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**TELECOMMUNICATION IN ETHIOPIA**

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## **1. Introduction**

Globally, the development of telecommunication industry is one of the important indicators of social and economic development of a given country. In addition to this, the development of communication sector plays a vital role in overall development of all sectors related to social, political and economic affairs. This sector is very dynamic in its nature of innovation and dissemination. Hence, it needs proper regulation like other critical economic sectors.

Having this in mind, the Government of Ethiopia established The Ethiopian Telecommunication Agency by Proclamation No. 49/1996, as a regulatory body for Telecommunication Services. The Agency is institutionalized with the objectives of promoting the development of high quality, efficient, reliable and affordable telecommunication services in the country.

The Ethiopian Telecommunication Agency (ETA) started its operation by giving license in four areas of services, namely, Public Switched Telecommunication Network (PSTN), Cellular Mobile, Internet and Data communication services to Ethiopian Telecommunication Corporation (ETC), which was established by Council of Ministers regulation No 47/1999 as an incumbent state owned operator. Currently, ETC is providing all types of services (PSTN, cellular Mobile, Internet and data communication services) in all parts of the country.

ETC has 7.08 million subscribers, of which 1.2 Fixed, 5.9 mobile and 0.060 Internet. Mobile telephone and internet services are being rendered since 1996 and 1997 respectively. At present, Teledensity is 1.55% and 7.7% for fixed and Mobile respectively. The rate of penetration of telecom service of the country is among the lowest being compared with African countries and even among Sub-Saharan African countries.

The government of Ethiopia has aggressively been moving and implementing development strategies aimed at reducing the poverty prevailing in the country. In this line, telecommunication plays a key role in facilitating the poverty reduction and development strategy being implemented by the government. To this end, the government has designed strategies to expand telecommunication national network infrastructure, and other infrastructures (roads and power) as well and as a result to increase socio-economic development of the country in general and telecom penetration rate in particular.

ETA, being fully financed by the government, and is currently organized with a Director General and five Directorates namely, Licensing and Inspection, Standards and Type Approval, Legal and Consumers Affairs, Planning & Telecommunication Development and Support Service Directorates.

## **2 BACKGROUND**

Telecommunications service has begun in Ethiopia more than hundred years ago and used to be administered under the Ministry of Posts Telephone and Telegraph until 1952.

It was later separated from posts and became an autonomous entity under the Ministry by the enactment of Telecommunication Proclamation No. 131 of 1952. By this proclamation, a telecommunication entity, called "Ethiopian Telecommunication Board" which exclusively regulates and operates telecommunication services was established. Without affecting its functions, the name was later changed to Ethiopian Telecommunication Authority.

The Ethiopian Telecommunication Authority was working on an exclusive basis as an operator and regulator until the promulgation of proclamation No. 49/1996 (latter amended by proclamation No. 281/2002) that established a separate federal telecommunication regulatory entity called Ethiopian Telecommunication Agency (ETA). The government owned operator called the Ethiopian Telecommunication Corporation (ETC) is also established by Council of Ministers Regulation No. 10/1996. While ETA is responsible, *inter-alia*, to license telecommunication service operator(s), specify technical standards, type approval of equipment, license radio communication equipment and manage and authorize the use of frequencies, ETC is responsible to operate telecommunication services, to repair, assemble and manufacture telecommunications equipment and to render telecommunications training services. Both ETA and ETC are accountable to the Ministry of Transport and communication (MoTAC) which is responsible for policy issues.

The telecommunication industry in Ethiopia is currently fully owned by the government. The government owned operator, the Ethiopian Telecommunication Corporation (ETC), provides PSTN, Mobile telephone, Internet and data communication services. Currently, ETC has 7.08 million subscribers, of which 1.2 Fixed, 5.9 mobile and 0.060 Internet. Mobile telephone and internet services are being rendered since 1996 and 1997 respectively. Teledensity is 1.55%, 7.7% for fixed and Mobile respectively. The rate of penetration of telecom service of the country is among the lowest being compared with African countries and even among Sub-Saharan African countries.

