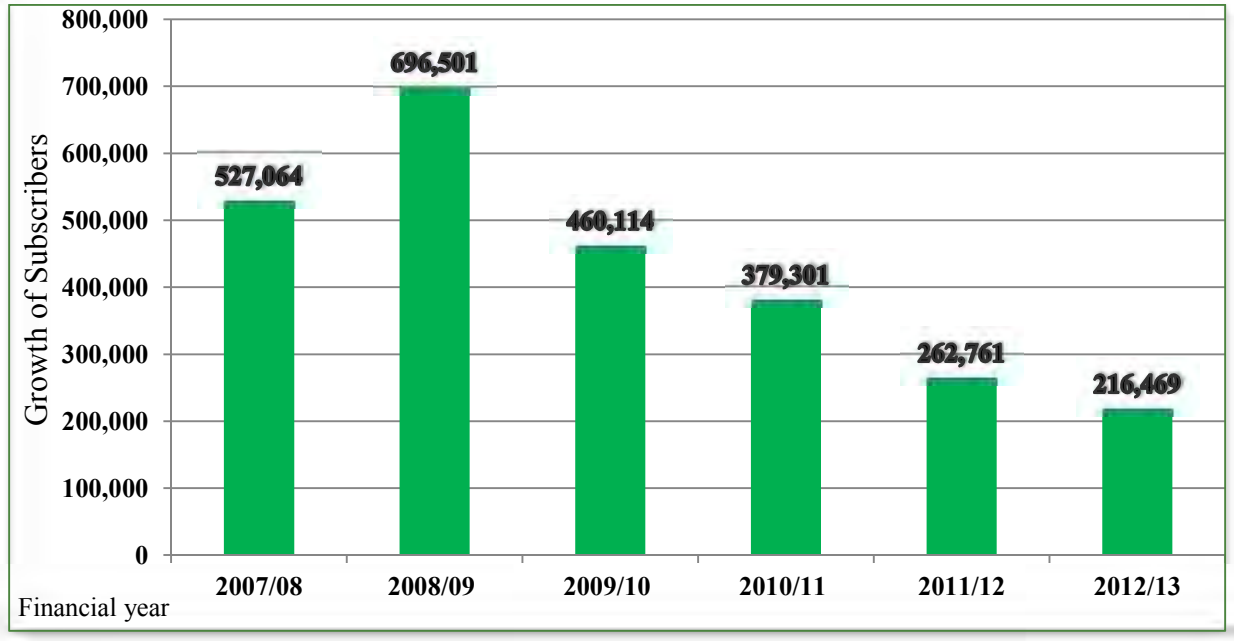
This implies that the Kenyan mobile market is open for competition in which eligible operators are providing the required services to the people. The presence of multiple operators can increase the diversity of customers' choice and services. In addition, as it is discussed in section 3.2.2, the presence of competition in the mobile market had increased the accessibility of services and reduced the price of these services to Kenyan people. In other words, the operators are continuously rivaling to dominate the level of market through retaining existing customers and acquiring addition customers in their network. Operators are adopting various promotions and reducing call tariff to dominant the market (for example, Safaricom Kenya offered a free call promotion towards the end of 2008 (Waema, et al, 2010)).

3.2.1.3.2 Fixed-line Market

As of the CCK's 2012/13 financial year annual report, Telkom Kenya Limited , Flashcom Kenya Limited, Wananchi Group Limited and MTN Kenya (entered in this fiscal year) are the four operators in Kenyan fixed-line voice market segment. During the financial year, the Telkom Kenya Limited had dominated the market share with 210,570 subscribers, followed by Flashcom Kenya Limited with 4,359 subscribers. On the other hand, Wananchi Group Limited and MTN Kenya Limited had 1,432 and 108 subscribers respectively. When the market share is expressed in terms of percentage, the Telkom Kenya Limited had a dominate position with 97 percent market share while the remaining operators: Flashcom Kenya Limited, Wananchi Group Limited and MTN Kenya had a total share of less than 3 percent in the same year.

However, there is huge imbalance in market share between the mobile operators and fixed-line operators. According to the CCK's annual report, the market share of the fixed-line operators was as low as 0.8 percent in contrast to more than 99 percent share of the mobile operators in 2012/13 financial year. The following graph shows the Kenya fixed-line subscribers annual growth in the six consecutive financial years.

Graph 3.2: The Kenyan Fixed-line Subscribers Growth Trend (2007/08-2012/13)



Source: Adapted from CCK (2008), CCK (2009), CCK (2010), CCK (2011), CCK (2012) & CCK (2013)

This proves that, like mobile market, the Kenyan fixed-line market also exhibited competition among operators though there is imbalance market share among these operators. Despite the fact that it is opened for competition, the fixed-line segment is in a continuous declined trend unlike the mobile market and the numbers of subscribers are decreasing from time to time. Except in 2008/2009 in which the total fixed line (wire line and wireless) showed a 32 percent annual growth from the previous financial year, the market is in a declined trend throughout the period. During 2009/2010 financial year, the total fixed-line subscribers had declined to 460,114 from the previous financial year of 696,501 which corresponds with 34 percent annual decline. In 2010/11 financial year, the subscribers further declined to 379,301 from 460,114 of 2019/10 financial year i.e. 18 percent annual decline. This trend corresponds with decline of fixed tele-density from 1.8 percent to 1.2 percent. Moreover, the Commission has reported the same subscriptions decline trend from 379,301 to 262,761 in 2011/12. More surprisingly, the trend had continued in 2012/13 financial years even if the new operator (MTN Kenya Limited) has entered into the market. The CCK has expressed this trend as follows: 'despite the increase in the number of players, the total number of fixed-line subscriptions (including wireless) continued on the downward trajectory for the fourth year running, recording a drop from 262,761 subscribers in the financial year 2011/12 to 216,469 subscribers in the financial year 2012/13'. There were

various aspects attributed for the continuous decline of the Kenyan fixed-line market. According to operators' quarterly return cited in CCK during 2010/11 (4th quarter) and 2012/13 (1st quarter) financial years, vandalism of copper cables, high maintenance costs and market shift to mobile telephony due to stiff competition from the mobile operators were the major factor for decline.

Here, the best practice is not decline trend of the market. The market is liberalized and open for competition in which multiple operators are providing the services to the Kenya people in the competitive manner and CCK still provides license to capable operators for provision of the fixed-line services even if the market is not a preferable area and operators are not generating adequate profit because of the factors stated above. However, the decline of the fixed-line penetration is a global phenomenon which has been on the decline trend since 2005 (ITU, 2012).

3.2.1.3.3 Internet/Data Market

The Kenyan market players in the internet segment include the four mobile operators, the two fixed-line operators (Wananchi Group Limited &Telkom Kenya Limited) and various internet service providers such as Kenya data networks, Jamii Telecom, Access Kenya and Wananchi Online. The mobile operators are leader within the internet segment (see table 3.1 below).

Table 3.1: Mobile Data/Internet & Fixed/Wireless market share March 2012/2013 (3rd quarter)

No	**Mobile Data/internet Operators**	**Market Share**
1.	Safaricom Kenya Limited	74.4 %
2.	Airtel Networks Kenya Limited	11.2 %
3.	Telkom Kenya Limited (Orange)	8.0 %
4.	Essar Telecom Kenya Limited	6.4 %
	Fixed/wireless internet Operators	
5.	Wananchi Group Limited	35.4
6.	Kenya Data Networks Limited	23.7
7.	Access Kenya Limited	12.9
8.	Telkom Kenya Limited	11.5
9.	Safaricom Limited	7.2
10.	Iway Africa	2.8
11.	Jamii Telecommunication Limited	2.1
12.	Swift Global	1.3
13.	Mobile Telephony Networks Limited	1.1
14.	Call Key Networks Limited	0.7
15.	Other fixed/Terrestrial wireless operators	1.3

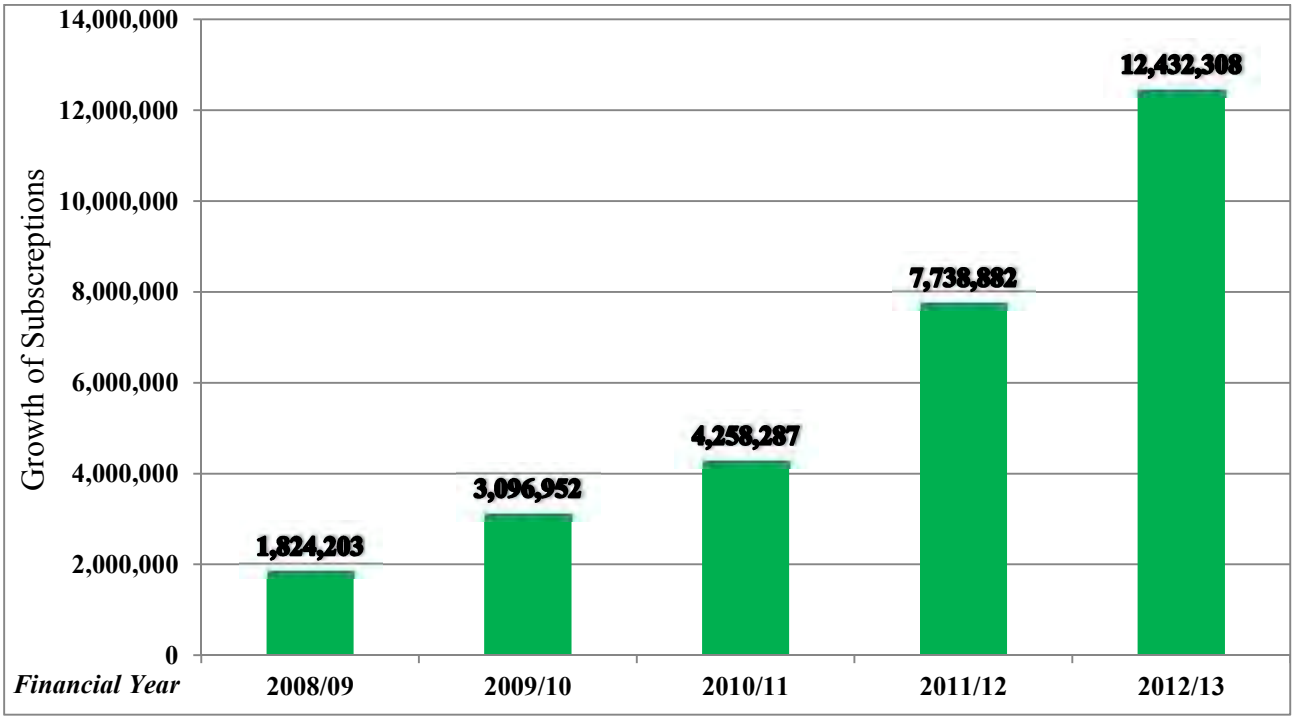
Source: Adapted from operators' returns cited in CCK (2013)

Like its mobile and fixed-line market, the Kenyan internet market is opened for competition and various operators are providing the services to people in a competitive manner. About fifteen players are engaging within the market which is, by far, more open to mobile and fixed-line market. This helps the customers to access internet services based on their preference by taking certain elements into considerations such as quality of the services, affordability of services, etc.

The mobile operators are providing the mobile data/internet service and becoming the dominant internet providers within the sector. Similarly, the fixed-line service providers are also providing the internet/data service. In this case, the CCK need not issue a separate license for mobile and fixed-line operators to provide data/ internet services. Instead, they can use the license issued to offer mobile and fixed-line services in provision of internet services. This means that ULF makes the market entry simple for eligible operators. The operators in mobile and fixed-line can be licensed to provide internet services and other services under the umbrella of the license issued for mobile and fixed-line services so long as the services are in the same license category i.e. networking facility provider, applications service provider, contents services provider (see section 3.2.1.2).

As a result of the liberalization measure, the number of subscriptions in Kenyan internet market is growing from time to time. According to the CCK, the total internet subscriptions during the financial year of 2008/09 were 1,824,203. In the next financial year, this figure grew to 3,096,952 with an equivalent annual growth of 70 percent. In 2010/11, the figure increased by 37 percent and become 4,258,287. At the end of 2011/12 financial year, the figure had risen to 7,738,882 which represent an annual increment of 82 percent and similar trend had further recorded in the next financial year. Accordingly, at the end of 2012/13 financial year, Kenya had a total of 12,432,308 subscriptions in internet segment (61 percent annual growth from the previous financial year). The graph, below, illustrates the annual growth of the total internet subscriptions in Kenya from 2008/2009 to 2012/13 financial years.

Graph 3.3: The Kenyan Internet Subscriptions Growth Trend (2008/09-2012/13)



Source**:** Adapted from CCK (2009), CCK (2010), CCK (2011), CCK (2012) & CCK (2013)

3.2.2 Outcomes of the Telecommunication Reform in Kenya

The process of telecommunication reform i.e. privatization of the incumbent, liberalization and other elements can be effective if there is strong and impartial regulatory authority that protect the interests of customers and new entreats from dominant operators and promote healthy competition through attracting private investments. In other words, the transfer of the incumbents to private sector as well as the opening of the market for competition never bring expected results; instead it may result to direct shift from government monopoly to private monopoly for dominate operators unless the process is regulated by respective independent regulatory authority. On the other hand, if the privatization and liberalization process is properly regulated by independent (from government, operators and other stalk holders) regulatory body, various positive outcomes can be achieved. Many scholars such as Blackman and Srivastava have supported this argument and stated that the implementation of an effective regulatory framework in the telecommunication sector can result various outcomes. According to these scholars, the establishment of effective regulatory authority to telecommunication sector can lower price;

increase penetration; promote economic growth; increase investment; improved quality of services and bring more rapid technological innovation (Blackman and Srivastava, 2011).

This section proceeds by describing the outcomes of the reform on different segments of telecommunication sector in Kenya. In particular, it focuses on the benefits of the telecommunication reform in improving the accessibility of mobile, fixed-line and internet services as well as the costs of usage of the voice services.

3.2.2.1 Price

The Kenyan telecommunication market has been liberalized and the CCK licensed potential operators to provide various services for Kenyan people. In order to encourage the competition among operators, the CCK has labeling the playing field and ease the market entry through introduction ULF and abandon of beauty contest in the provision of services. This environment has created stiff competition among multiple operators which, in turn, resulted in the reduction of the cost of accessing telecommunication services (see section 3.2.1.2). This means that the operators, specially the mobile operators had continuously reduced the prices with the objectives of increasing their market share by retaining the existing customers and acquisition of new customers into their network. Though reductions in the price of the services can affect the revenue of the operator, the service become more affordable and the customer utilize it more so long as the service keeps their interest. Since the level of price influences the decision of customers, particularly to those with low level of income whether to use the services, the operators compete each other to set attractive price in line with appropriate quality services. This is true for the operators of Kenyan telecommunication sector where they are in a continuous price competition to dominate the market through reducing the price of services.

The CCK's consecutive annual reports support this argument. The Commission has classified the average voice tariffs into six categories as follows: charges to the same mobile network (prepaid); charges to another mobile network (prepaid); charges to fixed network (prepaid); charges to the same mobile network (postpaid); charges to another mobile network (postpaid) and charges to fixed network (postpaid). According to the consecutive annual reports, the average voice tariffs of the Kenyan mobile and fixed-line service has showed a declined trend between 2007 to 2013 financial year with different decling level among these tariff categories. The first category of voice tariff i.e. average voice tariff to the same mobile network (prepaid) has showed a continious declining rate throughtout the period. In 2008 financial year, it decresed

to 10.98 Ksh/minute from14.5 Ksh/minute of the previouis financial year. This corrosponds with 24 percent annual decline from the previouis year tariff. In 2009 and 2010, the declined trend had continued and reached 8.05 Ksh/minute and 3.94 Ksh/minute with a parallel annual decline of 27 percent and 51 percent respectively. Further, similar trend in reduction of tariffs had continued in the next three consequetive financail years to 3.06 Ksh/minute, 2.28 Ksh/minute and 2.6 Ksh/minute respectively.

As far as the second category of voice tariff (charges to another mobile network-prepaid) is concerned, it declined for the first four financial years with little increment in the last two financial years. During 2008 financial year, the average voice tariff was 17.68 Ksh/minute and after three years, the figure reached 3.5 Ksh/minute in 2011 financial year. On the other hand, the tariff showed some increment in 2012 and 2013 to 3.57 Ksh/minute and 3.58 Ksh/minute. However, the average increment during this period was little (1.14 percent).

The third category i.e. charges to fixed network (prepaid) had also showed the same trend (increase/decrease) with average voice tariff to another prepaid mobile network (second category) as it decreased during the first four financial years and showed some increment in the last two financial years.

Likewise, the fourth category, the call tariffs to the same mobile network (postpaid), had demonstrated an incessant reduction pattern during the same period except in 2010 financial year which exhibited some increment from the previous financial year. In 2008 and 2009, the average voice tariff of this category diminished to 8.58 Ksh/minute from 10 Ksh/minute in 2007 and to 5.34 Ksh/minute with corresponding annual reduction of 14 percent and 38 percent respectively. In contrast, in 2010, the tariff increased to 5.62 Ksh/minute which was 5 percent annual growth. After 2010, the declined trend again continued in the next period and reached 2.4 Ksh/minute at the end of 2013 financial year.

In the same way, the tariffs to another mobile network (postpaid) category recorded a declined trend during the financial years of 2008, 2009 and 2011 and some level of increment in the remaining financial years. In 2008 and 2009, it diminished to 13.28 Ksh/minute and 12.9 Ksh/minute with equivalent annual diminishing of 32 percent and 8 percent respectively and increased (with 0.98 percent annual growth) in the next year to 12.31 Ksh/minute.

In 2011 financial year, it again declined to 3.2 Ksh/minute which was 74 percent annual decline even if it exhibits some increment to 3.33 Ksh/minute and 3.4 Ksh/minute in 2012 and 2013 financial years respectively.

The final category, average voice tariff to fixed network (postpaid) had recorded an incessant reduction fashion for the first five financial years. In 2008, 2009 and 2010 financial years, it declined to 12.51 Ksh/minute, 12.42 Ksh/minute and 12.31 Ksh/minute with a corresponding annual decrement of 36 percent, 0.7 percent and 0.98 percent in that order. Moreover, the declining trend continued in the next two financial years to 3.67 Ksh/minute and 3 Ksh/minute in line with 70 percent and 18 percent annual decline and continued with 3 Ksh /minute in 2013 financial year (see graph 3.4 and 3.5 below).

With exception of little increment in certain tariff categories in some financial years, the Kenyan average voice tariff has a declined trend throughout the period (2007-2013). In 2010 financial year, charges to the same mobile network (postpaid) and charges to another mobile network (postpaid)) and in 2012 charges to another mobile network (prepaid), charges to a fixed network (prepaid) and charges to another mobile network (postpaid)) have showed some increment. In same way, in 2013 financial year, two tariff categories: charges to a fixed network (prepaid) and charges to another mobile network (postpaid) had demonstrated little increment. However, in the remaining period and categories, the average voice tariffs showed a declining trend. Particularly, in 2011 financial year, the highest reduction of voice tariff has recorded due to price war (Waema and Ndung'u, 2012) among various operators especially in mobile operators.

To summarize, despite certain increment in few categories during some financial years, all voice tariff categories have showed an average decline trends. For example, charges to same mobile network (prepaid) declined by 27 percent (highest reduction); charges to a fixed network (prepaid) declined by 25 percent; charges to another mobile network (prepaid) by 24 percent. Other categories also showed the same declined trend (see graph 3.5 below).