ETA has started its operation in 1999 with the purpose of having a separate regulatory organ which is found to be necessary to make the telecommunication service more efficient and reliable. One of the duties and responsibilities of ETA is to license telecommunication service provider. Accordingly, it has issued license for ETC for four services, namely fixed telephone, mobile telephone, Internet and data communication services in July 2002. ETA has also commenced quality control activities and has started evaluating the operator's performance on the basis of the license agreement.

ETA has been setting and approving standards for telecommunication equipment. In addition, since its establishment ETA has been allocating frequency for spectrum users. As per the amended proclamation No. 281/2002, the Agency is issuing licenses for the private sector on telecommunication services such as resale, cabling, terminal equipment maintenance and exchange installation.

### **3. Institutional Arrangement**

As the historical development process of the communication industry, the sector demanded the importance of the separation of the telecom policy, regulation and the operation. Globally, the number of independent regulators increased from time to time, its number was 13 in 1990 and 112 in 2001 and so on. This approach was believed to improve sector performance. In this direction, the Ethiopian Government has taken the basic step in separating the three functions stated above. To this end, policy matters are left for government/Ministry of

Transport and Communication (MoTAC), regulation is given to Ethiopian Telecommunication Agency (ETA) and operation is given to Ethiopian Telecommunication Corporation (ETC). Both, the regulator and operator are accountable to the same body (Ministry of Transport and communication).

#### **4. Telecommunication Regulation**

Both economic theory and political practices recognize the need to regulate not only competition but also monopolies. It is important to note that monopoly in telecommunication is justified as being optimal for socio-political objectives, such as assuring universal access to the rural and remote areas to enhance national economic performance by effectively supporting important sectors such as education, investment and trade, etc.

The Ethiopian Telecommunication Agency (ETA) is institutionalized with the objectives of promoting the development of high quality, efficient, reliable and affordable telecommunication services in the country. The establishment of ETA is to institutionalize the implementation of government policies and directives. To this end, the following main Powers & Duties are given by the law to the ETA.

- To specify technical standards and procedures for the provision of telecommunication services;
- To ensure that telecommunication services conform to the specified standards of quality;
- To regulate tariffs relating to basic telecommunication services;
- To License and supervise operators of telecommunication services;
- To regulate types of telecommunication equipment which may be connected to a telecommunication system;
- To authorize and supervise the use of frequencies allotted to Ethiopia

Accordingly, it has issued license for ETC for four types of services, namely fixed line, mobile, Internet and data communication services in July 2002. ETA has also commenced quality control activities and has started evaluating the operator's performance on the basis of the license agreement. It has been allocating radio frequencies for frequency licensees and monitoring and evaluation of the use of frequencies as well. So far, the Agency has taken key regulatory measures to achieve policy objectives:-

- Introduction of license for the government operator to render four types of service, namely Fixed, Mobile, Internet and Data communication,
- Directives on radio regulation,
- VAS directives,
- Directives on licenses of Telecenter, Cabling, Maintenance, switching services, and,
- Rural Connectivity Project strategy

#### **4. Telecommunication Services Environment in Ethiopia**

Ethiopia is located in Eastern Africa. The country has a size of 1.1 million square kilometers with an estimated population of over 76 million. Ethiopia, as one of the largest and populous countries in Africa has the lowest telecom density. At present, the telecom density is 1.55% and 7.7% for fixed line and mobile, respectively. Telecommunication market in Ethiopia is still owned by the government. The state-owned public enterprise, Ethiopian

Telecommunications Corporation, is the sole telecommunications services provider in Ethiopia.

Although Ethiopia has been one of the countries in the world which has acquired telephone system few years after its invention, it has remained far behind other countries in telecommunication services penetration rate and development of required infrastructures. Cellular mobile was introduced as late as 1999. Yet, its geographical coverage as well as performance is not remarkable. On the other hand, the telecom industry is undergoing tremendous changes, and convergence of technology and services have put burden on the operator and the government to act wisely and quickly.