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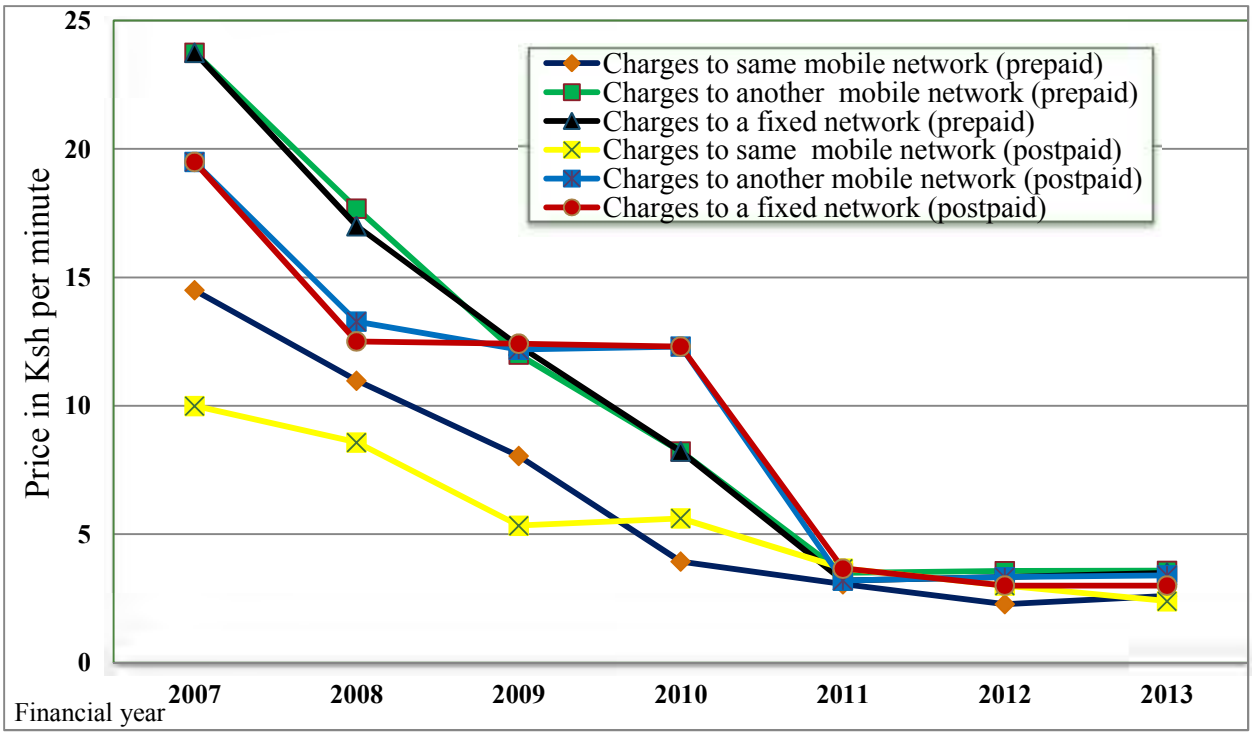
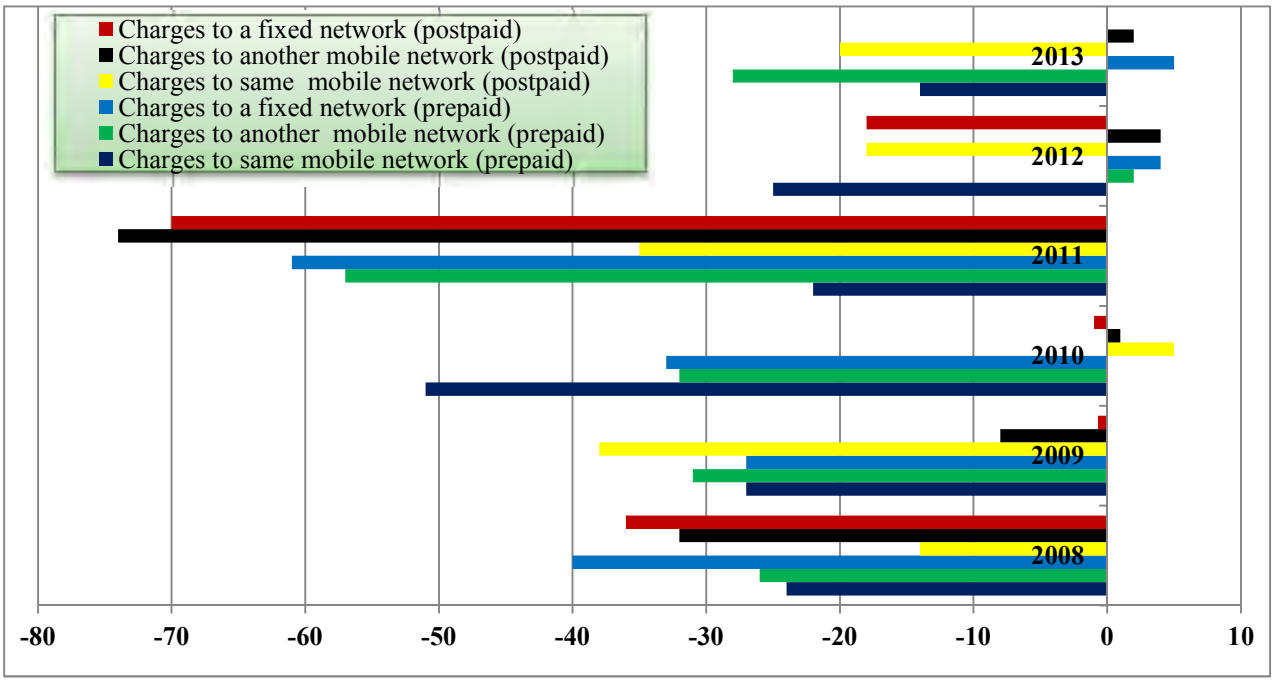
Graph 3.4: Average Voice Tariffs Trends in Kenyan Telecommunication Market (2007- 2013)



Source: CCK (2012) and CCK (2013)

Graph 3.5: Annual Increase/Decrease in Voice Tariffs in Kenya (2007-2013)



Source**:** Adapted from graph 3.4

3.2.2.2 Penetration

The presence of multiple operators, as discussed above, in Kenyan telecommunication market has resulted in continuous reduction of price of the services and it become more accessible to many people of the country. Particularly, the poor sections of the society can start to use the services more than so ever. The inclusion of undeserved and underserved areas of the country had resulted in increasing the level of penetration in mobile and internet segments.

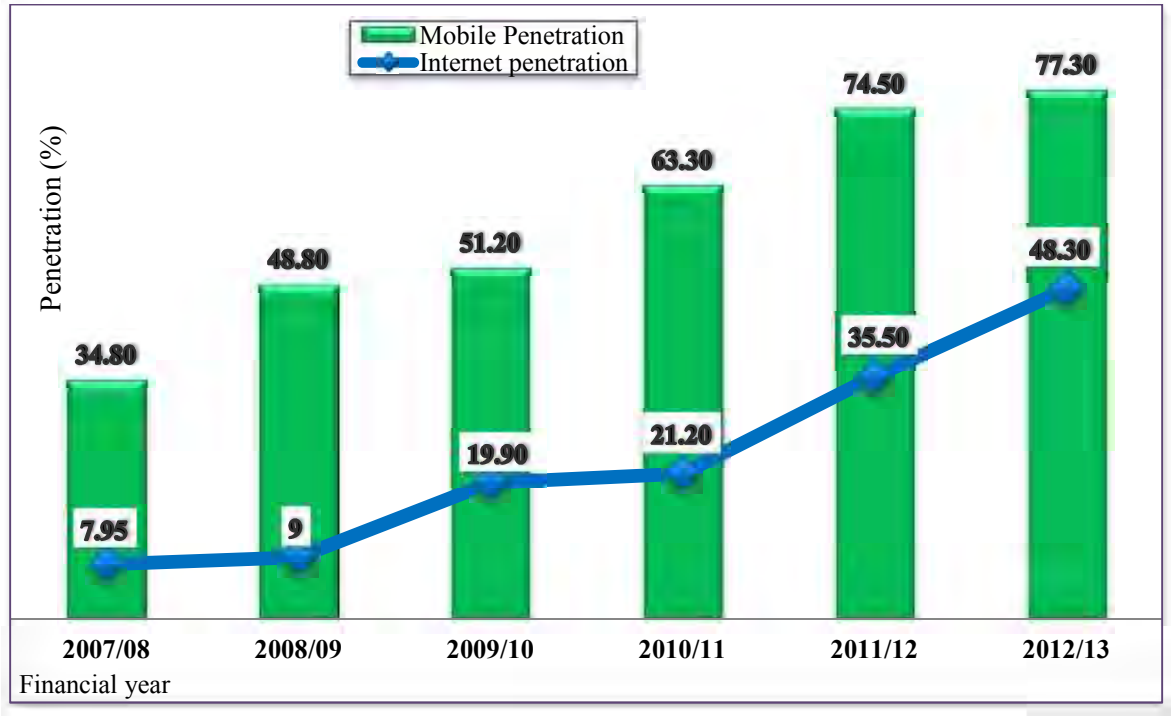
3.2.2.2.1 Mobile and Internet Penetration

At the end of 2000, according to CCK, the total number of mobile cellular subscriptions in Kenya was as low as 127,404 with a corresponding penetration level of 0.41 percent. After six years, this figure had grown to 7,340,317 with parallel penetration level of 20.09 in 2006 (CCK, 2000 and CCK, 2006) cited in ITU (2014). The liberalization of the telecommunication sector and the presence of competition among multiple operators with independent regulatory authority have increased the numbers of mobile subscribers from time to time. For example, the CCK reported that the total numbers of mobile subscriptions in Kenya were 21,933,653 during 2007/2008 financial year. At the end of 2012/13 financial year, this figure has grown to 30,539,422 (see graph 3.1). As the subscriptions number increased, the Kenyan mobile penetration is also continuously increased from year to year. During 2007/2008 financial year, the level of penetration stood at 34.8 percent and this figure further rose to 46.8 percent in the next financial year. In 2009/10 and 2010/11, the level of penetration had increased to 51.2 percent and 63.6 percent in that order. The incremental trend also continued in 2011/12 and 2012/13 financial year to 75.4 percent and 77.3 percent respectively (see graph 3.6). There are various reasons for such sustainable and permanent increment in Kenyan mobile penetration and the CCK expressed these factors as follows. 'The growth [of mobile penetration] could be attributed to affordability of handsets, reduced call tariffs, aggressive marketing and the introduction of additional value added services.

Like mobile penetration, the level of internet penetration in Kenya is in a permanent incremental trend as a result of various positive factors. During 2007/08, the penetration level of internet service was 7. 95 percent and after six years in 2012/13 financial year, the figure has risen with more than six fold to 48.3 percent (see graph 3.6). According to the CCK, there are various factors for increasing of internet penetration in Kenya and it expressed these factors as follows: 'this growth [in internet penetration] can be attributed to the increased usage of the internet for

basic services such as banking, healthcare and education, availability of a wide array of affordable internet access devices such as smart phones and tablets, as well as the innovative promotions and special offers and affordable bundled internet services provided by operators'(CCK, 2013). The following graph presents the growth of the Kenyan mobile and internet penetration in the last six consecutive years.

Graph 3.6: Mobile and Internet Penetration in Kenya (2007/08-2012/13)



Source**:** Adapted from CCK (2007) cited in ITU (2014), CCK (2008), CCK (2009), CCK (2010), CCK (2011), CCK (2012) & CCK (2013)

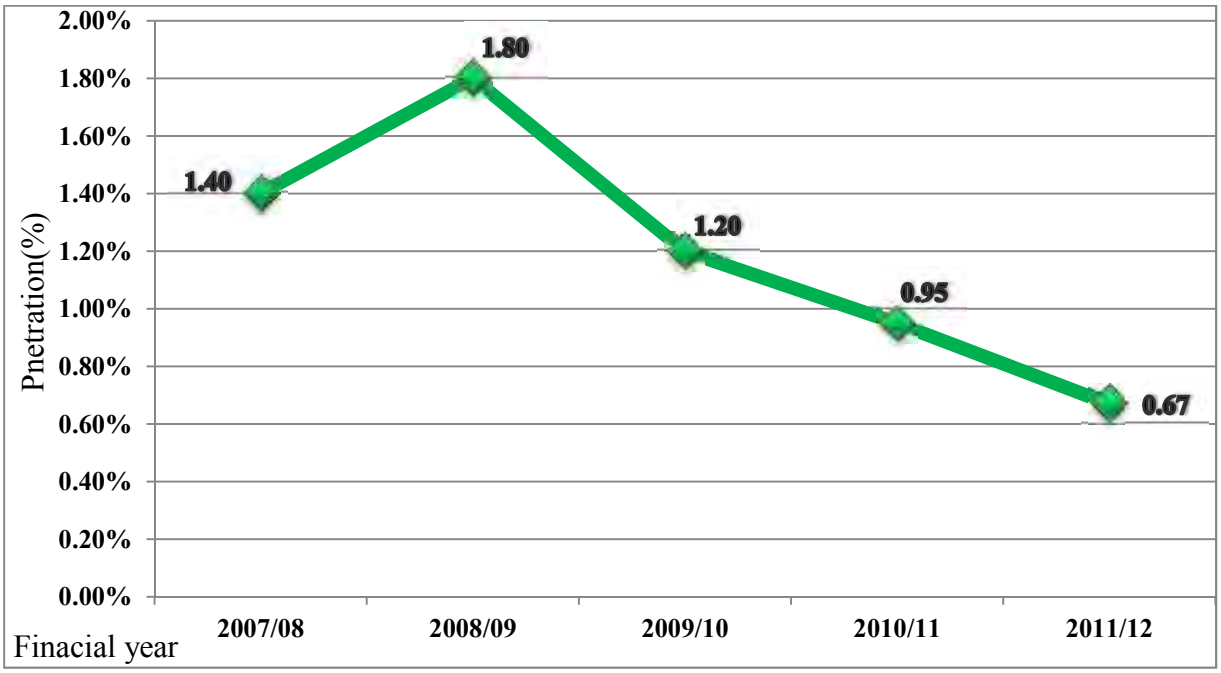
3.2.2.2.2 Fixed-line Tele-density (Penetration)

Unlike in mobile and internet penetration, the fixed-line tele-density (penetration) in Kenya is not in incremental trend particularly in the last four consecutive financial years even if the market had been liberalized and opened for multiple operators to provide the services in competitive way. The major factors for such reduction in fixed-line market includes vandalism of copper cables, high maintenance costs and a marked shift to mobile telephony as a result of stiff competition from the mobile operators (see section 3.2.1.3).

According to CCK's report, the tele-density of fixed-line service during 2007/08 financial year was 1.4 percent. It showed some increment in the next financial year and stood at 1.8 percent. However, since the next financial year, the level of tele-density has continuously declined and

the figure stood at 1.2 percent, 0.95 percent and 0.67 percent in 2009/10, 2010/11 and 2011/12 respectively (see graph 3.7 below). Moreover, the declined trend has continued in 2012/13 financial year since the number of subscriptions has recorded a decline trend from 262,761 in the previous financial year to 216, 469 even if the CCK has not publicized the exact figure of tele-density in its 2012/13 annual report (see graph 3.2).

Graph 3.7: Fixed-line Tele-density (penetration) in Kenya (2007/08-2012/13)



Source**:** Adapted from CCK (2008), CCK (2009), CCK (2010), CCK (2011) & CCK (2012)

Generally, the outcomes of the Kenyan telecommunication reform have brought a positive impact in improving the accessibility of telecommunication services and reduce the cost of accessing these services. The opening of the sector for competition has resulted for the entry of multiple operators in various segments of the telecommunication sector including mobile, fixed-line and internet services. Moreover, the establishment of CCK as an independent regulatory authority of the sector had promoted and facilitated the process of liberalization of various telecommunication segments.

The CCK has eased the issuance of license for eligible operators in provision of services. Particularly, after the introduction of ULF and abolition of the beauty contest, the sector further liberalized and multiple operators are licensed with simple and speedy procedures. Thus, the presence of multiple operators within the sector have resulted a positive impact, in declining the

price of the telecommunication sector. The outcome has not limited only in reducing the cost of services but it also improved the accessibility of these services (particularly the mobile and internet services). This means that as the cost of services decreased from time to time, the services become more and more accessible to many people who were previously outside the service which, in turn, increases the level of tele-density (penetration).

3.2.3 The Nigerian Experience

3.2.3.1 Policy Framework

In 2000, the Federal Republic of Nigeria has designed national telecommunication policy with the objective of achieving sector modernization and rapid expansion of its networks and services. The policy describes that the government's liberalization policy shall be pursued vigorously to attract private investment and participation in the sector. It provides the highest priority for privatization and restructuring of the sector. The document further stated that privatization and restructuring process should not be barriers in opening of the sector to intensify competition and bringing private investment. Moreover, it clearly describes that the ownership controlling of the Nigerian telecommunication limited and Nigerian mobile telecommunication limited (national monopoly operators and service providers) shall be transferred from government to private investors. The assumption is that the private sectors will lead the future development of the country's telecommunication sector to the greatest extent. In the short run, the government may retain a minority share (non-controlling ownership interest) in both Nigerian telecommunication limited and Nigerian mobile telecommunication limited. However, its share shall be under the control of the agency which is independent from both the Ministry of Communications and the NCC (FRoN/MoC, 2000). Accordingly, 60 percent share of the Nigerian telecommunication limited and Nigerian mobile telecommunication limited have been transformed to private individuals and organizations at the end of 2012 (Odufuwa, 2012).

One can understand from the above paragraph that the Nigerian national telecommunication policy encourages the liberalization of the sector and allows the participation of private sectors. This can be matched with the global trends in privatization and liberalization of the telecommunication sector. Globally, various countries are reforming the sector through transmitting the ownership of the asset to private sectors, opening the market for competition and establishing an independent regulatory agency for regulating the sector and limited the intervention of the government to specific areas. For example, according to the ITU report,

globally, 92 percent of the services provision is competitive in mobile cellular and mobile broadband segments (ITU, 2012). Since Nigeria cannot be an island, the national telecommunication policy promotes to modernize the sector and expand the accessibility of the service across the country through promoting privatization of the state-owned telecom sectors to private sectors as well as opening of the market for private investments. Since government firmly thinks as the participation of private operators in the telecommunication industry has a great role for the future growth of the sector, the market is liberalized and opened for competition. The private operators take the responsibility of providing the services in a competitive basis. This means that the government's role is restricted and let alone the services provision and operational functions to the private operators. Moreover, as it is explained in the next section, the NCC introduced converged licensed framework in 2006 which simplified the market entry since it allows the provision of multiple services with a single license. This encourages and eases the involvement of many private operators to provide telecommunication services and promotes competition among these operators within the sector.

3.2.3.2 Regulatory Framework

The Nigerian Communications Act 2003 established the NCC as an independent agency, with full autonomy, for the regulation of the telecommunication and related sectors. The Act had provided various functions to the Commission, including, among others: promoting the entry of private investment into the market for provision of communication services, equipments and facilities; protection of consumer interest against unfair practices related with tariffs, availability and quality of services, equipments and facilities; promotion of fair competition in the communication industry and protection of service and facility providers from misuse of market power or anti-competitive behavior and unfair practices; monitoring performance standards relating to quality of telephone and other communication services; granting and renewing communication license (FRoN, 2003).

In 2006, the NCC had responded to technology convergence through introducing a Unified Access Service Licenses (UASLs). It is a technology and service neutral which enables the licensees to provide multiple services (data, voice, internet services, etc.) so long as they fulfill the necessary requirements in provision of services (FRoN/MoCT, 2012 and Calandro, et al., 2010). As a result, the main players in the sector can, broadly, be clustered into four groups namely; mobile, fixed, fibre optic connectivity and internet services (Odufuwa, 2012).

Moreover, the National ICT policy, 'Nigeria as a knowledge-based, globally competitive society,' had converged communication-related services (telecommunication, postal, information technology and broadcasting) (FRoN/MoCT, 2012). Thus, like its policy framework, the Nigerian regulatory framework promotes competition within the sector by establishing an independent telecommunication regulatory body i.e. NCC with adequate autonomy to make decision in favor of consumers interest and encourages pro-competitive behaviors. Since the Commission is endowed with the power to monitor the availability and quality of telecommunication services, monitor unfair practices such as undue tariffs, it protects the interests of customers. Moreover, with the intention of keeping the interests of new operators from dominant operators of the sector and encourage healthy competition within the telecommunication market, it is controlling anti-competitive behaviors in favour of pro-competitive behaviors. Above all, the introduction of UASLs to telecommunication sector contributes further liberalization since it ease the market entry.

Excessive procedures of license i.e. issuance of separate license for all telecommunication services may discourage the new operators and limits the number of players which, in turn, become barrier for further competition. However, under the UASLs, the operators can provide multiple of services such as voice, data etc by using any type of technology under the umbrella of a single license with preference of licensees to the extent that it is cost effective and capable of keeping the customers' interest. In many countries of the world, 'licensing requirements for many services are being eased in order to remove barriers to market entry and boost competition. Instead of requiring individual licensing and lengthy application procedures, general authorizations are increasingly used for a growing number of services' (ITU, 2004). This implies that the issuance of license under the individual licensing framework is a barrier for market entry. As a result, many countries of the world including, Nigeria, prefer a unified/general authorization framework (e.g., Kenya-ULF, Nigeria-UASLs and Tanzania-CLF: see regulatory section of each country) to promote competition within the telecommunication sector.

Thus, the policy and regulatory framework of the sector is aimed to promote competition and multiple actors can engage in provision of services to Nigerian people which, in turn, diverse the choice and services of customer. In general, according to Odufuwa, the Nigerian telecommunication market is fully liberalized, highly competitive and evolving with time. Since its liberalization, it 'has undergone tremendous and mostly positive changes (Odufuwa, 2012).

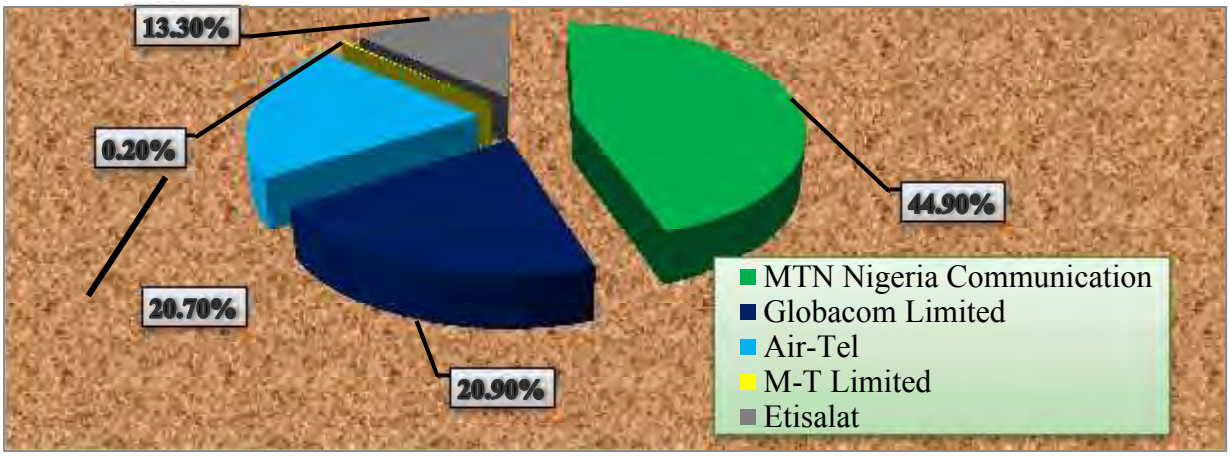
3.2.4 Market Players in Nigerian Telecommunication Sector

As a result of liberalized policy and regulatory environment, in Nigeria, various players are involving within the telecommunication sector. As it is described below, the NCC licensed and allowed multiple operators in provision of mobile, fixed-line and internet services.

3.2.4.1 Mobile Market

In Nigerian mobile market, private operators are providing the services to people by using both GSM and CDMA networks in competitive basis. According to NCC, there were a total of nine mobile operators as of 1st quarter of 2013 financial year (March, 2013). These were five GSM mobile operators (MTN Nigeria Communication, Globacom Limited, Air-Tel, Etisalat and M-Tel Limited) and four CDMA mobile operators (Visafone Limited, Multilinks Telecom, Starcomms Limited and Reliance Telecoms. These operators have different level of subscribers and market shares. During the 1st quarter of 2013 financial year, MTN Nigeria Communication leads the market with 44.90 percent share among the five GSM mobile operators. Globacom, Air-Tel and Etisalat Limited set at next three positions with a market share of 20.90 percent, 20.70 percent and 13.30 percent respectively. On the other hand, M-Tel Limited had insignificant market share with 0.20 percent during the same period (see Pie Chart 3.2 below). Similarly, in CDMA mobile operators, Visafone Limited had a dominant position with 79.10 percent market share followed by Multilinks Telecom and Starcomms Limited with market share of 9.1 percent and 7.1 percent respectively. Reliance Telecoms had the lowest market share (4.1 percent) during the same period (CCK, 2014).

***Pie Chart 3.2*:** Market Shares of Nigeria GSM Mobile Operators as of March, 2013 (1st quarter)



Source**s:** Adapted from NCC (2014)

As the above chart clearly shows, the Nigerian mobile market is competitive enough where multiple operators are engaging in provision of services using both GSM and CDMA technology. The presence of competition among these operators can benefit the customers to have a diverse choice of services in which they can be subscribed to any operator based on their preferences such as quality of service, accessibility and affordability. However, even if there is a competitive environment in mobile market, there are huge imbalances market share among operators both in GSM and CDMA technology operators. In GSM mobile operators, the imbalance ranges from 0.2 percent (M-Tel Limited) to 44.9 percent (MTN Nigeria communication) and in CDMA the gap wider to 79.1 percent (Visafone Limited) and 4.1 percent (Multilinks Limited). Moreover, according NCC quarterly report, GSM operators had a total of 97.35 percent market share while CDMA operators had only 2.31 percent and the fixed-line operators take the remaining share as of March 2013. Thus, it is safe to state that the Nigerian telephone market is dominated by the GSM mobile operators.

3.2.4.2 Fixed /Fixed Wireless Market

Although the Nigeria's fixed market was the first liberalized telecommunication segment, private fixed-line companies were incapable of withstanding the competition (particularly of GSM mobile) and thus, continuously declining. There are various factors for such declining trends including inter alia: crumple of Nigeria telecommunication limited (the state-owned fixed-line firm**:** the biggest communications network before 2001); economies of scale in mobile telephony; global adoption and technological choice of mobile GSM; technological shift from traditional fixed systems to mobile systems because of consumer expectations of ubiquitous access; lack of proactive anticipation of NCC whether the success of mobile has had unintended effects on fixed market (Odufuwa, 2012).

Table 3.2: Fixed/Wireless Operators in Nigeria as of March, 2013 (1st quarter)

No.	Fixed/Fixed Wireless Operators	Market Share in Telecommunication Sector
1	Starcomms Limited	**0.35 Percent**
2	21st Century Technologies	
3	Nigeria telecommunication limited	
4	Multilinks Telkom	
5	O'Net (OduaTelecom)	
6	Visafone Limited	
7	Reliance Telecoms (Reltel)	
8	Intercellullar Nig. Limited	
9	VGC/MTN	
10	MTS 1st Communications	
11	DiscCommunications	
12	WiTel	
13	Rainbownet Limited	
14	Monarch Communications	
15	XSbroadband	
16	Webcom	
17	IPNX	
18	Globacom Limited	

Source**:** Adapted from NCC (2014)

As the above table shows, the Nigerian fixed/wireless market is opened for competition and various operators are providing services as the case in its mobile market. According to the NCC report, among eighteen operators, five operators: Starcomms Limited (27.1 percent), 21st Century Technologies (19.9 percent), Nigeria telecommunication limited (14.5 percent), Multilinks Telkom (11.1 percent), O'Net (OduaTelecom）（8.7 percent）control 81.3 percent of the total fixed/wireless market as of March 2013. The remaining thirteen operators had only 18.7 percent market share during the same period. Although the fixed/fixed wireless segment is open for competition, the market is not profitable area for operators and almost all market is dominated by GSM mobile operators (97.35 percent share) as of March 2013 in contrast to their total share of 0.35 percent market during the same period (see section 3.2.4.1).

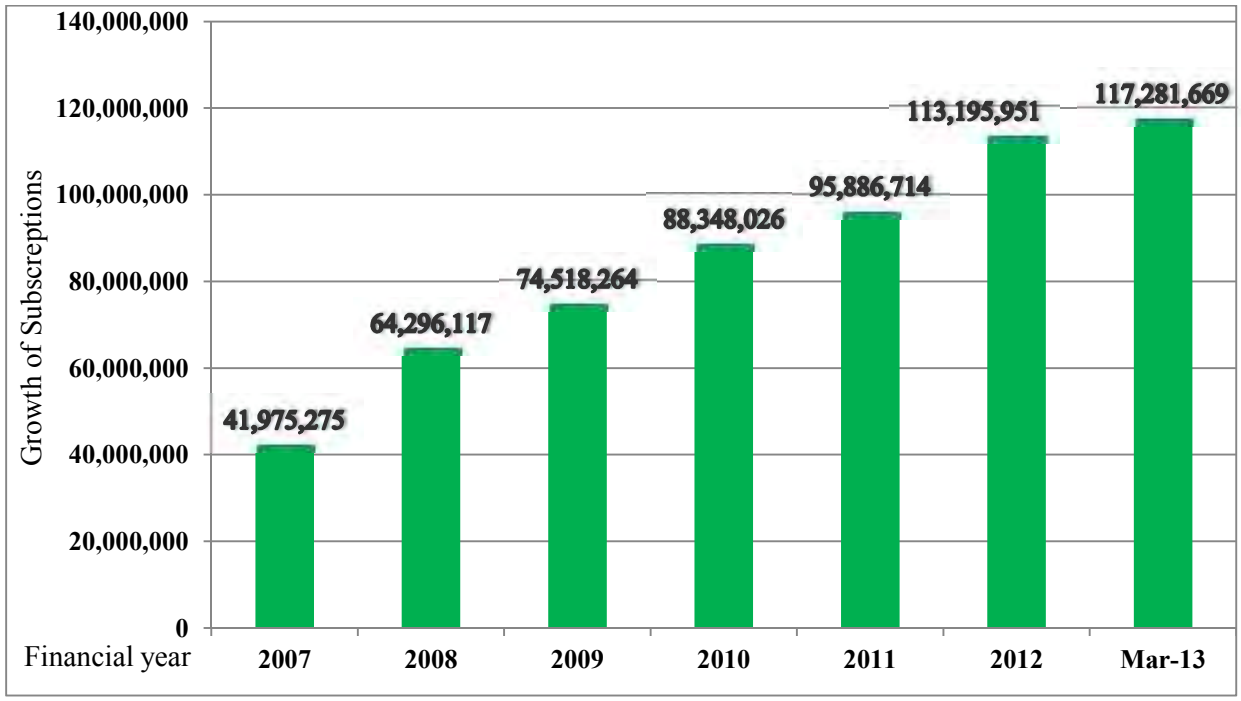
3.2.4.3 Internet Market

Like in mobile and fixed/fixed wireless market, the internet market is opened for competition in which multiple operators are engaged in provision of services. The licensing framework of the country i.e. UASLs allows the mobile operators to provide internet services. As a result,

according to Odufuwa, mobile operators that have the scale and coverage advantage are the main providers of internet services (Odufuwa, 2012). According to NCC, Airtel, Etisalat, Globacom and MTN are the main operators in internet services using GSM technology while Multilinks, Starcomms and Visafone are providing the services through CDMA technology. Like in mobile market, there is an imbalance among the GSM and CDMA internet operators whereby the former, controls more than 99 percent of the internet market as of March 2013.

As far as the subscriptions growth is concerned, the Nigerian telecommunication sector had recorded a tremendous growth, according to the NCC. The Commission has reported the total subscriptions of mobile, fixed/wireless and internet together instead of reporting the subscriptions of each segment separately. According to this report, the number of subscriptions is continuously increasing. In 2007 financial year, the total subscriptions (mobile, fixed-line and internet) were 41,975,275. A year later, this figure had showed 53 percent annual growth and reached 64,296,117. In 2009 and 2010 financial years, the figure reached 74,518,264 and 88,348,026 with annual growth of 15.9 percent and 18.6 percent respectively. The increasing trend also continued in the next financial years and on March 2013, Nigeria had a total of 117,281,669 subscriptions in mobile, fixed-line and internet segments (see graph 3.8 below).

Graph 3.8: Growth of Nigerian Subscriptions in Mobile, Fixed-line and Internet Segments (2007-March 2013*)



Source: Adapted from NCC (2014) * It is quarterly report; 1st quarter of 2013 financial year

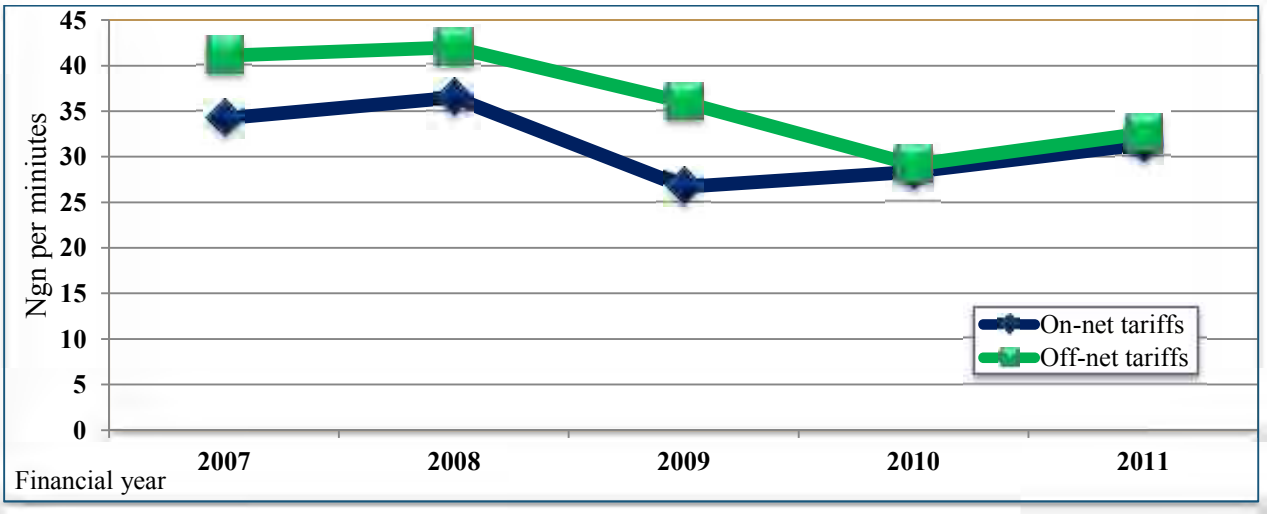
3.2.5 Outcomes of the Nigerian Telecommunication Sector Reform

As it is discussed in the previous sections, the Nigerian telecommunication sector has been fully liberalized and the policy and regulatory framework encouraged the involvement of various private operators within the sector. The presence of multiple operators with independent regulatory authority had fostered competition and diversified the customers' choices and services. This phenomenon had affected the sector in terms of accessibility of telecommunication services and cost of usage of these services.

3.2.5.1 Price

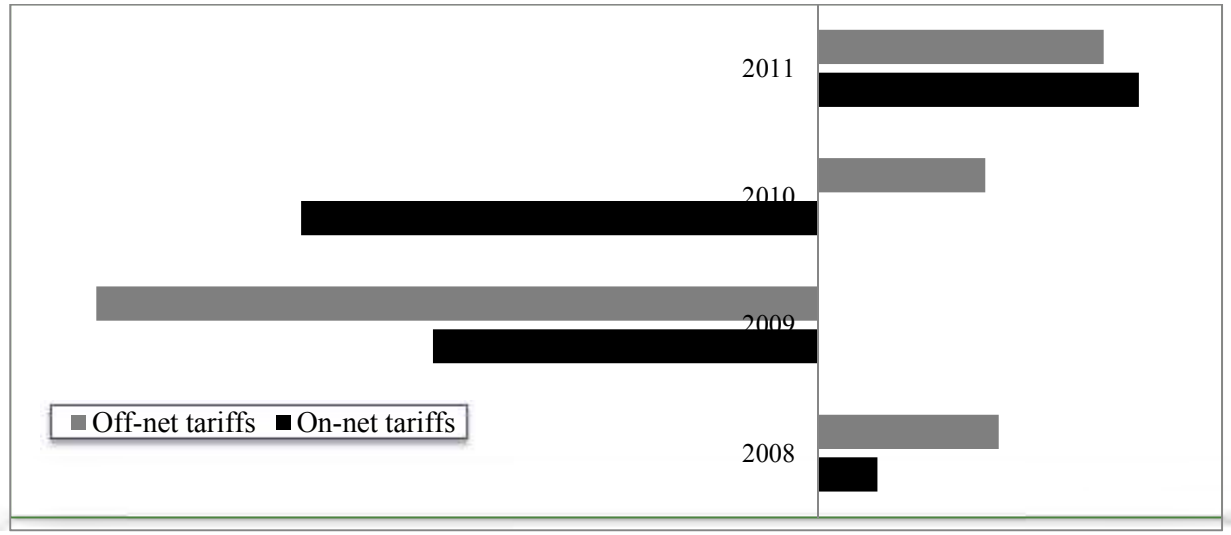
Even though there is a competition within the Nigerian telecommunication sector, both the 'on-net' and 'off-net tariffs' had shown up and down trend instead of continuous declining trend, like in Kenya, during the period of 2007 to 2011. However, despite such flexibility of tariff, the overall average tariff had declined during the same period. In 2008 financial year, 'on-net tariffs' had increased by 2.2 percent from 34.2 Ngn in 2007 to 36.4 Ngn and it declined in the next two consecutive financial years by 14.3 and 19.2 respectively though it again increased by 11.9 percent in 2011. During this period, the 'on-net tariffs' had shown an average decline of 4.9 percent. However, 'off-net tariffs' had exhibited only little average decrement (0.8 percent) during the same period (2007-2011) in comparison to 'on-net tariffs'. Generally, the tariff (on-net tariffs and off-net tariffs) had decreased with overall average of 2.85 percent during the period of 2007 to 2011 (see the following three graphs).

Graph 3.9: The Trends of off-net and on-net mobile Tariffs (2007-2011*)



Source**:** Adapted from NCC (2014) * Latest available data

Graph 3.10: Annual Increase/Decrease(%) in on-net and off-net Tariffs in Nigera (2007-2011)

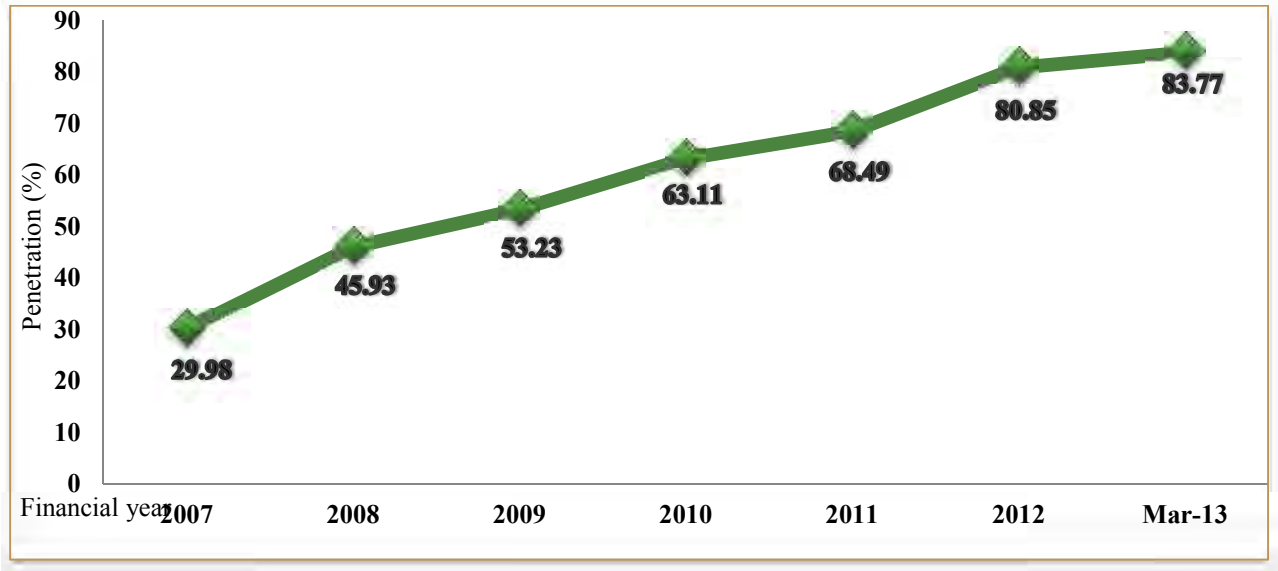


Source: Adapted from graph 3.9

3.2.5.2 Penetration

According to the NCC report, the level of penetration in all telecommunication segments (mobile, fixed-line and internet) is increasing from time to time. For example, in 2007, the level of penetration was as low as 29.98 percent. In the next financial year, the figure has increased to 45.93 percent. On March 2013, the penetration of Nigerian telecommunication services (mobile, fixed-line and internet) had reached 83.77 percent (see graph 3.11 below).

Graph 3.11: Growth of Nigerian Telecommunication Penetration (2007-March 2013)



Source: Adapted from NCC (2014)

Generally, like in Kenya, the Nigerian telecommunication reform had brought positive outcomes, particularly in improving the accessibility of services. As the service expands more and more, it becomes easily accessible to those who, previously, were outside the services provided that it is affordable to their economic capacity. However, its impact is not as such significance in reducing the prices of services. The mobile tariffs showed an average decline of 2.85 percent only between the financial years of 2007 and 2011. This is insignificant reduction in comparison with Kenyan (31 percent) during the same period (2007-2011) (see graph 3.4). As a result, the NCC ordered the operators to reduce telephone tariffs so that subscribers can enjoy the dividends of the telecommunication revolution (Akwaja, 2011).

3.2.6 The Tanzanian Experience

3.2.6.1 Policy Framework

The United Republic of Tanzania has designed the national telecommunication policy in 1997 with overall national target of optimizing the contribution of the sector for Tanzanian economy development as a whole through ensuring availability of efficient, reliable and affordable telecommunication services throughout the country. The policy has the general objective of providing the telecommunication services in a liberalized and competitive manner. Additionally, it has specific objectives of ensuring that the whole sectors of the economy got adequate, sustainable and efficient telecommunication services and establishing reliable telecommunication infrastructures to ensure inter-connectivity of services nationally and internationally. The policy, which underscores the objectives and strategies for a period 1997 through 2020, has a vision of creating an efficient telecommunication network which enables to offer nation-wide info-communication infrastructure and access to the latest technologies for all sectors and segments of population including universal access. It encourages competition within the sector in a defined market structure and eases the procedures in licensing of new operators into the market. Besides, the document clearly states the gradual divestment of the government's share holder to increase the customers' choice and investment (URT/MoCT, 1997).

This implies that like the Kenyan and Nigerian, the Tanzanian telecommunication policy framework encourages liberalization of the sector and opened it for private investment and gradual transfer to private hands. In addition, establishment of an independent regulatory authority in accordance with the Tanzanian Communication Regulatory Authority Act, 2003, further promotes liberalization of the sector and opened for new entrants. This, in turn, increases

the involvement of private operators in provision of various services to diverse consumers' choices in competitive way (TCRA, 2003). Moreover, the 2003 National ICT Policy clearly stipulates the contribution of telecommunication and other enabling sectors such as IT, broadcasting, etc to empower the enabled sectors (education, health, governance or agriculture) with appropriate development and application of ICT for the development of the whole economy (URT/MoCT, 2003). This means that the Tanzanian government is striving to develop the telecommunication sector, through explicit national telecommunication and ICT policies, not only for the purpose of improving the accessibility, reliability, affordability and efficiency of the services but also to improve the roles that the sector can play to enabled other economic sectors.

3.2.6.2 Regulatory Framework

The Tanzania Communications Act, 1993 established Tanzania Communications Commission as a regulatory agency responsible for postal and telecommunication services within the country and the designation of public postal and telecommunication licensees (URT/MoCT, 1993). Latter, this Act was repealed by the Tanzanian Communications Regulatory Authority Act, 2003 which established TCRA as an independent regulatory agency for the purpose of regulating of telecommunication, broadcasting and postal services. The TCRA is charged with various responsibilities and functions, among others, include: promoting effective competition and economic efficiency; protecting the interest of consumers an suppliers; protecting the financial viability of efficient suppliers; promoting the availability of regulated services to all consumers (low income, rural and disadvantaged consumers); regulating rates and charges; facilitating the resolution of complaints and disputes (TCRA, 2003).

In 2006, the TCRA has adopted service and technology-neutral licensing regime, Converged Licensing Framework (CLF), as a result of the global convergence of technology in the telecommunication sector. The CLF cover international, national, regional and district market segments and constitutes four license clusters. Network Facilities License: authorized a licensee to install, own, control and provide access to electronic communications facilities like radio communications transmitters, satellite stations, submarine cable, fiber/copper cable, towers, etc to other licensed operators on commercial basis. Network Services License: authorized a license to operate and maintain public electronic communication networks using various technologies such as that involve intelligent network platform signaling control, traffic distribution switching translation and quality of services control. Some examples of Network Services License are

mobile services, fixed-line services, bandwidth services and broadcasting distribution services. Applications Service License: authorize licensees to provide electronic communications services to end-users. The services can access through either establishment of private facilities and networks or procurement and reselling of services from licensed facilities or network service providers. Examples include internet service providers, virtual mobile providers, payphone services, etc. Contents Services License: covers the provision of content services like satellite broadcasting, broadcasting terrestrial free to- air television, etc (Materu-Behitsa and D.Diyamett, 2010).

Generally, the Tanzanian telecommunication policy and regulatory framework promotes the reform of the sector to the extent that it attracts any eligible private sector to supply the telecommunication services and facilities in competitive basis. The country's national ICT policy and the telecommunication policy in particular, ease the market entry and labeled the playing field through appropriate legal and regulatory environment. In particular, the 2003 Tanzanian Communication Regulatory Authority Act provided adequate autonomy for TCRA to protect the consumers' interest from unjust practices of operators (including appropriate tariffs, availability and quality services, etc.) and new suppliers from dominant operators in undue market control. Moreover, after the introduction of CLF in 2006, the regulator issued a service and technology-neutral license which, consequently, abandoned the lengthy procedures of issuing a separate license for each and every service. This means that the service the TCRA allowed the operators to offer any kind of services using any type of technology provided that they are capable of fulfilling the necessary requirement to provide services. Moreover, the convergence of related services (broadcasting services, postal services and telecommunication services) into a single agency can benefit the country in the form of cost minimization. All these measures, as described below, improved accessibility and affordability services and diversify the of choices customers.