To bridge this gap and overcome the digital divide, the government has taken an aggressive infrastructure development strategy which aims to raise the telecom density level to 4.00% in fixed line and 36% in mobile in the coming 5 years.

Accordingly, the government has launched 1.5 Billion USD multipurpose telecom network projects through Vendor Financing scheme. The ultimate objectives of these projects are to provide reliable, cost-effective and quality communication services all over the country by deploying state-of-the-art telecommunication infrastructure and systems.

About 85% of the populations of Ethiopia live in rural areas. The main economic activity of the rural populations is agriculture and/or farming. Ethiopia is one of the countries whose economy is lead by agriculture. Since the development of communication sector plays a vital role in overall development of a country, there is no any question to support this huge sector of economy in communication which in real terms means the rural community.

In Ethiopia, as of January this year, the number of telecommunication service subscribers reached a total of 7.1 million of which 5.9 are for mobile and the remaining are for fixed. The penetration is 7.7% in mobile and 1.55% in fixed telephony. The number of mobile subscribers has been increasing dramatically from time to time where as the demand for fixed line is decreasing. Even though, the telecom environment in the country is monopoly, the government of Ethiopia has aggressively been moving in expanding the telecom infrastructure at a project cost of 1.5 billion USD and plus with a plan that by the next 5 years to reach at a number of 32.25 and 3.58 million in mobile and fixed line subscribers, respectively. To reach the above objectives, the Company (ETC) has strongly been working to expand the existing national telecom infrastructure in order to build its network capacity in fixed, mobile and internet. Currently, about 4,000 kilometers Optical fiber lines has already been installed to the different main directions from the center and more than ten kilometers additional Optical fiber lines will be installed.

This really will bring a multidimensional development to the country and as a result the people of the country at large will be benefited.

## **5. Rural Connectivity Program (RCP) in Ethiopia**

Some 3 to 4 years back, there was no a single telephone line and service in the country's village and our people used to go far and far to get the service. At that time, even it was impossible to imagine that the rural people can get telephone line in their village and be able to use it within a short period of time. But on the bases of highest government wishes and technology advantages, currently above 14,000 villages (locally named Kebeles) have already

been benefited from getting access to telephone services in their localities as a result of implementation of RCP. The plan is to reach 18,000 kebeles, which means geographically the whole villages of the country by the year 2010. Currently, 77.7% of the plan is accomplished. Taking the past performance of the operator's activity in addressing access to the rural areas, there is a hope that the target will be met in time. There is also a strict plan by the Government to address at least 5 telephone lines in each village by the coming few years focusing on community administration institutions like High Schools, Healthcare stations, Police Stations and Agriculture Development Offices with the target to foster social and economic development of the nation.

The Government of Ethiopia is encouraging the operator to expand the rural telecommunication services by giving an opportunity to reuse its profit for infrastructure development and rural telecom expansion activities. Therefore, there is no any payment required from the rural community to get telephone access except affordable and reasonable usage charges which are also exempted from VAT.

The technology which has been deployed to the rural villages is CDMA technology which does not require the government much resource to address access to the rural areas. Without the government's full commitment and technology preference, it would have been very hard to meet the target as planned.

Regarding its business model, full responsibilities and administration of the terminal equipment and its accessories installed at rural telecom service center are given to the local community administration. This has been implemented based on agreement between the local administration and the Operator. The technical support, if any, remains to the Operator's responsibility. Usage bills or fees are collected by the responsible person assigned as a service attendant by the local administration, and the time of charge is set per minute basis. Initially, monthly usage charges were collected by the Operator from the local community administration in postpaid settlement, but for the reason of simplicity, currently it is changed in prepaid voucher cards.

By the end of 2010 which is after completion of rural connectivity project, there will be 450,000 network capacity for rural villages (Kebeles) which will give them an opportunity not only to have access to telephone in common centers, but also to give home telephone services to the person who is interested and able to pay the service and installation charges.