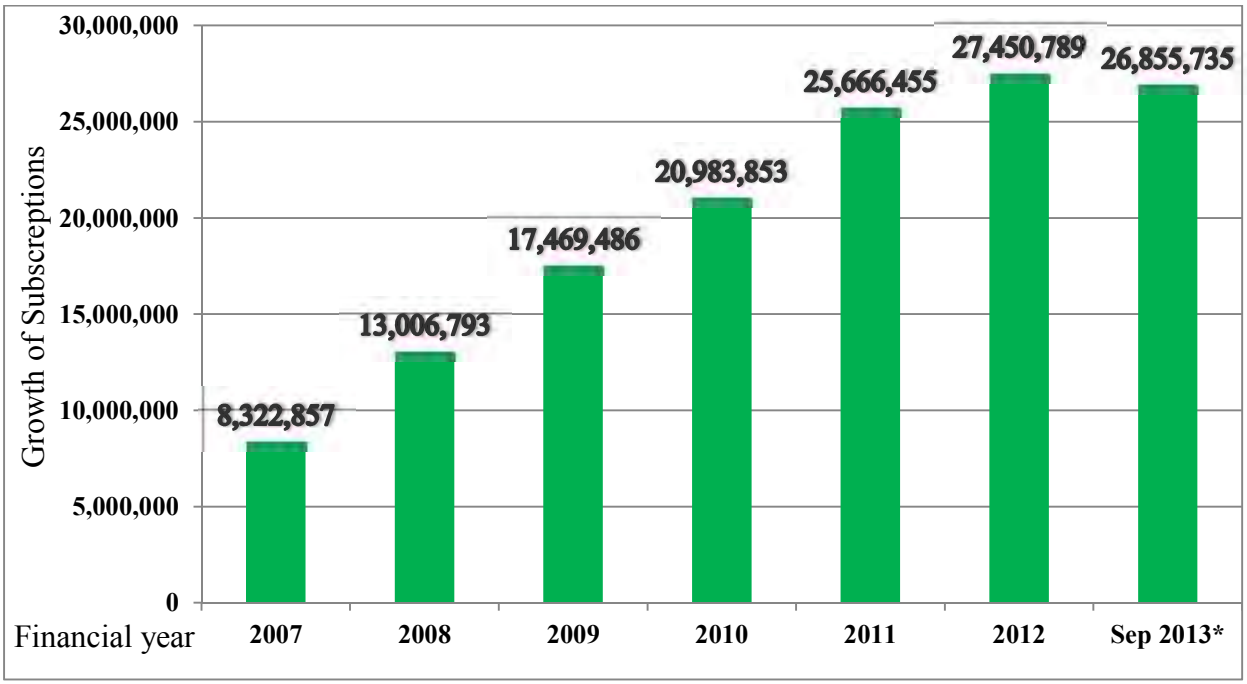
3.2.6.3 Market Players in Tanzanian Telecommunication Sector

Similar to Kenyan and Nigerian telecommunication sector, multiple operators are engaging in provision of mobile, fixed-line and internet services in Tanzania. This is the result of the policy and regulatory framework of the country in liberalizing the telecommunication sector and encouraging the participation of private operators within the sector. This section looks at the market players in mobile and fixed-line as well as in internet market with describing the growth of their subscriptions.

3.2.6.3.1 Mobile and Fixed-line Market

Today, the Tanzanian mobile market, which has been liberalized since its introduction, is highly competitive in provision of services due to the presence of multiple operators. During the first quarter of 2012 financial year, there were seven active mobile operators: TTCL, ZanTel, Vodacom, Air Tel, Tigo, Bonso and SasaTel and they were active up until 2013 financial year. However, after few months in this financial year, the TCRA had publicized in its quarterly telecom statistics report on September, 2013 (1st quarter) that SasaTel has withdrawn from the market and the active operators become six in number though the regulator did not mention the reason for the withdrawal of the operator. However, it is possible to estimate that the decline of its market share could be the major reason for its withdrawal since it had only 0.02 percent market share on June 2012 (TCRA, 2012 and TCRA, 2013). Graph 3.12, below, shows the growth of mobile subscriptions between the year 2007 and September 2013.

Graph 3.12: The Tanzanian Mobile Subscriptions Growth Trend (2007-September 2013*)

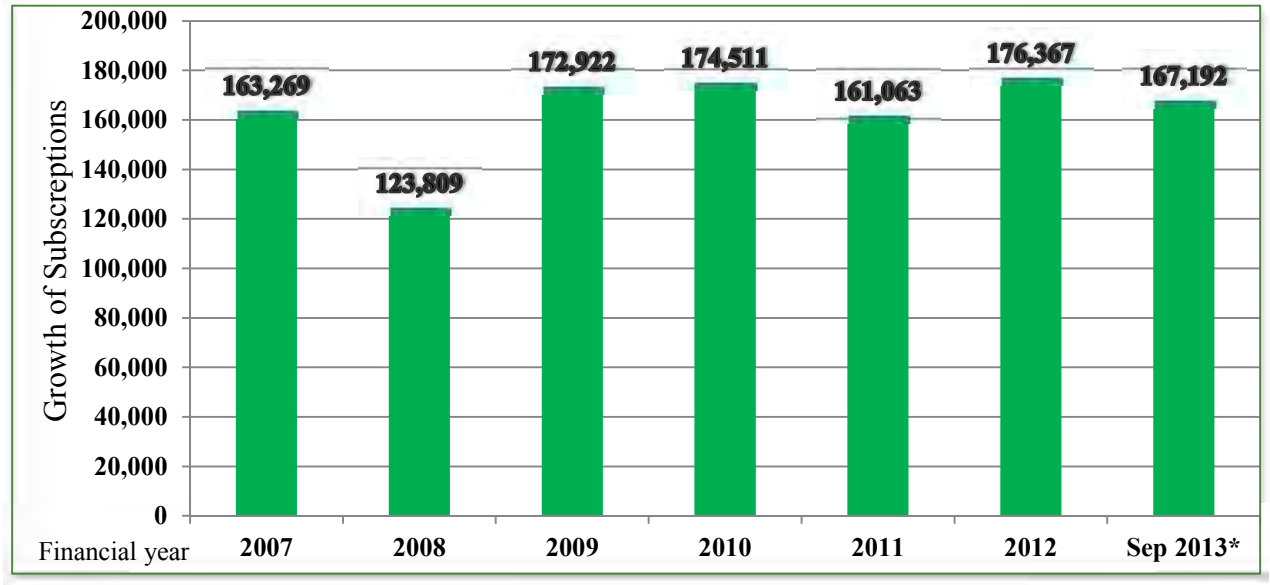


Source: Adapted from TCRA (2013) * It is quarterly report; 1st quarter of 2013 financial year

The Tanzanian mobile subscriptions have a continuous annual growth trend throughout the whole period except in the first quarter of 2013 financial year. As the above graph clearly shows, in 2008, the mobile subscriptions had grown to 13,006,793 up from 8,322,000 in 2007 which is 56.3 percent annual growth. In the next year, the figure has increased with annual growth of 34.3

percent to 17,469,486 and further risen to 20,983,853 with 20.1 percent annual growth in 2010. Similarly, in the next two consecutive years, the incremental trend has continued to 25,666,455 and 27,219,283 with a corresponding annual growth of 22.3 percent and 7 percent respectively. However, during the 1st quarter of 2013 financial year, this incremental trend in subscriptions number has not continued, instead it decreased to 26,855,735 which is a 2.2 percent declined though the regulator has not disclose the reason for so. However, the rise of price in voice telecom services could be the reason for the decline of the number of subscriptions during the first quarter of 2013 financial year (see section 3.2.6.4.1). Like its mobile market, the Tanzanian fixed-line market is opened for competition to private operators. According to TCRA, ZanTel Tanzania and Telecommunications Company Limited were the two dominant operators of the sectors as of the first quarter of 2013 financial year. However, as global phenomenon (ITU, 2012), the Tanzanian fixed-line market was/is in declining, stagnant and little incremental trend if there is. During 2008 financial year, it decreased to 123,809 down from 169,262 in 2007 which corresponds with 24.2 percent annual decline. In the next two consecutive years, the subscription number had increased to 172,922 and 174, 511 with 39.7 percent and 0.92 percent annual growth respectively. However, in 2011, this figure had declined to 161,063 with a parallel annual reduction of 7.71 percent. In 2012 financial year, the figure had rose again to 176,367 with 9.5 annual increment and to 167, 192 during the 1st f quarter of 2013. See graph 3.13 below.

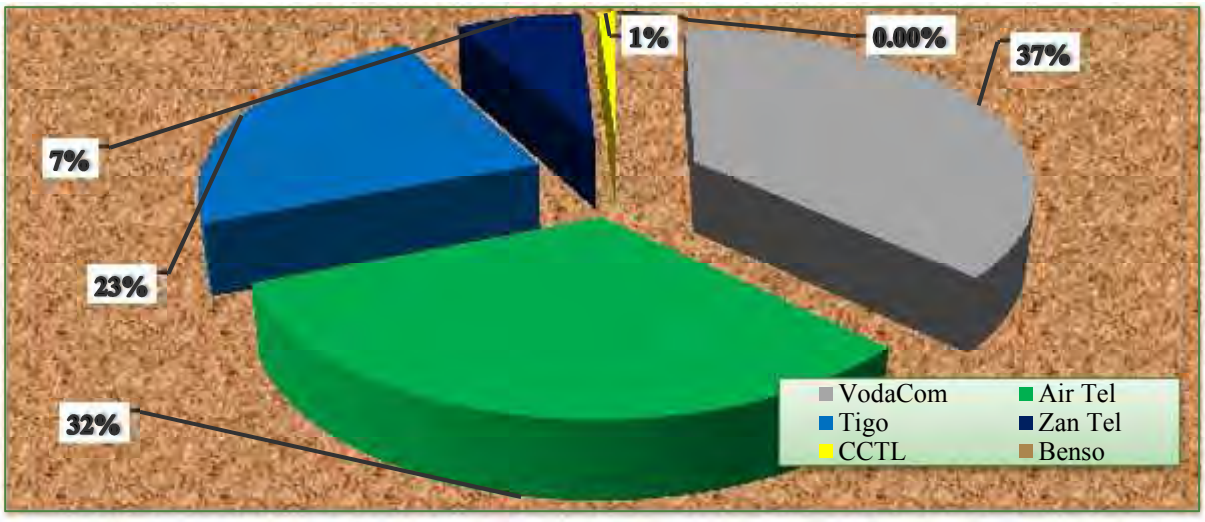
Graph 3.13: Fixed-line Subscriptions in Tanzania (2007-September 2013*)



Source: Adapted from TCRA (2012) and TCRA (2012) * 1st quarter of 2013 financial year

Even though the Tanzanian voice market is liberalized and multiple operators are involving in provision of mobile and fixed-line services, the market exhibits an imbalance share among operators. This imbalance share exists both among mobile operators and between fixed-line and mobile operators. According to the TCRA's quarterly telecom statistics, in its 1st quarter report of 2013 financial year, Vodacom has the highest subscriptions followed by Air Tel and Tigo. On the same period, Benson had the lowest number of subscribers. With regard to the subscription market share, as of September 2013, Vodacom had 37 percent market share and Air Tel and Tigo had followed with 32 percent and 23 percent respectively. This implies that these three operators control about 92 percent of the market. In contrast, the remaining three operators control only 8 percent and from these Benson had no share (0 percent) even if it had 528 subscriptions during the same period. Therefore, the Tanzanian mobile market share ranges from 0 percent (Benson) to 37 percent (Vodacom) in the same period (see pie chart 3.3). This market imbalance is more exaggerated when the network type is considered i.e. between mobile & fixed-line market operators. The mobile operators control almost all Tanzanian voice market in which the fixed network subscriptions base has been eroded continuously. For example, during the first quarter of 2013 financial year, the share of mobile subscriptions were 26,855,735 (above 99 percent) from the total of 27,022, 927 voice subscriptions (fixed-line and mobile) in contrast to 167,192 fixed-line subscriptions (less than 1 percent) (see graph 3.12 and 3.13).

Pie Chart 3.3: Share of Operators in Tanzanian Voice Market as of September 2013 (1st quarter)



Source: Adapted from TCRA (2013)

From this chart, it is possible to understand that the Tanzanian voice market is open for competition in which multiple operators are engaging in provision of services to the people. The presence of multiple operators within the market can help the customers to have diverse choice of services although there is disproportion market share. As it is mentioned above, ZanTel and Tanzania Telecommunications Company Limited are operating both in mobile and fixed-line market and have a total of 8 percent voice market share as of September 2013. From this figure, their market share in fixed-line is insignificant since more than 99 percent subscriptions are the share of mobile operators (see graph 3.13 and 3.14).

3.2.6.3.2 Internet Market

As far as the internet segment is concerned, mobile network operators are becoming key players in internet service provision with their extensive national infrastructure as a result of the introduction of mobile data and 3G broadband services (Materu-Behitsa and D. Diyamett, 2010). This is one indication of the benefit of the country's licensing framework i.e. CLF. This means that CLF allows the mobile operators to operate in internet segment and provide the services with no requirement of additional license for internet services given that they fulfill the required capacity in provision of services. This, in turn, eases the market entry and encourages the competition within the sector (see section 3.2.6.2). However, even if the market is liberalized and multiple operators are involving in provision of services, still it is low in comparison with Kenya, Nigeria and other African countries. According to ITU's 2012 estimation, the percentages of individuals using internet from the total population in Tanzania were 3.95 percents.

3.2.6.4 Outcomes of the Tanzania Telecommunication Reform

The presence of multiple operators in the telecommunication sector had fostered competition. This resulted in reduction of prices and increases the accessibility of services for underserved section of society. It means that operators are reducing the prices of services with the purpose of retaining the existing customers and acquire additional new ones to their network which, in turn, increase the level of penetration. The following sub-sections looks at the effect that the reform in Tanzanian telecommunication sector brought in terms of improving the accessibility of mobile, fixed-line and internet services as well as price/tariffs in voice services.

3.2.6.4.1 Price

According to TCRA in its annual report, the operators have continued to cut down their tariff as a result of increasing competition. For example, there was an average decrease of 48.7 percent for 'off-net calls' from 349 Tshs per minute in the first quarter (2010) to 179 Tshs per minute in the second quarter (2010). During the same period, the average tariff for 'on-net calls' dropped from 124 Tshs to 63 Tshs per minute (TCRA, 2011). This means that the presence of competition within the market among multiple operators resulted in reduction of cost for the accessibility of telecommunication services both in on-net tariffs and off-net tariffs. The competition of operators is not limited only in 'on-net tariffs' and 'off-net tariffs' but rather it is a reality of other tariffs. The TCRA has reported the voice tariffs trends by grouping into four categories: on-net calls, off-net calls, East Africa calls and International calls. Based on this category, it reported during the period of 2007-2012 in voice tariffs.

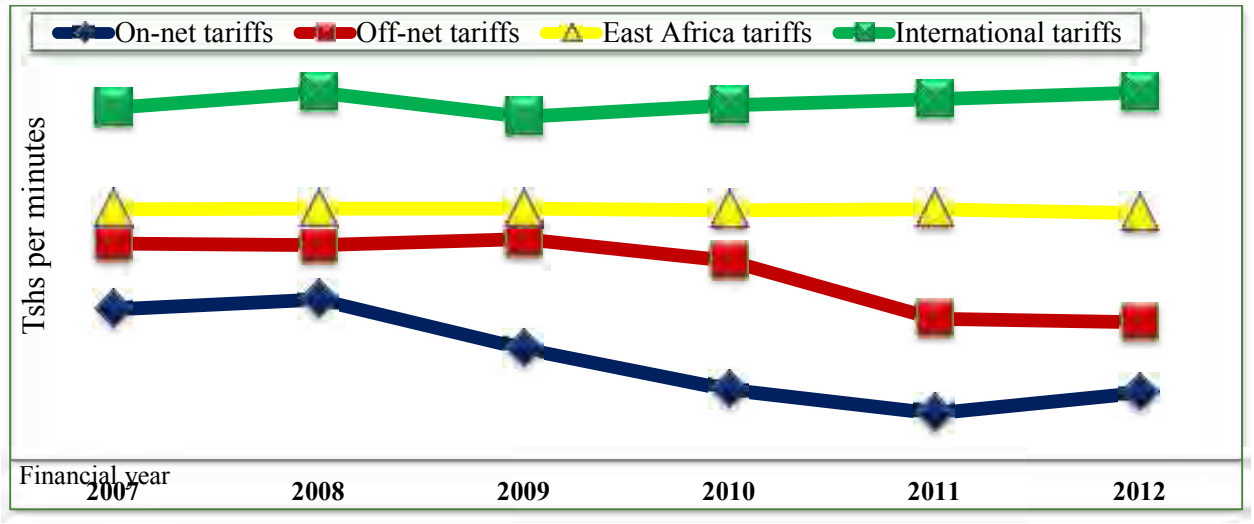
Accordingly, the voice tariff has showed an overall average of 4.4 percent decline during the last six years. The first category, i.e. 'on-net tariffs', has increased in 2008 financial year to 286 Tshs per minute up from 199 in 2007 Tshs per minute which is 7 percent annual increment. However, in the next three financial years, it decreased to 147 Tshs per minute, 93 Tshs per minute and 62 Tshs per minute with a corresponding annual decline of 31 percent, 36 percent and 33 percent in 2009, 2010 and 2011 respectively. In 2012 financial year, it again increased to 89 Tshs per minute which is 43 percent annual growth.

As far as the 'off-net tariff' category is concerned, it recorded a continuous declined trend up until 2012 except the 2009 financial year when it increased to 292 Tshs per minute up from 284 Tshs per minute from the previous year. After 2009, it decreased in the three consecutive financial years to 263 Tshs per minute, 187 Tshs per minute and 182 Tshs per minute with a corresponding annual decline of 10 percent, 29 percent and 2 percent respectively.

The 'Eastern Africa tariffs' has showed unique trend among the four voice tariffs categories as it did not exhibit annual tariff change throughout the period except in 2012 when it declined by 2 percent from the previous years. With regard to the fourth voice tariff category, 'international tariffs', there was a continuous incremental trend apart from 2009 financial year. In 2008, it increased to 485 Tshs per minute (4 percent annual growth) up from 485 Tshs per minute and decreased by 7 percent to 453 Tshs per minute in the next year. During 2010 financial year, the tariffs increased by 3 percent to 468 Tshs per minute and further increased to 476 Tshs per

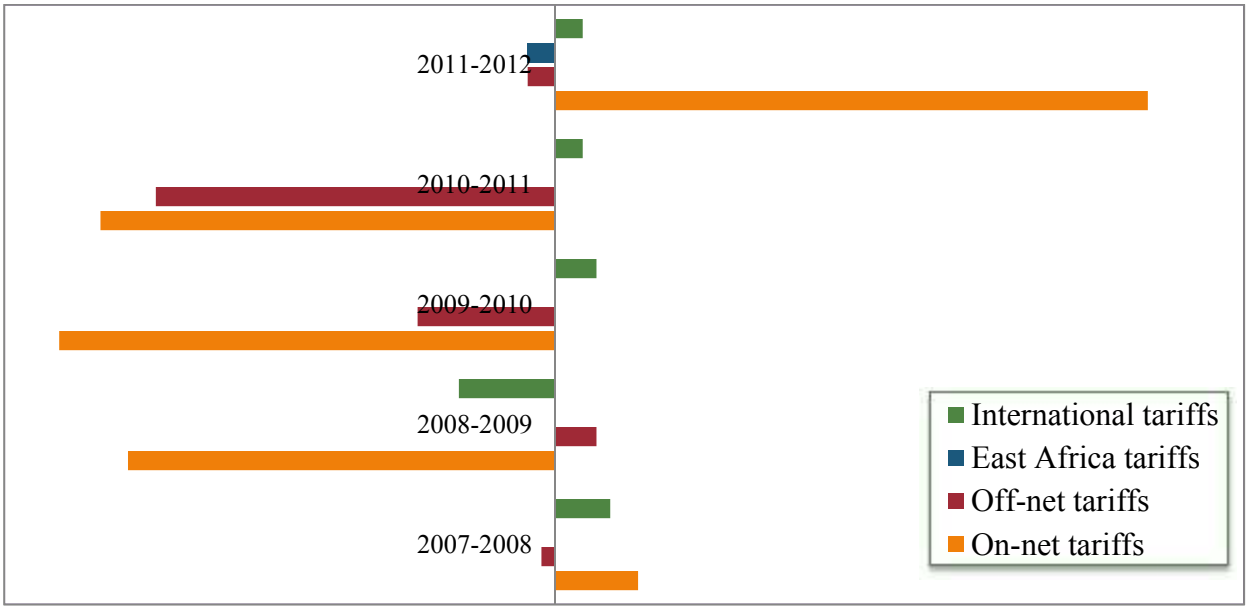
minute and 485 Tshs per minute in the last two financial years with the same annual growth (2 percent each). In general, during the period (2007-2012), the 'on-net tariffs' had showed highest reduction (an average of 10 percent) followed by 'off-net tariffs' (an average of 8 percent) and 'East Africa tariffs' (an average of 0.4 percent). On the other hand, 'international tariffs' had showed little increment (0.8 percent) during the same period. Overall, the voice telecom tariff had showed an average decline of 4.4 percent between 2007 and 2012.