The government of Ethiopia, in its pace of rapid economic development strategy launched 5 years ago, has initiated a starting point for ushering e-governance, and proposed the following three primary projects

- **A government network (known as 'WoredaNet')** which would link nearly 600 local 'woredas' and 11 regional government offices across the country with each other and with the federal government headquarters in the nation's capital, Addis Ababa. The project would provide these offices with videoconferencing, e-mail, Internet access, and file sharing capabilities—creating a foundation for e-government.
- **An education network ('Schoolnet')** which would provide more than 700 secondary educational institutions with access to general ICT, email, and the Internet. Most importantly, though, it would allow these institutions to receive streamed Internet- and broadcast TV-based educational content from education media agencies—creating a foundation for e-learning.

- **An agriculture network ('Agrinet')**, which would link more than 30 research and operational agricultural centers to stimulate the growth of this cornerstone of the economy.

So far 565 local weredas, 669 high schools and 49 agricultural institutes found in the country have been networked and benefited from the project. The Technology which has been used to deploy this program is VSAT communication.

## **6. Successes and Challenges**

### **6.1 Successes**

- Nationally, the attention and commitment given to sector by the government to expand telecommunication infrastructure and service delivery are very helpful to increase the number of subscribers and foster socio-economic development of the nation,
- Rapid telecom expansion including Rural and remote areas within a short period of time brought increase in number of telecom service subscribers and level of penetration. this as a result created an opportunity for underserved and un-served areas to have:-
  - Up-to-date Market information for the products they sell,
  - Economic advantage in saving their money and time,
  - Easy working environment by communicating with their line working institutions,
  - Job opportunity for those who are working as attendant
- Quality of service and consumer protection

### **6.2 Challenges**

The following are some of challenges identified: -

- Inadequate Enforcement mechanisms,
- Lack of Capacity,
- Lack of skills in technical and economic regulation,
- The nature of settlement in rural areas and as a result low penetration,
- High Cost of supply and installation of Solar panels to use as an alternative power source in rural areas,
- Lack of adequate infrastructure development (Roads & Power infrastructures). Roads and power infrastructures are not well developed in remote areas and this hinders the rural telecom service expansion process. In addition to this, the cost to buy and install Solar Panels to use as an alternative source for power supplies is high. Since the rural telecom service centers are located in remote areas and are very far from the center or regional offices of the operator, it is very difficult to visit the service centers frequently and give prompt maintenance services when the system is not operational. Therefore, some systems stay out of order for a long time until the operator's technicians come and fix the problem,
- The issue of service sustainability is also a challenge which faces the rural telecommunication services expansion programs. This challenge originates from two reasons: one is the small monthly payment amount for a person serving as an attendant at the service center which depends up on the income generated from usage in a month,

- Most of the rural community are illiterate and are not in a position to understand the role which telecommunication plays for their economic and social benefit.
- Lack of basic technical capability of the attendant to handle and run the installed terminal.

## **7. Conclusion**

The development of the industry is very dynamic in its nature of innovation and dissemination and plays a great role in social and economic development of any given country. In addition to this, the development of communication sector plays a vital role in overall development of all sectors related to social, political and economic affairs.

In line with this, most of the regulatory functions are strongly challenging and it requires strengthening institutional capacity of the regulator. As it is stated above, ETA has limited capacity in all areas of regulatory functions to handle them as the level that it should be.

However, the Government is committed to tackle these regulatory challenges alongside with the development of the sector by building Agency's capacity as much as it requires.

So far, the telecommunication services expansion program especially, to the rural areas of Ethiopia has shown remarkable progress to meet the goals set by the government. The expansion activity will continue aiming at covering more places to enhance social and economic development for the benefits of people living in the rest of underserved and unserved areas of the country.

From the past 3 to 4 years' experience, it has been noticed that the rural community has benefited from the rural Telecom service expansions.

To support successful completion of the Rural Telecommunication Program and make sure that the services are reliable, the Ethiopian Telecommunication Agency (ETA) is engaged in monitoring and checking of the fulfillment of the targets set by the government.