Graph 3.14: Weighted Average Prepaid Tariff for Voice Telecom (2007- 2012)



Source**:** Adapted from TCRA (2013)

Graph 3.15: Tariff Percentage Changes (Decrease/Increase) (2007/2008 to 2012)



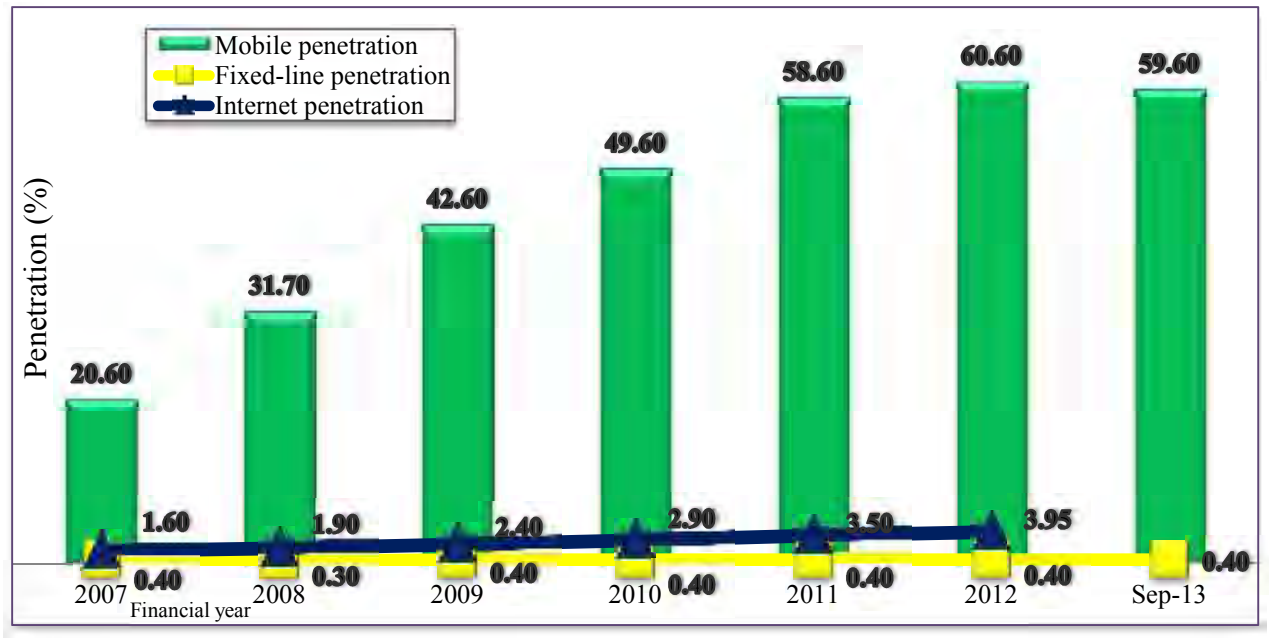
Source: Adapted from TCRA (2013)

3.2.6.4.2 Penetration

The Tanzanian telecommunication reform had not only improved the affordability of the telecommunication services but it also enhanced the accessibility of these services particularly, the mobile services. As the prices of the telecommunication services become cheaper and cheaper, it becomes more affordable and easily accessible to most societies. In other words, the reduction of the services' price can increase the accessibility for more undeserved sections of the society which, in turn, increases the tele-density or penetration level of the telecommunication services.

In 2007 financial year, the level of mobile penetration was as low as 20.6 percent but after a year, it increased to 31.7 percent. This incensement trend had continued in 2009 and 2010 to 42.6 percent and 49.6 percent and further increased to 58.6 and 60.6 in 2011 and 2012 respectively. However, at the first quarter of 2013 financial year, the penetration level down to 59.6 percent (see graph 3.16 below).

Graph 3.16: Mobile, Fixed-line and Internet* Penetration in Tanzania (2007-September 2013**)



Source: TCRA (2007) cited in ITU (2014), TCRA (2013) and ITU estimate (2014)

* Latest available data ** 1st quarter of 2013 financial year

Unlike the mobile penetration, the internet service penetration has not shown increment despite the presence of competition within the sector. For example, as it is shown in the above graph, the level of penetration in 2012 financial year was as low as 3.95 percent in contrast to 60.6 percent

in mobile service during the same period. Similarly, the fixed-line penetration has a stagnant trend throughout the period. Generally, like in Kenya and Nigeria, the reform process in Tanzanian telecommunication had a positive impact in terms of improving the accessibility of services (especially mobile services) and affordability of voice telecom services. In other words, the reform of Tanzanian telecommunication sector in terms of privatizing the incumbent, introducing competition into the sector and establishing an independent regulatory authority that regulate the services and foster competition had played a major role in expanding the telecommunication coverage and increase the tele-density as well as decreases the cost of using the voice telecommunication services.

3.2.7 Policy and Regulatory Frameworks in Ethiopian Telecommunication Sector

The following consecutive sections analyze the policy and regulatory environment in Ethiopian telecommunication sector and the effect of the monopoly market structure on accessibility and affordability of services with the help of interview data.

3.2.7.1 Policy Frameworks

Like many countries of the world, the Ethiopian government has designed national ICT policy and strategy on August 2009 since the development of ICT sector is one of its key strategic plan priorities. The policy, with a vision of 'every aspect of Ethiopian life is ICT assisted', recognizes ICT as a sector/industry and knowledge/information as a device for development. The policy set a goal to 'develop telecommunication and communications infrastructure in all regions of the country in view of promoting the development of ICT services and encouraging extensive utilization by the public.' The government considers that ICT can play a vital role not only as enabler of socio-economic development but also as an assistant of country's good governance and democratization process in such areas of on-going programs including civil service reform, justice reform and decentralization. On the other hand, it considers that low level of telecommunication infrastructure and limited internet service penetration as the major factors for low ICT development in the country (FDRE, 2009). From the above statement, one can understand that the Ethiopian government has given due attention to ICT/telecommunication sector to facilitate the process of the country's development in multi dimensions. However, apart from the intentions of improving the accessibility of the ICT/telecommunication services across the country, the policy does not have a room to attract private investment and allow the

involvement of private sectors within the sector. In contrast, the government fully monopolized the sector and a single state-owned incumbent is operating and providing the telecommunication facilities and services. Moreover, according to interviewees, the government has not any plan to privatize the incumbent and opened for competition in the near future (Interviewees, 2014).

One fundamental indication, as discussed below, could be the measure it took over the previous telecommunication regulatory agency i.e. ETA and establishment of MoCIT as a regulator in 2010 as well as its re-monopoly measure of the incumbent after the end of the contract period made with France telecom. The policy document, as a general guide line, did not mention the regulations of telecommunication services. Above all, according to interviewees, Ethiopia has not a single and comprehensive national telecommunication policy that guides the operation of telecommunication facilities and provision of telecommunication services. In contrast, various discrete and separated proclamations, regulations and directives governed the sector (Interviewees, 2014). For example, the government established both ETC and Ethio-telecom in accordance with regulation No.10/1996 and regulation No.197/2010 respectively as state-owned public enterprises to provide the telecommunication services in a monopoly manner. Similarly, Proclamation No. 49/1996 and Proclamation No. 691/2010 have provided powers and duties to ETA and MoCIT respectively to regulate the sector. Therefore, laws and guidelines related to telecommunication services do not exist in a single document in the form of national telecommunication policy. The absence of a single and comprehensive national telecommunication policy can create problems including less accessible for citizens and interested bodies that want to know about the policy and regulatory framework of the country's telecommunication sector. It is also less compatible in adapting the dynamic nature of the market and technology since it is difficult to amend as in the case of single document. It is less effective in addressing the issues of technology and service convergence and may be an obstacle for introduction of competition and privatization within the sector. It is to mean that these proclamations and regulations can't effectively respond to the global change that occur within the telecommunication sector as a result of continuous reform process since the government designed them in the context of monopoly market structure.

3.2.7.2 Regulatory Framework

As far as the regulatory environment is concerned, Ethiopia has not independent regulatory authority responsible for regulating the sector as the case in Kenya, Nigeria, Tanzania and other

countries of the world (see the regulatory sections of each country). Instead, the aforementioned proclamation (Proclamation No. 691/2010) provides the powers of regulating the telecommunication sector to MoCIT. This proclamation repealed the previous proclamation (Proclamation No. 49/1996) that established the ETA as an independent agency to regulate the telecommunication sector. The proclamation had provided various responsibilities and duties to ETA including, among others: specifying technical standards and procedures for telecommunication services; regulating tariffs of basic telecommunication services; licensing and supervising the telecom operators; regulating the type of telecommunication equipments; ensuring the compatibility of services to specified quality standards; authorize and supervise the use of allotted frequency, etc. However, the current proclamation i.e. Proclamation 691/2010 given these and other powers of ETA with matters relating to the communication sector to MoCIT. Specifically, the proclamation provides the powers and responsibilities of regulating the rate of telecommunication service charges; licensing and regulating telecommunication and postal service operators; ensuring the technical compatibility of telecommunication equipments and exercise other related functions to MoCIT.

According to the interviewees, the Ethiopian government has two fundamental reasons to abolish ETA. Firstly, it was not as such effective in discharging its responsibilities properly during the last thirteen years since its establishment. They said that it was not the right time to establish independent regulatory authority and the agency is not only undesirable but also unnecessary and inconsistent in the context of monopoly telecommunication market structure.

Secondly, the government's desire to establish MoCIT by taking various communication related sectors is another reason for abolition of the agency. The Ethiopian government has established the MoCIT through merging various sectors related with communication matters as the process convergence (Interviewees, 2014).

Whatever the reason could be, the absence of independent regulatory authority for Ethio-telecom can highly affect the sector since it paves the way for undue government's political and bureaucratic interference in its internal affairs. One indication could be, according to interviewees, the government's sensitive follows-up of the daily activities of the sector through requesting monthly and weekly performance report (sometimes daily) in contrast to the previous system of reporting in quarter and annual basis (Interviewees, 2014). In addition, the direct involvement of government in regulatory functions may affect in discharging its key

responsibility of policy making for the sector since the regulatory function requires additional resources that would have been invested in policy making functions.

Generally, the telecommunication policy and regulatory frameworks in Ethiopian does not allow the involvement of private sectors to operate telecommunication facilities and provide telecommunication services (such as mobile, fixed-line, internet and other communication related services). Instead, the government nationally monopolized the sector and a single government-owned operator, Ethio-telecom, solely provides the telecommunication services to more than 80 million people of the country. Moreover, the policy and regulatory framework have not adequate capacity in protecting the interest of consumers. This could be supported in that the country has no customer charter and service level agreement to quality standards in which Ethio-telecom can be accounted if it fails to meet these standards (Interviewees, 2014). This phenomenon has, as discussed below, created the problems in proper management of the customers' complaints and monitoring quality of telecommunication services.

3.2.7.2.1 Management of Customer Complaints and Enquiries

In Ethiopian, there is no suitable environment in telecommunication sector in which the customers' interest is protected from unjust practices of the incumbent such as availability and quality of services as well as techniques of resolving and addressing customers' complaints and enquiries. The entity responsible to regulate the telecommunication sector, MoCIT, has no clear mechanism to properly manage and register customers' complains arisen from repeated delay, failure and termination of network services (Interviewees, 2014). Absence of an independent regulatory authority (from operator, government and other stakeholders) in charge of regulating the sector in favor of customers' interest is the principal reason for this situation. If there is an independent authority which is free from excessive government political and bureaucratic interferences as well as from interest of incumbent and other stakeholders, the customer's complains and enquiries can be better managed since an independent and flexible regulatory authority is more efficient and effective than the politicized and bureaucratic government body i.e. MoCIT.

In addition to the absence of independent regulatory authority, the limited capacity of the available network worsened the problem. Currently, customers are frequently complaining because of delays, failures and termination of network, particularly in mobile services. The incumbent and government believes that the attainment of roll-out services to remote,

underserved and rural areas of the country is considered as one mechanism in addressing the enquiries and resolving the customers' complains rather than improving the existing service since the problems are beyond the capacity of the incumbent. Ethio-telecom admits that its customers are not satisfied and the services provided are not at a required level of quality. It recognizes that more than 80 percent complains are created due to the limited capacity of the existing networks. Currently, the Ethio-telecom is at its incapable position to resolve and address the repeated complaints and enquires. In order to solve these problems in short run, the Ethio-telecom has certain mechanisms such as establishment of its new call center i.e. 994 in which customers can submit complain free of charge. They can complain and enquire to this call center (i.e. through voice) and can access various services. Accordingly, when customers are facing some difficulties with the services, they can directly contact to the company's team who receive customers' information and organizes for solving. In addition, the 994 can serve customers to block SIM cards in case of lost, advice on products and services offers of Ethio-telecom and bill inquiry (ask for bill summary) (Interviewees, 2014 and Ethio-telecom, 2013).

However, the Ethio-telecom is not as such successful to address the enquiries of the customers since most complains are beyond its capacity. Besides, the incumbent is not effective enough to address the problems that can be solved by its capacity because of high congestion in the network of the call center and delay of services. Moreover, the company has not designed mechanisms (e.g. complain form) whereby customers can submit complains online in written form (data) through its website (i.e. through email). Ethio-telecom believes that the mechanism of complain resolution directly through voice is the experience of best operators like France telecom and it is fast and simple for majority of Ethiopian who are illiterate and limited access of internet services (Interviewees, 2014). However, if the company's website is open for complain, it is modern and preferable communication for capable customers and it can reduce the network congestion of the call center (994) and diverse the choices of customers. Another plan of the incumbent in resolving complains of the customers for a long-run in a sustainable manner is its signed agreement of a 1.6 billion USD project with two gigantic Chinese telecom companies that have 50**:**50 shares: ZTE and Huawei technology Co. ltd. The project which is expected to complete at the end of 2006 EC in Addis Ababa and at the end of 2008 EC in other parts of the country will upgrade the existing network to new technology and increase the number of mobile subscribers to double from the current 25 million and the county's telecommunication services

coverage to 85 percent. In addition to expansion of mobile services, the project comprises network and information system. Above all, it is hoped to eliminate the frequent mobile network failure throughout the country including Addis Ababa where the repeated network failure is high (Interviewees, 2014).

3.2.7.2.2 Quality Service Monitoring

Before it abolished in 2002 EC, ETA had certain quality parameters and standards such as call setup success rate; dropped call rate; call setup time; conversational voice quality etc in which it measured performance of the incumbent against these parameters and standards in mobile, fixed-line and internet services. However, as it is mentioned above, the government abolished and MoCIT established Communication and Information Technology Standardization and Regulatory Directorate under its mandate with responsibility of regulating Ethio-telecom (ETA, 2002 EC and Interviewees, 2014). After the closure of the agency, there is no any independent and responsible body that evaluates the performance of the Ethio-telecom against these parameters and standards. Though the regulator, MoCIT, and the previous quality benchmarks still exist, the services that the Ethio-telecom providing have never been evaluated against those quality parameters and standards. Since its establishment in 2010, the MoCIT has not yet monitored the quality of services and pressured the Ethio-telecom to improve the repeated network failure and other related problems that exist in the provision of services. In other words, despite such frequent customers' complains, the MoCIT did not/does not forced the incumbent and taken corrective measure beyond its informal opinion to improve the quality of services since its establishment.

There are three reasons for such phenomenon. The first reason is that the MoCIT left the incumbent to achieve its roll-out service target to reach the universal access to remote, underserved and rural areas of the country since it is the most important objective over the provision of quality services. In other words, the expansion of the telecommunication services throughout the whole part of the country is the priority objective of the incumbent instead of ensuring quality services provision. Another reason is that the government and incumbent agreed that the limited capacity of the existing network has resulted for the current network congestion and provision of low quality of services. Since such limited capacity resulted to occur for more than 80 percent complains, the MoCIT did not persuaded the incumbent and monitor quality of services instead it signed a 1.6 billion USD project agreements with China telecommunication

companies to upgrade mobile infrastructure and introduce a high-speed 4G technology in Addis Ababa and ensure 3G technology service across a country. Limited capital of the incumbent is the third reason. The process of quality service monitoring requires additional fund that would have been invested for attaining roll-out services targets; thus, Ethio-telecom has given less attention for ensuring quality service provision (Interviewees, 2014).

3.2.7.3 The Period of Partial Privatization of the Incumbent

At the end of 2010, the government restructured the ETC into Ethio-telecom because of the introduction of next generation network technology into the country. The structure of ETC was not in a position to run this new technology and provide services at a required level of standards. Despite the fact that the ETC was restructured into Ethio-telecom as such, the workforces were not with adequate knowledge, skill and working culture to run the new technology. As a result, the government had signed a contract management with France telecom. The contract agreement was two years with no probable of postponing irrespective of the achievement of the objectives. However, the France telecom had implicitly expected for further postponed of the contract. In accordance with the signed agreement, the government has attempted to end the contract at the end two years but it postponed for six months after negotiations on the contrary to the company's hope for further years postponed. After two and half years, the contract ended and France telecom has fully withdrawn from Ethio-telecom except few key individuals who provide consultancy services as employees to the incumbent (Interviewees, 2014).

During the period of contract, the France telecom was successful in attaining its objectives and brought various changes within the Ethio-telecom. Overall, it achieved 85 percent of its objectives during the two and half years of contract. One of its achievements during the contract period was in increasing the revenue of the incumbent. At the beginning of the agreement, the total revenue of the sector was less than7 billion birr. However, after its introduction, the revenue of the incumbent was increasing from time to time. Thus, the Ethio-telecom expects to generate total revenue of 20 billion birr at the end of this year. The second achievement was in the area of customer base. At the end of 2010, the total numbers of subscription in all service (both voice and data) were less than 7 million but now this figure shows a continuous increment, particularly in mobile segment and showed more than threefold growth in three years and reaches 25 million in this year. Thirdly, it introduced a system of an indirect marketing technique to Ethio-telecom. Before that, in Ethiopia, SIM cards were available and sold only in the branches of the company

i.e. direct marketing. However, it was very difficult to offer the services to remote areas where the branches are not available. To solve this problem, the France telecom introduced an indirect technique of marketing in which SIM cards can be sold by private individuals as a franchise which improved the accessibility of services to rural and remote parts of the country.

The fourth success of the France telecom was in the areas of automation. The working style within the sector was totally changed from its traditional base to modern style which is simple, fast and safe. One of the most important automation is the official recognition and legality of e-mail communication, particularly among managers. The company created e-mail with its own domain name (e.g. .com.et, gov.et, net…) for each manager to use for the purpose only it is created for. In accordance with the operation, this e-mail can communicate any number of managers across the country at a time. This technique has radically reduced wastage of time, manpower and other costs including printing and faxing. Currently, with exception of certain letters which require official stamp, e-mail is the only communication for the company's manager throughout the country instead of fax, telephone and other means of communication. The other important automation area is implementation of enterprise resource planning with particular emphasis to human resource, finance and supply chain. The recruitments of employees, procurements, auditing and other activities are performed by using software.

Another change includes the revision of tariff zones and introduction of flat tariff zone especially in mobile services. The incumbent had divided tariffs in mobile service into two zones before the partial privatization of its management to France telecom. Mobile numbers beginning with 0910, 0911, 0912, 0913, 0916, 0917 and 0920 were in similar zone while 0914, 0915 and 0918 were in different tariff zones and the incumbent charges different price between zones. This means that, for example, the incumbent charged different prices between 0910 and 0913 and between 0910 and 0918. However, after the coming of the France telecom, the incumbent flatted the tariff zones and all subscribers are charged the same price regardless of the mobile numbers they are subscribed to (Interviewees, 2014).

3.2.7.4 Re-monopolization of the Incumbent

Despite such contribution of privatization (even partially) in improving the performance of the incumbent, the government has not made further privatization of the sector; instead, it again fully monopolized as soon as the end of the contract agreement. The government argues that the sector is playing a major role in financing many projects (e.g. Addis Ababa rail way) than other public

enterprise such as Commercial Bank of Ethiopia can do. In addition, it argued that since the sector requires huge investment, there is no capable and volunteer private sector to achieve the objective of universal access in costly, remote, underserved and rural areas. It is governments that can invest and expand universal access even at loss to satisfy the needs of poor sections of the society; thus, the sector should be in the hand of the government (Interviewees, 2014).

However, as the experiences of many countries proved (e.g. Kenya), the objectives of universal service/ access can better realized in a competition market. The Kenyan government argued that 'the traditional regulatory strategy of imposing universal service obligations on incumbent operators [like Ethiopian government] has proven to be largely ineffective particularly where the penetration is low and the burden of achieving universal access is tremendous.' For the purpose, the CCK has established a universal service fund which is financed through funds received from licensed operators, government and other partners. Various operators are competing to provide universal service to undeserved part of the country. After selecting eligible operators, the CCK compensate the amounts of expenditure of operators paid including for administrative and legal costs incurred as per the contract agreement made (CCK, 2009). As a result, Kenya had made a tremendous achievement in mobile and internet penetration and reached 77.3 percent and 48.3 percent respectively as of 2013 (see section 3.2.2).

The absence of competition and the monopoly market structure in Ethiopian telecommunication sector had not only limited the choices of customers to get alternative and diverse services but it also resulted for low level of penetration and delivery of low quality services. Ethio-telecom had fully recognizes the services it delivers are with poor quality and can't satisfy the customers' interest. However, it doesn't think that the absence of competition and monopoly provision of services by a single operator is the major reason for the reduction of the quality of services. According to the interviewees, Ethio-teleocm doesn't believe that the presence of single national operator is responsible for poor quality of services and low level of penetration. In contrast, it firmly, thinks that the monopoly market structure can achieve universal access and ensure quality services since there are many operators in the world that provide the services at required level of quality to hundreds of millions subscribers. And, further, it argued that the limited capacity of the existing network is responsible for repeated low quality of services and low penetration (Interviewees, 2014). However, Ethiopia cannot equally compete with its neighbors in the current monopoly market structure in terms of ensuring quality service, improving penetration of

telecommunication services, etc. unless the market is opened for competition. The following table shows the level of competition in certain telecommunication services in four countries.

Table 3.3: Level of Competition in Ethiopia, Kenya, Nigeria and Tanzania in Selected Services

Telecommunication Services	**Market**			
	Kenya	**Nigeria**	**Tanzania**	**Ethiopia**
Local fixed line services	Competition	Competition	Monopoly	Monopoly
Domestic fixed long distance	Competition	Competition	Monopoly	Monopoly
International fixed long distance	Competition	Competition	Monopoly	Monopoly
Mobile	Competition	Competition	Competition	Monopoly
IMT (3G, 4G, etc.)	Competition	Competition	Competition	Monopoly
Wireless local loop	Competition	Competition	Monopoly	Monopoly
Fixed wireless broadband	Competition	Competition	Competition	Monopoly
Leased lines	Competition	Competition	Monopoly	Monopoly
International gateways	Competition	Competition	Monopoly	Monopoly
Digital subscriber line	Competition	Competition	Competition	Monopoly
Internet Services	Competition	Competition	Competition	Monopoly
Mobile satellite services	Competition	Competition	N.A.	Monopoly
Fixed satellite services	Competition	Competition	Monopoly	Monopoly

Source: Adapted from ITU (2012)

On the other hand, the Ethiopian government has opened some telecommunication services for competition and the government license (not converged licensing framework) eligible operators. Particularly, downstream services such as call centers, public pay-phones, cyber café, as well as importation and provision of telecommunication equipments, maintenance of cables (cable works) are liberalized and multiple private sectors are involving in offering of these services in a competitive way (Interviewees, 2014 and ETA, 2002 EC).

3.2.8 The Effects of Monopoly Market Structure on Accessibility and Affordability of Telecommunication Services in Ethiopian

3.2.8.1 Penetration

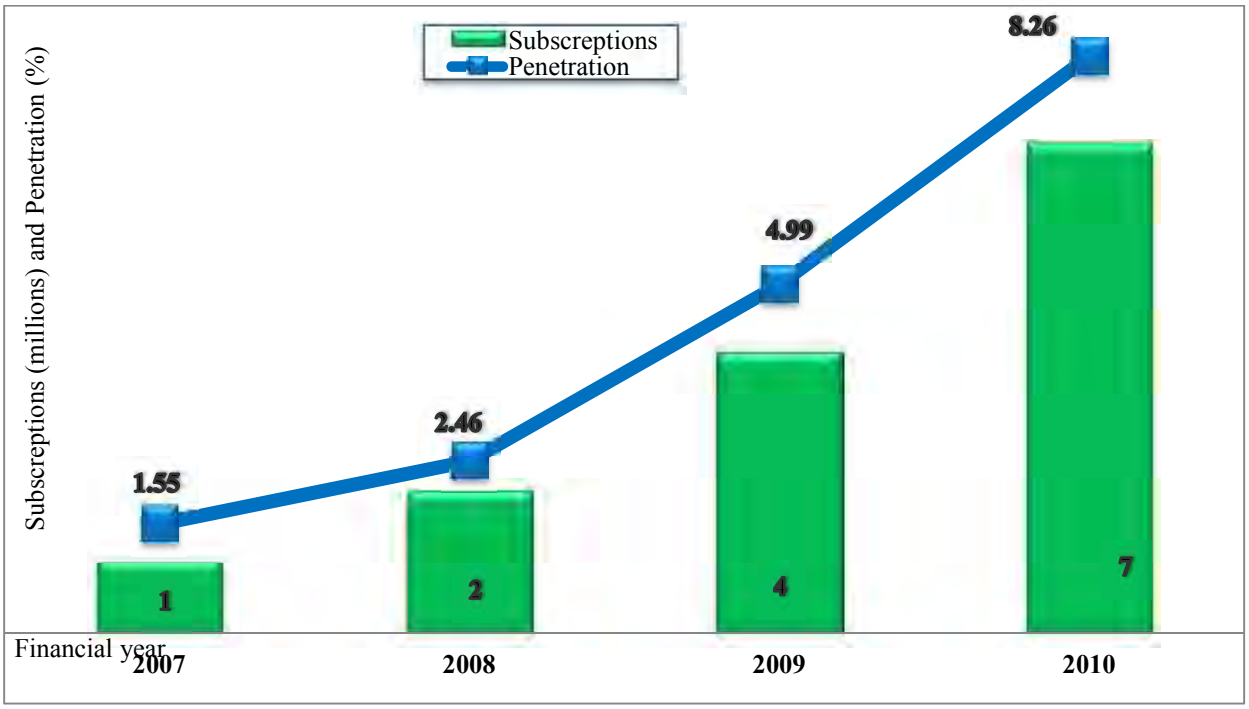
Though there are improvements in telecommunication services penetration since recent times, Ethiopia lags behind many countries. The monopoly market structure is responsible for such level of lower penetration in addition to limited capacity of citizen and low telecommunication infrastructure of the country. The Ethiopian government has fully liberalized various sectors such as beverage industry, leather industry, state farm industry, etc. However, certain sectors mainly telecommunications and communication sectors are fully monopolized. The government with its political ideology (developmental state) had an ambition to fairly distribute the services at a low cost.

3.2.8.1.1 Mobile Penetration in Pre-partial Privatization Period

When the annual growth of Ethiopian mobile subscription before 2010 (partial-privatization period) is considered, it has showed very intense growth. For example, in 2007 financial year, the numbers of subscriptions were 1,208,498. This figure has increased to 1,954,527 in the next financial year which corresponds with 61.7 percent annual growth. In 2009, the figure has further increased to 4,051,703 with 107.3 percent annual growth. This was the year where a critical growth was recorded. Similarly, in 2010, the number of subscription showed a 69.2 percent annual growth to 6,854,000. However, even if there was such high growth of mobile subscriptions, the penetration is very low. In 2007 and 2008, the level of penetration was as low as 1.55 percent and 2.46 percent respectively. Still, in 2009 and 2010, the level of mobile penetration was less than 10 percent (see graph 3.17 below).

During this period, the low level of mobile penetration of the country could be attributed with the monopoly of the services (in addition to limited capacity of citizens to access the services and other factors) by a single state-owned incumbent and the absence of competitive environment for innovative private sectors that can add value to the services. The achievements recorded during the period of management contract with France telecom at the end of 2010 is best justification for this argument (see graph 3.18).

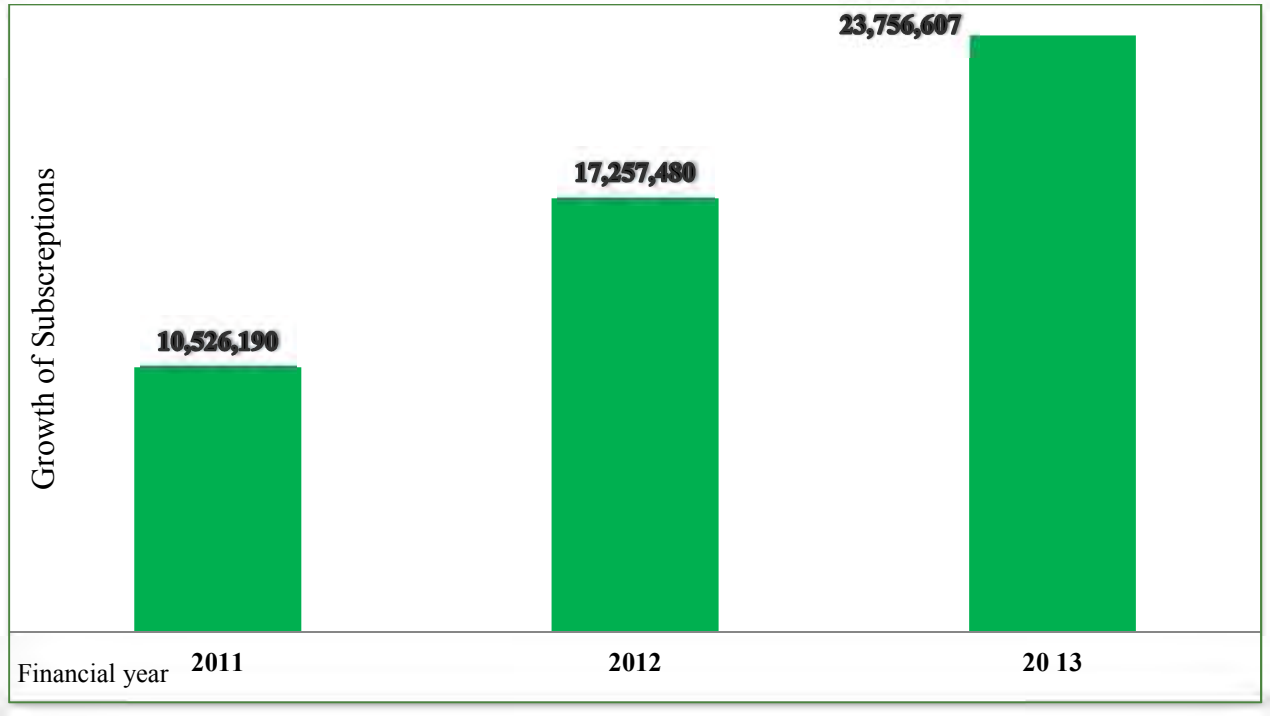
Graph 3.17: Mobile-cellular telephone Subscriptions* and Penetration in Ethiopia (2007-2010)



Source**:** ETA (2007), ETA (2008), ETA (2009) and MoCIT (2010) cited in ITU (2014**)**
* rounded value

After the introduction of France telecom into the sector, the subscriptions number had grown by 54 percent to 10,526,190 from 6,854,000 of the previous financial year. This was the first time in the history of country where the mobile cellular subscriptions exceed to ten million. In its second year of contract management, the number of mobile cellular subscription showed a more increment from the previous year and reached 17,257,480 i.e. 64 percent annual growth though it decreased to 37 percent after the end of the contract and re-monopolized by the government. As a result of increment in subscription, the penetration level had also grown. For example, according to Ethio-telecom, the level of mobile penetration had reached 20.42 percent at the end of the second contract period of the France telecom (Ethio-telecom, 2013). Moreover, at the end of 2013 financial year, it is possible to predict that the mobile penetration level further increased from the previous year as the subscription number has increased (see graph 3.19 below).

Graph 3.18: Mobile-cellular Telephone Subscriptions in Ethiopian (2011-2013)



Source**:** Adapted from Ethio-telecom (2013)

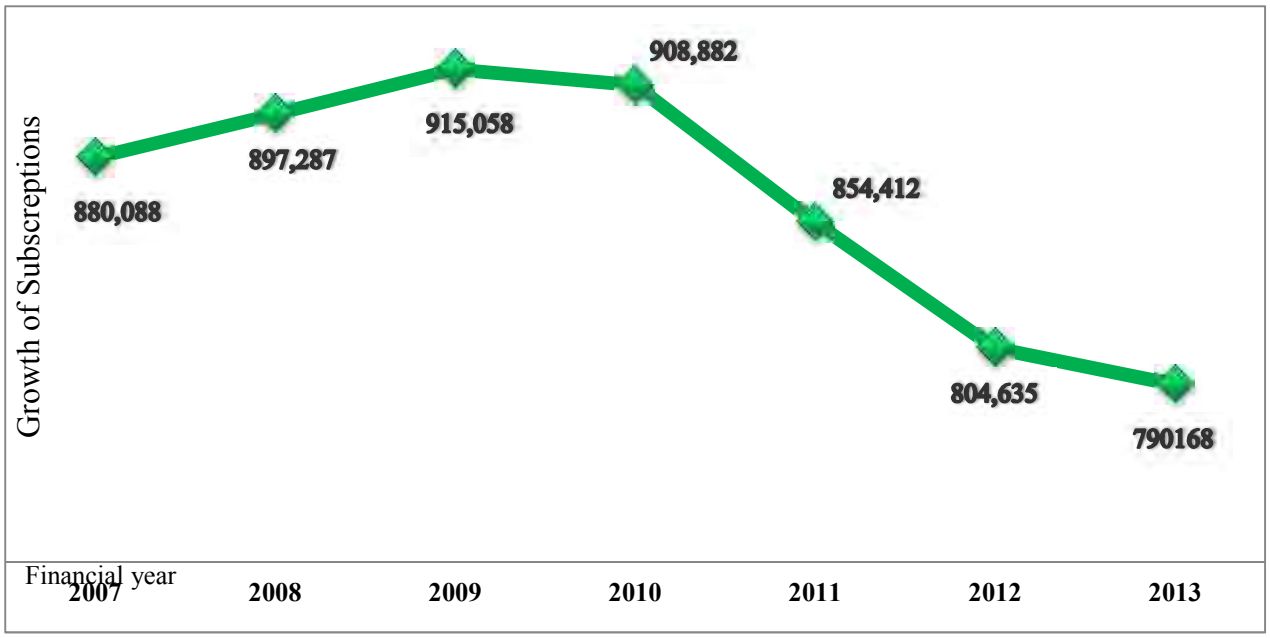
From this phenomenon, it is possible to understand that the privatization of the sector (even partially) has a great role in improving the accessibility of services to previously undeserved section of society. This implies that the international telecom operators like France telecom have more management skills and technology than the government owned operators like Ethio-telecom to expand the services to these sections of the society.

3.2.8.1.2 Fixed-line Tele-density (Penetration)

The Ethiopian fixed-line penetration, as the case in many countries of the world, has decreased from time to time, particularly since 2010. In 2007 financial year, the number of subscription in fixed-line was 880,088 and showed some increment in 2008 and 2009 to 897,287 and 915,058 respectively. During this period, it showed an average annual growth of 2 percent. However, after 2010, the growth became downward and negative. In 2010 financial year, the annual growth decreased by 7 percent (downwardly) from the previous 2 percent (upwardly) annual growth. Moreover, after the introduction of the France telecom, the decline further continued and exhibited average decline of 6 percent during its contract period (see graph 3.19). The level of penetration is also very low. For example, according to Ethio-telecom, at end of the second

contract period of the France telecom, the level of fixed-line penetration was as low as 0.95 percent which was below the GTP target of the period (i.e. 2 percent). Moreover, at the third year of GTP period, the government had a plan to reach the fixed-line subscriptions to 1.95 million though the actual performance of the incumbent was below half of the goal set (Ethio-telecom, 2013 and FDRE/MoFED, 2010). Ethio-telecom attributed this decline trend of fixed-line with the global phenomenon of the sector (Interviewees, 2014).

Graph 3.19: Trends of Fixed-line Subscriptions in Ethiopian (2007-2013)



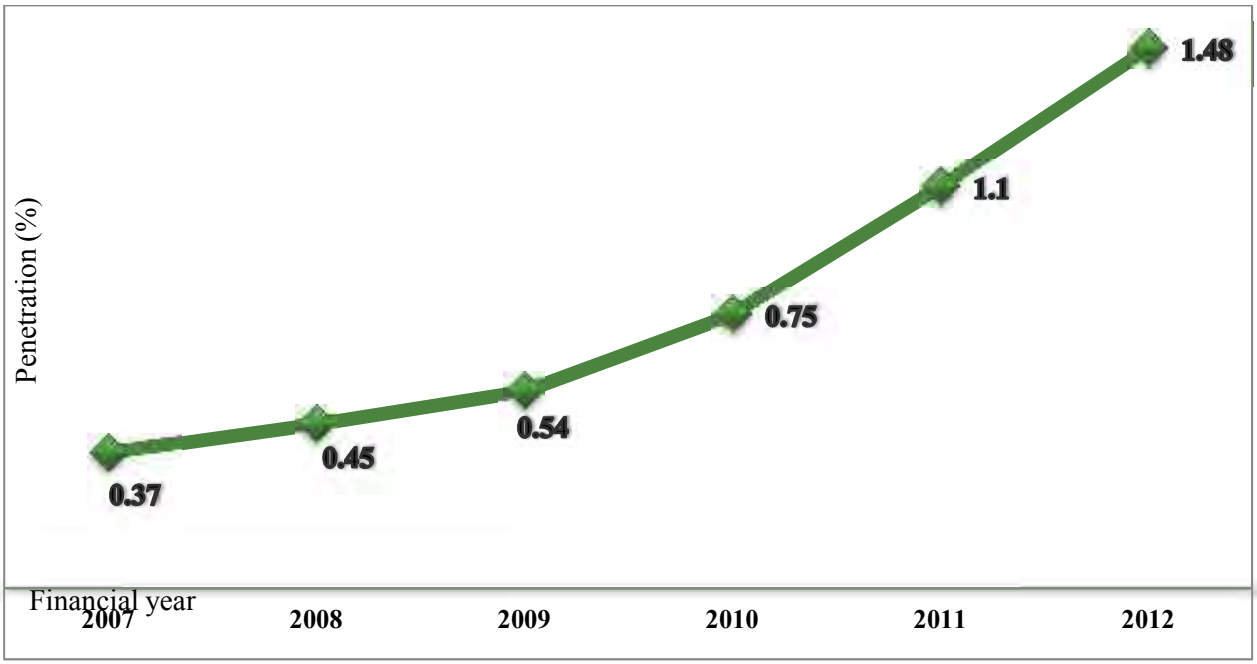
Source**:** ETA (2007), ETA (2008), ETA (2009), MoCIT(2010) cited in ITU (2014**)** and Ethio-telecom (2013)

3.2.8.1.3 Internet Penetrations

In spite of the fact that there is an incremental trend in percentage of individuals using internet since recent years, the penetration level in Ethiopia is very low as compared to many countries and it sits at the bottom of the world average internet penetration. For example, ITU estimated that at the end of 2012, the percentage of individuals using internet in Africa and global level were 14.3 and 35.7 respectively. During the same period, individuals using internet in Ethiopia was only 1.48 percent. However, in spite of this gap, the internet subscriptions are increasing in recent times as a result of increment of mobile subscriptions, particularly during the period of management contract of Ethio-telecom with France telecom. At the end of 2013 financial year, there were a total of 4,430,032 internet subscriptions. This figure exceeds the GTP target of 1.12 million (Ethio-telecom, 2013 and FDRE/MoFED, 2010). The majority of the customers access

the internet service through their mobile phones. For example, in 2012, out of 2,663,700 internet subscriptions, 91% access the service through General Packages Radio Service (GPRS) i.e. mobile internet and this figure has increased to 95 % from 4,430,032 total subscriptions in 2013 (Ethio-telecom, 2013). This implies that the management contract of the Ethio-telecom had increased the accessibility of both mobile and internet services to previously underserved part of the people. In other words, the increment of the mobile subscriptions has a direct effect to increase the internet subscriptions.

Graph 3.20 : Percentage of Individuals Using Internet in Ethiopia (2007-2012)



Source**:** Adapted fromITU estimates (2014) and ETA (2007) cited in ITU (2014)

Generally, even if there is improvement in the penetration of telecommunication services (mobile and internet), particularly after the brief period of the management contract agreement of Ethio-telecom, there is a huge gap relative to Kenya, Nigeria, Tanzania and the rest of the world . The level of mobile penetration in Kenya exceeds more than two times to Ethiopian in 2012 financial year. During the same year, individuals using internet in Kenya were almost 24 times greater in comparison to individuals using internet in Ethiopia. The same communication gap still exists in comparison with Nigeria and Tanzania (see the penetration section for each country). Amazingly, the gap is more aggravated as compared to the average penetration of African and the world at large. According to ITU estimation, at the end of 2012 financial year, the mobile penetration in African has reached 59.8 percent while the global level penetration

close to saturation point (91.2 percent) and further increased to 63 percent and 96 percent respectively in 2013. As far as the internet segment is concerned, it also estimated that the percentage of individuals using internet was 14.3 percent in Africa and 35.7 percent in the world at the end of 2012. In 2013, the ITU further estimated that this figure rises to 16.3 percent and 38.8 percent respectively (ITU, 2014). Similarly, the fixed-line penetration in Ethiopia is still very low in comparison with African and world average.

3.2.8.2 Tariffs of Voice Telecommunication Services in Ethiopian

Prior to partial privatization of the Ethio-telecom, Ethiopia has not uniform national tariff for mobile services; instead, the tariff differs among different zones. However, during the period of management contract, these variations of pricing across tariff zones have been uniformed. Currently, the incumbent charges the same tariff for all calls that originates and/or terminates from mobile and fixed-lines services. With exceptions of some differences between peak hours and off-peak hours, the company designed a flat tariff zones for national mobile calls with absence of differences among various zones. For international calls, Ethio-telecom charges the same tariff during the peak and off-peak hours. Accordingly, for national calls, the Ethio-telecom charges, 0.83 Br., including VAT, during peak hours (ranges from 7 AM to 9 PM, excluding Sunday and Public Holidays). During off-peak hours (ranges from 7 PM to 9 AM including Sunday and Public Holidays), it charges 0.35 Br. For international calls, the incumbent charges 8.88 Br. to Djibouti and 12.33 Br. for rest of the world. As far as the fixed-line tariff is concerned, the incumbent divides the tariffs into three zones and charge different tariffs among these zones. These are calls within the same town; calls between different towns of the same tariff zones and calls between different tariff zones. Accordingly, during peak hours, the call tariff within a town is 0.23 Br. (including VAT) per 6 minutes and 0.46 Br per minutes for calls between different towns of the same tariff zone. For calls between different tariff zones, it charges 0.83 Br. per minutes. During off-peak hours, the call tariff within a town is the same as peak hours (0.23 Br per 6 minutes). However, the call tariffs between different towns of the same tariff zone and between different tariff zones is lower i.e. 0.29 Br. and 0.35 Br. per minutes respectively. For international calls, the Ethio-telecom charges 8.05 Br. to Djibouti and 11.50 Br. per minute for the rest of the world with the same tariffs during the peak hours and off-peak hours (Interviewees, 2014 and Ethio-telecom, 2013).

Generally, in contrast to the expectations, the Ethiopian national call tariff is one of the cheapest in comparison to Kenya, Nigeria, Tanzania and most African countries. For example, RIA had conducted a survey in 18 African countries from the dominant mobile operators that have more than 50% market share i.e. using OCED methodology. The result ranked the Ethiopian mobile price as the second cheapest next to Ghana (RIA, 2010) cited in (Adam, 2010). However, when the cost of telecommunication services is assessed by taking the average GNI (Gross National Income) per capita into consideration, the result is different from the absolute figure of prices. The ITU has designed ICT Price Basket (IPB) to compare the prices of services among countries around the world. It is a unique global benchmarking tool that provides insightful information on the cost and affordability of telecommunication and ICT services. It comprises three distinct prices (also called sub-baskets): fixed-telephone, mobile-cellular and fixed-broadband internet services. It is calculated by adding these three sub-baskets (each sub-basket had equal weights) as a percentage of country's monthly average GNI per capita (in USD) divided by three (ITU, 2011). Based on this technique, ITU had surveyed the affordability of the telecommunication services in 161 countries around the world in 2012. According to the report, the telecommunication service is relatively least affordable in many African countries including in the report. Africa had 31.4% IPB value which means that the costs of telecommunication services represents 31.4 percent of the monthly average GNI per capita in contrast to 1.6 percent in developed countries and 10.3 percent of the world. Even if the telecommunication/ICT service is relatively unaffordable in many African countries as compared to developed countries, there are differences among individual countries. For example, in this report, Ethiopia had an IPB value of 33.8 percent, while Kenya, Nigeria and Tanzania had 28.6 percent, 31.1 percent and 39.7 percent respectively. Based on this value, Ethiopia ranked 138th at global level and 16th at regional level included in the report. During the same period, Kenya, Nigeria and Tanzania had globally ranked as 133rd, 135th and 149th respectively. Their regional rank was 11th, 13th and 20th in that order. The difference is also exhibited in each sub-basket. In fixed-telephone sub-basket, Ethiopia had cheap service representing 3.4 percent of the monthly average GNI per capita while in Kenya, Nigeria and Tanzania, it represents 21.5 percent, 16 percent and 25.5 percent of the monthly average GNI per capita respectively. With regard to mobile cellular sub-basket, Ethiopia is the second cheapest next to Kenya representing 6.8 percent and 13 percent of monthly average GNI per capita respectively. In Nigeria and Tanzania, the mobile cellular sub-basket represents

16.1 percent and 22.9 percent of monthly average GNI per capita in that order. As far as the fixed broadband internet service sub-basket is concerned, the service is more expensive in Ethiopia relative to Kenya, Nigeria and Tanzania; representing 85 percent of monthly average GNI per capita. In Kenya, Nigeria and Tanzania, it represents 57.4 percent, 60.7 percent and 70.8 percent of the monthly average GNI per capita respectively (see table 3.4 below).

Table 3.4: IPB & Sub-baskets of Kenya, Nigeria, Tanzania and Ethiopia (Globally & Regionally)

Prices as a percentage (%) of Average GNI Per Capita							
Country	Sub-baskets			IPB value	Global rank	Regional rank	GNI per capita, USD (2010)*
	Fixed-telephone	Mobile-cellular	Fixed-broadband				
Kenya	21.5	6.8	57.4	28.6	133	11	790
Nigeria	16.4	16.1	60.7	31.1	135	13	1'180
Ethiopia	3.4	13	85	33.8	138	16	390
Tanzania	25.5	22.9	70.8	39.7	149	20	530
Regional Average				31.4			
Global Average				10.3			

Source**:** Adapted from ITU (2012) ***** GNI per capita is based on World Bank data cited in ITU (2012)

From the above discussion, it is possible to understand that even if the RIA had stated that the Ethiopian national call price is the cheapest relative to Kenya, Nigeria, Tanzania and many African countries, it is not as such when the average GNI per capita of a country is considered. The country's IPB value takes 33.8 percent of the average GNI per capita which is threefold of the world average IPB value. Moreover, though it is in comparable rank, the country's IBP value is still greater than African average IBP value. Therefore, the national call price of Ethiopia can be ranked as moderately cheap i.e. 16th from 31 African countries included within the report.

However, in Ethiopia, the tariffs of certain services, particularly broadband and international call services are more expensive in relative to many African countries. For example, the fixed broadband internet services represents 85 percent of the country's GNI per capita while in Kenya, Nigeria and Tanzania represents 57.4 percent, 60.7 percent, 70.8 percent respectively (see the above table).

Similarly, the mobile broadband service is also more expensive in comparison to many African countries. In 2012, ITU had collected a price data from 117 countries in prepaid handset-based prices plan (i.e. prepaid mobile-broadband access using a handset) and from 126 countries in postpaid computer-based prices plan (i.e. postpaid mobile broadband access using a computer).

According to the result, in Ethiopia, the price of mobile-broadband prices as a percentage of GNI per capita was more expensive in both pricing plans (prepaid handset-based prices and postpaid computer-based prices) in comparison with Kenya, Nigeria (prepaid handset-based prices is not available), Tanzania, African and world average except the Tanzanian postpaid computer-based price. The prepaid handset-based price plan of Ethiopia represents 97.8 percent of the average GNI per capita which is 5 times more expensive to Kenyan and world average as well as two times to Tanzanian and African average. Similarly, the postpaid computer-based price plan of Ethiopia is more expense to Kenya and Nigeria as well as African and world average. It represents 63 percent of the average GNI per capita. Thus, it is three times more expensive to Kenyan and five times to the world average. It is also more expensive to Nigerian and African average. However, the postpaid computer-based price plan of Ethiopia is two times cheaper than Tanzanian. Moreover, the international tariff is also high as compared to the domestic mobile cellular and fixed-telephone tariffs. Adam, in Ethiopia ICT Sector Performance Review 2009/10, found that the Ethiopian international tariff is excessive and high (Adam, 2010).

In general, the Ethiopian voice tariffs (excluding broadband and international call services) is one of the cheapest in Africa and the incumbent delivers the services at lower price in comparison with many African countries. However, when the price of the service is measured in consideration of the NGI per capita of the country, it is less affordable and sets at medium level in Africa. This could be attributed with the low level of living standards of the people. In other words, since development/income levels and the affordability of ICT services have strong link (ITU, 2012), the service is not affordable to the average population. Moreover, the incumbent has not revised the tariffs of voice telecommunication services, downwardly in recent years. In mobile domestic calls, the last tariff revision (downward) was made during the period of partial privatization of the incumbent. The fixed-line tariffs have not revised quite a long period of time. As far as the international call tariff is concerned, the incumbent sets different charges based on geographic regions (e.g. Africa, America, Asia, etc) before it revised in 2003. After a downward tariff revision, international call costs the same value regardless of geographical differences excluding Djibouti. However, the incumbent did not downwardly revise it since then (Interviewees, 2014). Therefore, though the government (incumbent) sets pro-poor and pro-rural pricing policy in telecommunication services, it did not revise so that the service can be affordable to majority of the society who are still outside the services. The absence of tariff

revision could be attributed with monopoly market structure of the sector. Since the market is closed for private operators in provision of telecommunication services no price competition in acquisition of additional customers. All customers have no choice to subscribe to another operator in their preferences of certain criteria (price, quality etc.). The customers have no power to influence the price of the incumbent in such market structure with absence of alternative service providers.

The monopoly structure in the communication sector had also a harmful effect on the revenue of the incumbent. Adam found that, the presences of excessive pricing (broadband and international call), inefficiency, absence of choice and poor quality of services had negatively affected the revenue of the incumbent. Annually, the incumbent losses 30 percent of its revenue as a result of bad quality of telecommunication services provision. Moreover, as the experience of Kenyan and other African countries that liberalized the telecom sector shows that the Ethiopian government loses at least US$0.5 billion tax revenues per year (Adam, 2010).

Still, the current contribution of the communication sector to GDP in Ethiopia is very low as compared to many African countries. For example, in 2013 financial year, the share of communication sector to GDP was only 2 percent in contrast to 4 percent average in East Africa region (U.S. Commercial Services, 2013).

However, the contribution of telecommunication sector to GDP in liberalized market is significant. For example, during the same year, the contribution of Nigerian telecommunication sector to GDP was 8.35 percent (NCC, 2014). The CCK and TCRA have not publicized the contribution of the sector to Kenyan and Tanzanian GDP while this study is conducting. But it is possible to predict that the sector can have considerable contribution for their GDP since the sector is liberalized as the case in Nigeria. Therefore, the monopoly market structure in Ethiopian telecommunication sector had negatively affected not only the accessibility and affordability of services but it also badly affected the revenue of the incumbent.

3.2.8.3 The Comparative Analysis of Ethiopian Telecommunication Policy and Regulatory Framework with Kenyan, Nigerian and Tanzanian

Though there is improvement, particularly in mobile penetration, Ethiopia lags behind Kenyan, Nigerian and Tanzania in terms of the telecommunication services penetration. While Kenyan and Tanzania have reached almost 60 percent in mobile penetration, in Ethiopia, it is still below 25 percent (see the penetration section for each country). According to ITU annual report, the IDI rank of Kenya and Nigeria was above 123rd in 2013. During the same period, Tanzanian had ranked 142th and it is still in a better position in comparison to Ethiopian rank (ITU, 2013).

Here, the most important issue that takes once attention may not the figurative differences between Ethiopia and the rest of the world, but the factor responsible for such communication gap may be the most important issue that requires detail debate. This section comparatively analyzes the Ethiopian telecommunication regulatory and policy practices environment with Kenyan, Nigerian and Tanzanian with special emphasis to the role of the respective national ICT/telecommunication policy in introducing reform to the sector and telecommunication regulatory authority to implement these policies in favor of consumer interest and sector growth.

3.2.8.3.1 National ICT/Telecommunication Policy

The Ethiopian national ICT policy and strategy did not include the issues of telecommunication services regulation as well as privatization of the incumbent and liberalization of the market. Moreover, the country has not harmonized and comprehensive national telecommunication policy. The sector is governed by a separate and discrete proclamations, regulations and directives. Various issues of the telecommunication sector including its establishments, licensing, type approval, technical specifications, quality standards, tariff, etc, are guided in accordance with these proclamations, regulations and directives. However, the absence of single and comprehensive national telecommunication policy and national ICT policy that didn't provide the general direction for the regulation of the sector can affect the effectiveness of the sector. Because these separated and discrete proclamations, regulations and directives may not address the issue of technology and service convergence and may be an obstacle for gradual introduction of competition and privatization to the sector. In addition, all these separated proclamations, regulations and directives that deal with various issues of the telecommunication sector can be easily accessible for people and other stalk holders if prepared in a harmonized way as a single document (see 3.2.7).

However, the situation is totally different in Kenya, Nigeria and Tanzania. Nigeria had designed the national telecommunication policy, with objective of sector modernization and rapid expansion of the network services. The policy encourages further liberalization of the sector and the involvement of private investment. Additionally, the ownership controlling of the monopoly national operator and service providers had been transferred to private investors since the Nigerian government firmly believes that the private investors are key players for the future development of telecommunication sector. Similarly, the Tanzania government had designed a single and comprehensive national telecommunication policy with the general objective of providing the telecommunication services in a liberalized and competitive manner. Like the Nigerian national telecommunication policy, the Tanzanian national telecommunication policy encourages the gradual divestment of the government's share holder in dominant operator so as to diversify customers' choice and attract private investments. The Kenyan national ICT policy also had taken similar measures in the liberalization of the telecommunication sector (see the policy framework section of each country).

3.2.8.3.2 Autonomy of the Sector Regulatory Authority

The Ethiopian government has established ETA as an independent authority to regulate the ETC in accordance with proclamation. Since then, it has exercised various regulatory functions in the telecommunication sector including quality services monitoring, licensing, define technical standards, type approval, etc. However, after thirteen years of its founding, the government abolished ETA as a result of the reasons explained in the previous sections. Instead, the government established the MoCIT by taking the communication part from the former ministry of transport and communications, regulatory duties and responsibilities of ETA and the implementation role in government agencies, education and private sector of the EICTDA (Ethiopia ICT Development Agency) with rational of bringing the communications-related services into one. The government has given the powers and responsibilities of these agencies with respect to telecommunication sector to the MoCIT. As a result, currently, the country has no independent regulatory authority for the sector. However, the presence of independent regulatory authority can effectively regulate the telecommunication services without undue political and bureaucratic interference so long as it is established for the purpose. If an independent regulatory authority evaluate the performance of the incumbent against certain standards and, accordingly, takes appropriate measure, it can improve its effectiveness. However, instead of established such

an independent regulatory authority, the government (MoCIT) created the communication and information technology standardization and regulation directorate responsible for the regulatory functions of telecommunication, information technology and postal services. Consequently, the MoCIT is the regulatory authority of the Ethiopian telecommunication services. As explained in the previous sections, the absence of such regulatory authority paved the way for government to excessively interfere in the affairs of the Ethio-telecom (Interviewees, 2014; FDRE, 1996 and FDRE, 2010).

In contrast, Kenya, Nigeria and Tanzania have established CCK, NCC and TCRA, respectively, as an independent agency to regulate the telecommunication and related services. Structurally, they are separated from government and established with full autonomy and regulating the telecommunication services in favor of consumers' and operators' interest and encourage healthy competition within the sector. Since they are not part of the line minister, they are not excessively influenced by the respective stalk holders (government, operators, etc). Their structural independence had helped them to discharge their functions properly in terms of promoting liberalization and competition; regulating prices, keeping consumer interest etc (see the regulatory framework section and outcomes of the reform for each country).

Moreover, the regulators are not depending on the government appropriation to fund their operational activities rather they fully generate from various sources such as license fees, financial income, numbering fees, percentage of operator revenue (turnover), etc. While the CCK generates the total budget from various sources by its own, NCC and TCRA generate 95.48% and 99.18% respectively (see table 3.5 below).

Table 3.5: The Source of Budget of CCK, NCC & TCRA and level of their Independence

Regulator	Source of the regulator's budget and percentage of each source	Entity that approved regulator's budget	Level of independent in decision making
CCK	1. License fees (14%) 2. Spectrum fees(84% 3. Financial income (investment/deposit (2%)	Ministry of finance in consultation with the ministry of information and communication	Fully autonomous
	Total = 100%		
NCC	1. Award/auction of mobile license (1.14%) 2. License fees (1.14%) 3. Numbering fees (5.71%) 4. Spectrum fees (21.47%) 5. Regulatory fees (30.3%) 6. Contributions from regulated telecom operators based on turnover (30.19 %) 7. Percentage of operator revenue (turnover) (2.5%) 8. Financial income (e.g. Investment/Deposit), percentage: (3.03%)	National Assembly	Fully autonomous
	Total = 95.48%		
TCRA	1. License fees (2.37%) 2. Numbering fees (4.25%) 3. Spectrum fees (36.54%) 4. Fines/penalties (0.05%) 5. Contributions from regulated telecom operators based on turnover (52.39 %) 6. Percentage of operator revenue (turnover) (1.5%) 7. Applications forms and Type approval fees (2.08%)	Regulator's Board	Fully autonomous
	Total = 99.18%		

Source: Adapted from ITU (2012)

3.2.8.3.3 Execution of Core Regulatory Functions

The difference between Ethiopia on one-side and Kenya, Nigeria and Tanzania on the other side is not limited only to the regulatory and policy environment but it also extends to the discharging of regulatory functions as a result of policy and regulatory framework differences. As it is discussed in the previous sections, the Kenyan, Nigerian and Tanzanian policy and regulatory framework provides adequate autonomy and empowered the respective regulatory authority to implement their duties and responsibilities properly.

However, as it is described above, the case is totally different in Ethiopia whereby the regulatory function is performed by the government. Therefore, there is a visible difference in discharging the core regulatory functions i.e. ensuring fair market entry and competition, promoting

investment and universal access and protecting customers (see section 2.4**)** between MoCIT and the autonomous regulatory authorities of Kenyan, Nigerian and Tanzanian.

Since the Ethiopian government fully monopolized the market, it is not the right time to talk about the role of regulator in ensuring fair market entry and competition. Moreover, the incumbent initiates and performs the investments and universal access. Thus, it is incomparable with two core regulatory functions i.e. ensuring fair market entry and competition as well as promoting investments and universal access with CCK, NCC and TCRA. As far as the functions of regulators in protecting customers interest is concerned, as it is discussed in the previous sections, currently there is no suitable legal environment to protect the customers' interest from unjust practices of incumbent such as availability and quality of services. The country has no customer charter and service level agreement in quality standards where by the incumbent is accountable against the given standards. This could be attributed with limited capacity of the incumbent and absence of independent regulatory authority within the country.

However, the former regulatory authority i.e. ETA had exercised its power to monitor the quality of services in mobile, fixed-line and internet segments in accordance with certain parameters and standards. In mobile service provision, it had designed eight parameters with corresponding standards to evaluate the performance of ETC accordingly. Some of the parameters include call setup success rate, call setup time, dropped call rate, etc. Based on these parameters, ETA had measured the performance of ETC (the current Ethio-telecom) against its standards. For example, as per the 'setup success rate' parameter, the ETA's standard was above 98 percent. This means that the effectiveness of mobile network to successfully set up the calls should be 98 percent and above and the ETC had achieved 96.68 percent. In accordance with the 'call setup time' parameter, 95 percent national calls should be established within less than 25 seconds and 95 percent international calls should be established within less than 35 seconds. However, the performance of the ETC as per these standards has not been reported. With regard to dropped call rate parameter, the ETA standard was less than 2 percent and the performance of the ETC was 23 percent. Finally, after assessed the performance of the ETC in mobile service provision in accordance with the given parameters and standards, the Agency had recommended the Corporation to improve its performance in certain areas particularly in 'dropped call rate' since the quality of service performed was, by far, below the standard set. As far as the fixed-line service is concerned, the ETA had evaluated the performance of ETC by designing nine

parameters (some parameters have sub-parameters) with corresponding standards. Similarly, in internet/data services, it set ten parameters in dialup internet access and broadband internet access with parallel standards (ETA, 2002 EC). This implies that ETA had a major role to keep the customers' interests by ensuring availability and quality of services. It measured the quality of services the incumbent provides against the given standards and parameters. Based on the result, the Agency pressured the incumbent to improve its performance. Therefore, the presence of an independent regulator can play a major role to keep the interests of the customer. However, after the closure of the ETA and establishment of MoCIT, the situation in monitoring the quality of telecommunication services has been totally changed. Since its establishment, the MoCIT has not monitored the quality of services that the incumbent provides because of the reasons discussed in the previous sections even if these parameters and standards still exist.

However, the telecommunication regulatory authorities of Kenya, Nigeria and Tanzania are more effective in discharging their core regulatory functions. Since CCK, NCC and TCRA have empowered with full autonomy, they are effectively implementing their core regulatory functions including fair market entry and competition as well as promoting investment and universal access (see policy and regulatory framework section for each country). Moreover, they are effective in protecting the customers' interest through regular monitoring of quality of telecommunication services. However, this study included only the most rest available data of regulators in monitoring compliance of mobile operators in accordance with the parameters of quality of services and standards set by respective regulators. The CCK, in its annual report of 2012/13 financial year, had expressed as it regularly assess out the quality of services performance of mobile operators based on selected parameters with a view to ensure compliance levels in line with targets. During the period of 2012/13 – 2014/15, the CCK has set eight parameters with parallel targets to assess the quality of services (completed calls, call drop rate, call block rate, call set-up success rate , call set up time handover success rate; speech quality and received signal level). Based on these parameters, the four Kenyan mobile operators have different achievement in 2012/2013 financial year. Among the eight parameters, all operators have compliant with quality of services targets in four parameters: handover success rate, dropped calls, call set-up success rate and received signal level. However, none of the four operators have achieved the targets of call set-up success rate and completed calls parameter (see table 3.6 below).

Table 3.6: Kenyan Mobile operators' overall Compliance with Quality of Service Parameters and standards * (2012/13)

Operator	Target	Safaricom limited	Essar Telecom Kenya Limited(YU)	Airtel networks Kenya Limited	Telkom Kenya limited/orange
Handover success rate	90%	98	97	95	97
Received Signal Level	Outdoor-105DBm	-75	-80	-83	-74
Call set up success rate	95%	89	86	93	92
Set-up Time	<13.5sec	9.2	9.26	7.21	8.09
Completed Calls	95%	87	91	91	91
Blocked Calls	<5%	11	14	7	8
Dropped Calls	<2%	1.9	1.8	1.6	1.6

Source**:** Adapted from CCK (2013)

***** The speech quality parameter is excluded since the report of CCK lacks clarity

This implies that, currently, the Kenyan telecommunication regulatory authority, i.e. CCK is playing a major role to improve the quality of services in telecommunication sector by designing Key Performance Indicators (KPIs) or parameters with appropriate standards in the provision of efficient services to the people. Based on the result, the CCK had graded the operators as compliance and non-compliance against the standards set. It also selected three parameters (call block rate, completed calls and call set up success rate) in which the mobile network operators achieved below the standards so as to give more focus in the next financial year (2014/15). The CCK has expressed its commitment as follows:

> *The KPIs that have not been met by any of the operators in the current assessment period included call block rate, completed calls and call set up success rate. The Commission will continue to engage the operators with a view to ensuring quality services are provided to the consumer. In addition, we are working on a number of regulatory measures to improve mobile cellular quality of services and it is hoped this will be reflected in the next report (CCK, 2013).*

In the same way, NCC is regularly assessed the quality of services in the mobile network operators to provide quality services to the people. It has adopted four major parameters in monitoring the compliance of mobile network operators to quality of services against the line standards. These are: call set-up success rate; call drop rate, traffic channel and stand alone dedicated control channel. Based on these parameters, the NCC had measured the performance GSM mobile operators during the first quarter 2013 financial year and all operators had compliance to the standards (see table 3.7 below).

Table 3.7: Nigerian GSM Operators Key Performance Indicators (March, 2013)

Operator	Call Set-Up Success Rate	TCH	Call Drop Rate	SDCCH
MTN	96.45	0.57	1.54	0.45
Airtel	97.73	0.35	0.77	0.19
Globacom	97.73	0.44	1.79	0.69
Etisalat	98.72	0.11	1.25	0.12
Target	≥ 95.50	≤ 1.80	≤ 1.90	≤ 1.00

Source: NCC (2013)

Similarly, the Tanzanian government had designed certain parameters with parallel standards in which the mobile operators are measured (see table 3.9 below).

Table 3.8: Some Quality of Service Standards for Tanzanian Mobile Telephone Services

No	Parameters	Target Values
1	Network availability	> 99 percent (%)
2	Call Set-up Time	mobile to fixed: 5.5 seconds mobile to mobile: 8.5seconds
3	Blocked Call Rate	SDCCH congestion: < 0.5 percent (%) TCH congestion: < 2 percent
4	Dropped Call Ratio	< 3 percent (%)
5	Customer care services	Call centre answer success rate; ≥ 98 percent (%) Customer care line accessible through other networks; ≥ 1

Source**:** Adapted from URT (2011)

Table 3.9: Summary of Policy and Regulatory Frameworks Comparative Analysis

I. Policy and Regulatory Frameworks	Kenya	Nigeria	Tanzania	Ethiopia
Independent regulatory authority	Yes	Yes	Yes	No
Converged licensing framework	Yes	Yes	Yes	No
National telecommunication policy	N.A.	Yes	Yes	No
Regulator autonomous in decision making	Yes	Yes	Yes	----
Universal access/service fund	Yes	Yes	Yes	No
Policy encourages introduction of reform elements	Yes	Yes	Yes	No
II. Executive Body for Regulatory Functions				
Entity in charge of service quality monitoring	CCK	NCC	TCRA	Sector Ministry
Entity in charge of price regulation	CCK	NCC	TCRA	Sector Ministry
Entity in charge of licensing	CCK	NCC	TCRA	Sector Ministry
Enforcement of quality of service obligations	CCK	NCC	----	Sector Ministry
Quality of service standards setting	CCK	NCC	TCRA	Sector Ministry
Entity in charge of Internet content	----	NCC	----	Sector Ministry
Entity in charge of technical standards setting	CCK	NCC	TCRA	Sector Ministry
Entity in charge of numbering	CCK	NCC	TCRA	Sector Ministry
Entity in charge of type approval	CCK	NCC	TCRA	Sector Ministry
Entity in charge of universal service/access	CCK	NCC	TCRA	Sector Ministry

Source**:** Adapted from FDRE (2009), FDRE (2010), ITU (2012), Materu- Behitsa and D.Diyamett (2010), URT (2003), URT/MoCT (1997), FRoN/MoC (2000), FRoN (2003), FRoN/MoCT (2012), RoK (1998), RoK (2006), CCK (2008), CCK (2009) and CCK (2010)

Generally, as it is explained in the previous sections, though the telecommunication reform in Kenya, Nigeria and Tanzania had some challenges, particularly market imbalances among mobile operators as well as infrastructure share between mobile and fixed-line operators, it had brought positive changes in terms of increasing penetration and reduction cost of service as a result of competition among operators. The presence of multiple operators within the sector had not only improved the accessibility and affordability of services but also created opportunity for customers to have diverse choice of services. Therefore, countries with monopoly telecommunication market structure (like Ethiopia) can learn the following lessons from Kenya, Nigeria and Tanzania to improve the provision of telecommunication services.

I. Competitive Policy and Regulatory Framework

Kenya, Nigerian and Tanzania have a single and comprehensive national ICT policy which guides the operation and provision of the communication services to their people. The policy clearly allows the reform within the ICT and telecommunication sector in particular and opened the sector for private investment. Particularly, Nigeria and Tanzania had designed a national telecommunication policy which promotes the reform of the sector through privatization, liberalization (competition) and establishment of an independent regulatory authority to regulate the services. In the same way, the Kenyan national ICT policy describes, in detail, the regulation of the telecommunication sector. More than 22 percent (RoK/MoIC, 2006) of the document (national ICT policy) describes the reform of the sector and various other issues including equity participation, telecommunication liberalization, market structure, facility sharing, research and development to promote local industrial growth and hasten technology transfer, etc. Moreover, the regulatory environments of all countries facilitate the entry of multiple operators and encourage the competitive provision of services. To these end, each country's regulatory authority have introduced CLF, instead of the old licensing framework (technology and service-specific) that allow operators to provide any and all types of services using any type of technology as long as they fulfill the necessary requirements to offer services (see countries' policy and regulatory framework).

II. Establishment of Independent Regulatory Authority

Kenya, Nigeria and Tanzania have established CCK, NCC and TCRA, respectively, as independent agency to regulate the telecommunication and related services. Structurally, they are separated from government and established as an autonomous regulatory body and facilitating

healthy competition within the sector. In other words, since the regulators are not part of the line ministry, they are not excessively influenced by the respective stakeholders (government, operators, etc). Their structural independence had helped them to discharge their function properly in terms of promoting liberalization and competition, reduction of prices, keeping consumer interest etc (see countries' regulatory framework). Moreover, the sources of fund are not fully depending on the government. While CCK is fully generating the fund, NCC and TCRA generating 95.48 percent and 99.18 percent from different sources including, license fees, spectrum fees, percentage of operator revenue (turnover), contributions from regulated telecom operators based on turnover, etc. (see table 3.5).

III. Competitive Provision of Telecommunication Services

The competitive provision of telecommunication services is evident in Kenya, Nigeria and Tanzania. The market of mobile, fixed-line and internet segment is liberalized and opened for competition and multiple players are engaging in the sector. In Kenyan mobile sector, four operators are providing the service in competitive manner. In its internet and fixed-line segment at least fourteen operators are involving in the provision of services. The Nigerian market is also opened and multiple operators are evolving within the sector. For example, nine operators are providing the mobile services and, in fixed/fixed wireless and internet segment, at least, eighteen and seven operators respectively are participating within the sector. Similarly, in Tanzania telecommunication sector, various private sectors are participating in provision of services. Its mobile and internet segment had at least six operators each and the fixed-line segment also had two operators. This implies that multiple operators are providing the services which results to increase the level of penetration and reduce the cost of services usage as explained in the previous sections (see market players for each country).

IV. Consumer Protection

Since all countries have independent regulatory authority, the complaints relating with various issues such as quality of services: delay, failure and terminations of service; unauthorized charges, etc have been properly managed through appropriate mechanisms. The operators cannot exercise unjust practices that may affect the customers' interest since the independent regulatory authorities are mediating between consumers and suppliers. The operators are accountable to the services they provide against the quality services parameters and standards. With the aim of enhancing complaint resolution and response to enquiries the CCK and TCRA, for example,

have designed and uploaded complaints and enquiries forms in their website to ease for consumers for submitting their complaints and providing feedback (CCK, 2010 and TCRA, 2011).

V. Restricted Government's Role in the Sector

As it is clearly described in the previous discussions, the governments of Kenya, Nigeria and Tanzania have provided various functions such as regulatory functions, operation functions and service provision functions to regulators and private operators. Since they are fully autonomous, the governments left the regulatory functions for CCK, NCC and TCRA. In other words, though the governments are responsible for the wellbeing of their citizens, the regulators are provided the responsibilities of regulating the communication services with ultimate objective of maximizing the interest of customers. The presence of such regulatory authority had promoted the entry of multiple private sectors to market to provide the telecommunication services. Thus, the function of operation and service provision is given for private operators. The measures of Kenyan, Nigerian and Tanzanian government has restricted their role to key functions such as policy making.

VI. Converged Licensing Framework

In order to ease the market entry for private investors to the telecommunication and other related sectors, the CCK, NCC and TRCA have introduced the converged licensing framework. ULF, UASLs and CLF are the terms of the converged licensing framework introduced in Kenya, Nigeria and Tanzania respectively. After the introduction of these converged licensing frameworks, the service providers have been allowed to offer any type of services by using any type of technology i.e. service and technology-neutral given that they fulfill the necessary requirements in provision of services. For example, all the CCK, NCC and TCRA have allowed their mobile operators to engage in internet segment and, currently the mobile operators become dominant internet service providers in all countries with no additional license requirement to provide internet services (see countries' regulatory framework).

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CHAPTER FOUR

Conclusions and Recommendations

4.1 Conclusions

Though the growing trend of telecommunication services penetration particularly, in mobile sector is evident in Ethiopia, it is not excitement. Ethiopia sets, by far, below the African and global average in penetration of many telecommunication segments including mobile services. Many people of the country are still outside from various telecommunication services (even from basic services). The level of penetration in many telecommunication services is also very low in comparison to individual countries like Kenya, Nigeria and Tanzania. The major factor for this difference could not be the level of economic development since Ethiopia has a comparable economic development level with Kenyan, Tanzanian and other African countries.

However, this study found that the most important reason for such lower level of penetration and other challenges in telecommunication sectors is the country's policy and regulatory framework that allow national monopoly of the sector. Besides, the limited citizens' capacity and low limited telecommunication infrastructure also play their negative role for such low level of penetration.

In Kenya, Nigeria and Tanzania, the policy framework encourages the reform of the sector in terms of privatizing the incumbent, liberalizing and introducing competition as well as establishing an independent regulatory authority. In all cases, they encourage the involvement of private investors within the telecommunication sector to provide services in competitive manner. Any private operator can involve within the sector so long as it fulfills the necessary requirements in operation and provision of telecommunication facilities and services. They all have multiple operators in mobile, fixed-line and internet sub-sectors which benefit their respective customers not only in improving the access of services with diverse choices of customers but it also improve the cost of usage of these services. They all have established independent regulatory authorities with full autonomy to foster competition and protect interests of customer and new operators from unjust practice of operators such as excess tariffs, availability and quality of services as well as proper share of scarce resources among operators. In order to ease the market entry and promote competition, the regulators, in all cases, have introduced CLF in which operators are allowed to provide service to the people with free of their

preferences. In contrast to old licensing framework that limited operators to use specific technology and provide specific services, the CLF (new licensing framework) allowed the Kenyan, Nigerian and Tanzanian operators to provide any type of services by using any kind of technology i.e. service and technology neutral to extent that it is cost preferable and keeps the interests of customers. Since the ICT/telecommunication policy had endowed adequate authority to their respective regulatory authority, the regulators are effectively exercising their power in areas of protecting the interest of customers such as monitoring quality of services, regulating tariffs as well as management and resolutions of customer compliant and enquire.

However, in Ethiopia, the existing policy and regulatory framework discourages the involvement of private operators in provision of mobile, fixed-line, internet and other telecommunication services. The national ICT policy and various discrete proclamations, regulations and directions that govern the telecommunication services allowed the Ethio-telecom (the government-owned incumbent) to be a single provider of telecommunication services to more than 80 million of Ethiopian population and no room for private operators to participate in provision of mobile, fixed-line and internet services. The absence of competition has negatively affected not only the interests of customers to have diverse choices and improve penetration of services to underserved section of society but it also affected the incumbent of the revenue as a result of poor quality. The level of telecommunication service penetration (particularly, in mobile and internet services) is very low in comparison to Kenya, Nigeria and Tanzania that have liberalized telecommunication sector as well as with African and global average. Moreover, the incumbent loss huge revenue due to its bad quality services provision in absence of competition. The percentage contribution of communication sector to Ethiopian GDP is as low as 2 percent which is four times less than the contribution of Nigerian telecommunication sector to its GDP.

All these problems become more aggravated due to the absence of an independent regulatory authority within the sector. In contradiction to many countries of the world including Kenya, Nigeria and Tanzania, Ethiopia has no independent regulatory authority that regulate telecommunication sector since 2010. There is no clear demarcation point between the functions of policy-making and regulations of telecommunication services. Currently, the government i.e. MoCIT is performing the regulatory and policy-making functions together after the abolition of the independent regulatory authority-ETA. The direct regulation power of government in the telecommunication sector opened an opportunity for undue political and bureaucratic

interferences. The absence of independent regulatory authority within the sector has resulted not to implement the various regulatory functions. Currently, the country has no adequate mechanisms in which the customer complaints and enquiries are managed. This could be attributed with limited capacity of the incumbent to solve repeated network failure, delays and terminations as well as absence of customer charters and service level agreement to quality of services in which the incumbent is accountable to the services provided against standards.

The regulator is not monitoring the quality of services that the Ethio-telecom provides since its establishment because of the priority of roll-out service target over ensuring the quality of services. Even if the quality parameters and standards that the former regulatory authority applied in measuring the performance of the ETC still exist, the current regulator i.e. MoCIT does not apply to evaluate the quality of services of the incumbent (Ethio-telecom) in mobile, internet and fixed-line segments. The regulator has not introduced CLF in liberalized telecommunication services such as downstream services (call centers, public pay-phones, cyber cafés, etc.), maintenance of cables (cable work) and importation of equipments. The current licensing framework does not allow a licensee to provide multiple services with single license as the case in Kenya, Nigeria and Tanzania.

4.2 Recommendations

The Ethio-telecom cannot provide world-class standard services and equally compete with other international operators with current monopoly market structure. Therefore, in order to improve the competency and performance of the sector, the researcher has forwarded the following recommendations for concerned bodies based on findings.

- Firstly, it is advisable for government and policy makers to consider the global reality in trends of telecommunication reform. Since Ethiopia cannot be an island rather parts and parcel of the globe, it is recommended to review the policy framework of the sector to the extent that it can attract private investment.
- Secondly, to embrace the complex communication issues, it is better for the government design single, comprehensive and harmonized national telecommunication policy and replaces the current discrete proclamations, regulations and directives. It means that since the government designed these proclamations and regulations in the context of monopoly market structure, they can't effectively respond to global changes that occur within the telecommunication sector as a result of continuous reform process. Reviewing of the country's policy and regulatory framework with parallel designing of single national telecommunication policy is important not only for easily accessible of the document to the people and other interested bodies but it is also important to include the global facts in technological and market dynamics due to telecommunication reform trends.
- Thirdly, in order to reduce the undue interferences of the government in the affairs of the sector, it is advisable to separate the functions of policy-making and regulation of the telecommunication services. The government should refrain from directly regulating the telecommunication services and undue political and bureaucratic interferences within the sector. Instead, it should limit itself to key functions (such as policy making functions) and leave the regulation functions to concerned bodies as the case in Kenya, Nigeria and Tanzania. In other words, the country should create a clear boundary line between policy-making and regulation functions within the telecommunication sector. This can be done with establishment of an independent telecommunication regulatory authority for regulating the telecommunication services with analogous rules that limit the government's role to policy-making functions. The establishment of impartial, strong and autonomous regulatory authority that make decision in favor of customers' interest is an instrument to control undue

government's bureaucratic and political interferences that constrained the effectiveness of the sector. Moreover, it helps the government to relieve from the burden of regulatory functions and focus only on policy making function for the sector. However, the country can have an independent regulatory authority in the telecommunication sector with clear demarcation-line between regulation and policy functions provided that the government has a good will and ready to review the policy and the regulatory frameworks in accordance.

- Fourthly, in order to facilitate the roll-out services and improve the accessibility of services to underserved section of society, the researcher recommended that the country should, gradually, introduce competition and privatize the incumbent to private sectors. The private operators like France telecom can improve the quality of services and add value to the service. This, in turn, can increase the revenue of the incumbent. In addition to privatizing of the incumbent, the government should gradually introduce competition within the sector. If the telecommunication sector is liberalized and opened for competition, it attracts private operators that can provide innovative services. As the case in Kenya, Nigeria and Tanzania, the presence of multiple operators within the telecommunication sector can significantly improve the accessibility of services to underserved sections of society. In order to retain the existing customers and acquisition of new customers into their network, they also reduce the prices of the services. The Ethiopian people/customers can get diversified telecommunication services with different level of quality and price given that the market is liberalized and opened for multiple operators. The private operators are effective enough in attaining the roll-out services target to rural, costly and underserved part of the country if the government establishes appropriate incentive mechanisms such as universal access/service fund to compensate the expenditures that the operator incurs during the expansion process. Therefore, if the Ethiopian telecommunication sector is opened for competition, in addition to diversify the customers' choice; the service can reach to rural and underserved sections of society with fast speed than the incumbent can do with parallel improvement of the affordability of the service.

Fifthly, it is better for government to introduce converged licensing framework in liberalized telecommunication services such as cyber café, public pay-phones, tele-center etc in order to foster competition. This means that if the government allowed the licensees to offer various services under the umbrella of a single license, in contrast to issued a single license to offer

single service (service specific license), it reduce unnecessary procedures and ease the market entry for various operators. However, the implementation and effectiveness of privatization converged licensing framework and competition within the sector depends on establishment of strong, impartial and autonomous regulatory authority.

- Sixthly, the country should have proper mechanisms to protect the interests of customers from unfair practices of the incumbent such as availability and quality of services. Even though the ongoing expansion project is hoped to improve the daily delays, failures and terminations of network services, the regulator should properly manage the customer enquiries including complaints registration. The complain resolution become more simple if the regulator opened its website and prepare a complaint form so that customers can submit their compliant online. The regulator should measure the current performance of the incumbent against certain parameters and standards of quality of services. The country should implement customer service charter and service level agreement that binds the incumbent to certain quality of services standards. In accordance with these standards, the incumbent should be accountable and the regulator should take corrective measure to improve the quality of services. However, the protection of customers' interest becomes effective if the government establish an independent regulatory authority that makes decision on behalf of the interests of customers. Generally, the review of the country's telecommunication policy and regulatory framework in accordance with the global reality, establishment of strong and independent regulatory authority and introduction of competition as well as privatization of the incumbent cannot be effective without the political will.
- Thus, the last recommendation is that the government should have political willingness and commitment to improve the effectiveness of the sector, regardless of its political ideology, and should introduce reform elements (privatizing the incumbent, liberalizing the market and establishing an independent regulatory authority) in its telecommunication sector in accordance with the reality of the country. If so, there will not be anything that Ethiopia cannot equally compete in provision of quality telecommunication services with Kenya, Nigeria, Tanzania and other African countries.

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Appendix-I

Addis Ababa University
College of Business and Economics
Department of public Administration &Development Management

Interview Questions to Chief Executive Officer of Ethio-telecom and ICT Standardization and Regulation Directorate Director ***on Adoption of Kenyan, Nigerian and Tanzanian Best Practices in Communication services provision to Liberalize Telecommunication Sector in Ethiopia***

I am master student in Addis Ababa University; College of Business and Economics; Department of Public Administration and Development Management; Specialization in Development Management

These questions are prepared to conduct study on the aforementioned topic so that Ethiopia can derive lessons in telecommunication services provision to improve the performance of Ethio-telecom. The purpose of the study is to fulfill the master degree in development management. Thus, the information you provide is fully utilized for the academic purpose only. The outcome of the study helps the incumbent to know its major challenges in provision of quality and affordable telecommunication services to underserved section of the society. At the same time, it presents best experiences of Kenya, Nigeria and Tanzania so that government can introduce these experiences in accordance with the reality of the country. Your co-operation is very important for the successful accomplishment of the study.

Thank you, in advance, for your collaboration!

II. Policy and Regulatory Issues

1. Why the Ethiopian government abolished the former independent regulatory authority (ETA)?

   _____
   _____.
2. Who regulate the telecommunication services currently? How the sector becomes effective without establishing an independent regulator?

   _____
   _____.
3. How the customers and investors trust the legitimacy of regulatory environment of the telecommunication sector without an independent regulatory authority?

   _____
   _____.

4. As researchers proved (e.g. Adam), the weakness of the regulator is mostly cited as the major constraint for liberalization of the Ethiopian telecommunication sector. So, what is the future plan of the government to establish strong and independent regulatory agency that can make decision in favor of the consumer interest?

   _____
   _____.

5. What mechanisms, if there is, the Ethio-telecom applies to settle the customer disputes with regard to the telecommunication services?

   _____
   _____.

6. To what extent the Ethio-telecom is responsible for the services provide in compliance of the standards?

   _____
   _____.

7. How much the legal and regulatory environments protect the customers' interest in the areas of ensuring the availability and quality of services and from other unjust practices of the operators?

   _____
   _____

8. What quality of service benchmarks in the telecommunication services exist in the Ethio-telecom?

   _____
   _____.

9. Does the sector have customers charter and service level agreement?

   _____
   _____.

10. What instruments that the Ethio-telecom uses to expand the telecommunication services to rural and underserved areas since the country does not have a universal access fund?

    _____
    _____.

11. How much these instruments are effective enough to achieve its objective of connecting the rural villages in communication infrastructure?

    _____
    _____.

12. What are the future plans of the Ethio-telecom to manage the consumer complaint including complaint registration and resolution procedures?

    _____
    _____.

II. Privatization and Liberalization Issues

1. Since February 2010, the Ethio-telecom has awarded a two-year management contract to France telecom. What improvements in terms of telecommunication service penetration and other change have gained?

   _____
   _____.

2. If there was improvement why the contract didn't postponed for further years?

   _____
   _____.

3. What plan a government had in the future with this regard?

   _____
   _____.

4. Reform of telecommunication sector is a global trend and many countries of the world have introduced reform in the telecommunication ICT sector at large. Ethiopia is among few countries that fully monopolize the communication-related services.
   So, why Ethiopian government is hesitating to introduce reform (competition, privatization...) within the sector since it is the reality of the world?

   _____
   _____.

5. What benefits that Ethiopia could lose if the sector is liberalized and opened for competition to potential operators as it has done in other public enterprises (hotels, state farms, etc…)?

   _____
   _____.

6. Studies had proved that (e.g. Adam) the monopoly provision of all communication-related services has made the Ethiopian telecommunication sector more inefficient and ineffective as its mandate more expands. What is the idea of the government with this regard?

   _____
   _____.

7. What the Ethiopian government learns from its Banking industry to liberalize the telecommunication sector even if the asset is in the hand of the government?

   _____
   _____.

8. What is the future plan of the government to privatizing and liberalizing the sector since Ethiopia is part of the globe?

   _____
   _____.

Appendix-II

Glossary

The following definitions are included so that the readers can easily understand the study report ***(taken from non-definitive references sources cited in ITU (2003))***

Affordability ---- everyone can afford services and no-one is disadvantaged by income level. Cost variations due to location, terrain or climate-which often dovetail with urban/rural factors-do not impact one's access to ICT services. This dimension presents unique challenge with regard to addressing network expansion.

Bandwidth ---- a range of frequencies that available to be occupied by signals. The higher the bandwidth the greater the information that can be transferred in a given time.

Basic Services ---- provision and carriage of voice telephony services though some definitions include telex and telegraph services.

Code Division Multiple Access (CDMA) ------ a 3G digital cellular standard based on latest technology.

Cellular ---- a mobile telephone service provided by a network of base station; each of which covers one geographic cell within the total cellular system area

Digital ---- representation of voice or other information using 1 or 0. Digital network allows for higher capacity, greater functionality and improved quality. eg CDMA, GSM, etc

Digital Network ---- a telecommunication network in which information is converted into a series of distinct electronic pulses and then transmitted to as a digital bistream

End-user ---- the individual or organization that originates or is the final receipts of information carried via a network (i.e. customer)

Global System Mobile Communication (GSM) ---- Digital mobile cellular standard

Fixed-line ---- a physical line connecting a subscribers and to the telephone exchange

Fixed-line network ---- basic telephone network comprising subscriber line, exchange and inter-exchange lines. Also called public switched telephone network

Frequency ---- the rate at which an electrical current alternates usually measured in Hertz (hz). It also refers a location on the radio-frequency spectrum such as 800, 900 or 1800 Mhz

Gate ways ---- any mechanism for providing access to another network. This mechanism may or may not include protocol conversion.

Incumbent ---- the major network provider in particular country; often a state-owned monopoly

Internet ---- the collection of interconnected networks that use the internet protocol

Internet protocol ---- a method by which data is sent from one computer to another, for instance on the internet

Internet Service Provider ---- a company that provide access to the internet. It provides end-users and other access to the internet. They a may also offer their own priority content and access to on line service e.g. e-mail

Protocol ---- a set of formal rules and specifications describing how transmit data specially across the network

Spectrum ---- the radio-frequency spectrum of hertzian waves used as a transmission medium for cellular radio, radio-paging, satellite communication, over-the-air broadcasting and other communication

Public Switched Telephone Network ---- the public telephone network that delivers fixed telephone service

Telecentres ---- Public call offices that are open to the local community and are equipped to provide services which may range from basic telephony to the latest information and communication technology.

Tele-density ---- number of main telephone lines

Third Generation (3G) mobile ---- a general term for the next generation of broadband digital mobile cellular systems which will have expanded broadband capabilities for mobile data applications

Voice over internet ---- the use of internet as a transmission medium for all or part of voice telephone call

Wireless local loop ---- a technique used a radio technology to provide the connection from the telephone exchange to the subscriber

Wireless ---- general term for mobile communication service which do not use fixed-line network for the direct access to the subs

Declaration

I, Belay Feleke, declare that this thesis is my own original work and has not been presented in any university for degree or other purposes. I dully acknowledged all materials referred for the study.

Declared by:

Name: Belay Feleke

Signature**:** _____

Date of Submission**:** _____

Confirmed by Advisor:

Name: Prof. CD Dash

Date: _____

Signature: _____

Place and Date of Submission: Department of Public Administration and Development Management, May, 2014