

CHAPTER 7 FRAMEWORK OF THE MASTER PLAN

7.1 Objectives and Policies for Telecommunications in Ethiopia

The Ethiopian Ministry of Infrastructure has established in April 2002 the telecommunications objectives and policies in line with the governmental vision to improve quality of life, to bring the next-generation of Ethiopians to a knowledge-based society, and to help uplift economic and social development of the nation.

In order to upgrade the telecommunications infrastructure for socio-economic development of the country, objectives of the development of the telecommunications have been established.

- 1) To ensure the provision of affordable, efficient, reliable, and accessible telecommunications services with global standard
- 2) To promote an equitable distribution of basic and enhanced telecommunications services nationwide, with special priority in areas with low or no penetration
- 3) To facilitate the realization of the country's economic development strategy of Agriculture-Development-Led Industrialization (ADLI) aimed at poverty alleviation through expansion of telecommunications infrastructure, and
- 4) To enhance the modernization of telecommunications services by using compatible and proven technologies

In line with the above objectives, following policies have been formulated.

- 1) To accelerate the development in telecommunications with a substantial increase in telephone penetration/density, taking into account technological and international trends
- 2) To ensure the balanced and equitable distributions of telecommunications infrastructure to enhance integrated regional development and attainment of universal access to modern telecommunications services at affordable and cost-based tariffs
- 3) To continuously strive to improve reliability, efficiency, and quality of services to ensure consumer responsiveness through commercial principles and regulations
- 4) To maintain ETC as one single entity under one single partnership responsible for the four key service lines, namely, fixed, mobile, data, and the Internet, in order to address official objectives of the Government for network and services expansion and for technological opportunities through information and communication technology infrastructures

7.2 Planning Period and Target Years of the Master Plan

This Master Plan covers a long-term telecommunications development up to 2020/21 in the whole of Ethiopia.

The planning period up to 2020/21 is divided into three phases:

- 1) Short Term (2003/04 - 2005/06)
- 2) Middle Term (2006/07 - 2010/11)
- 3) Long Term (2011/12 - 2020/21)

7.3 Framework of the Master Plan

Framework of the Master Plan is formulated in conformity with the social needs of Ethiopia with prospects of improvement in the social and economic situation, technical innovation, and involvement of new players expected in the telecom sector.

7.3.1 Mobile Communication Service

Mobile-phone network, which is able to provide subscriber connections quickly without considering subscriber locations, shall be expanded actively placing a top priority, to regional towns including medium and small town as early as possible.

In order to enhance the services and to stimulate further demand growth, an enhanced GPRS system, which is able to provide SMS (Short Message System) and Internet services, shall be introduced. The system is to be facilitated enough capacity to cater for the mobile-phone demand as well as potential demand sifting from fixed-phone.

Target of the mobile-phone system capacity is set at 400,000 in 2005, 520,000 in 2010 and 960,000 in 2020, respectively.

The mobile-phone services will become one of the most profitable businesses of ETC. This profitable mobile-phone business is to be promoted actively by ETC so as to allow ETC to have funds for developing the rural telecommunications network which requires huge investment but will not give return.

However, mobile-phone system shall not be used as “fixed-mobile-phone” for the purpose of providing services with cheaper tariff rate, i.e., tariff rate for fixed telephone, since both telecommunication resources, both mobile and fixed-phone network are used for establishing circuit connection, and moreover modification of the charging table becomes necessary, which requires much man-power and results high cost.

7.3.2 Fixed-phone Service

Considering the idle capacity of the existing switching system (more than 230,000 LU: Addis Ababa: 128,000, regions: 106,000 as of Jan. 2002), implementation plan is to be firstly addressed on the solution to the idle capacity, and secondary focusing on the high priority area of network expansion paying attention to the well-balanced facility development to satisfy the long waiting list.

Therefore, local access network is to be constructed for the stations with the idle capacity of the existing switching system to eliminate waiting applicants (160,000 as of Jan. 2002) and to provide more subscribers connections.

However, the application of WLL for local access network expansion is to be minimized, as the cost is higher than the wire-loop.

Capacity construction of fixed-phone network is to be suppressed to approx. 75% of the

fixed-phone demand taking into account the rapid increasing worldwide trend of the rapid mobile-phone increase of the subscribers, so as to develop the balanced network economically to avoid the double investment on both fixed- and mobile-phone network.

Tele-density will be raised from 0.6 /100 inhabitants in 2000/01 to 2.17 in 2020/21. This implies approx. 2.3 million subscribers increase including mobile-phone subscribers in 20 years period. (Fixed-phone: 1,381,000, Mobile-phone: 946,000)

An optical fiber transmission system is to be constructed for NSC (Addis Ababa) – Debre Zeit – Adama West - Nazareth section to meet the increasing circuit requirements as well as to secure the network reliability.

Analog exchanges is to be replaced with digital exchanges as follows:

Addis Ababa area: 50,000 LU in Short Term

Other areas : 28,500 LU in Short Term

RAX exchanges, which were installed recently but are not operating well due to signaling and charging problems, are to be replaced (40,500LU).

Expansion of public pay phone in the town areas will be implemented for improving telecommunication services; however, the provision of pay phones is to be minimized as mobile-phone subscribers would be increased in those areas.

7.3.3 Introduction of IP-Based Network

Introduction of IP based network is to be accelerated taking into account the following factors:

- lower cost compared with digital exchange and versatile network capability that can meet various IT based service requirements, and
- worldwide trends of telecommunications equipment manufactures, i.e., some of major switching equipment manufactures in the world are considering to reduce production of the switching equipment taking into account the increasing global market trend for IP based network.
- It will cause difficulties not only in expanding the network capacity but also in maintaining the system since continuous supply of spares/units will not be expected in the future.

Considering the above, VoIP technology is to be introduced from the beginning of Middle Term, and no more digital switch is to be expanded, in principle.

IP based trunk network and junction link, connecting 8 primary centers (PCs), MSC and 6 tandem exchanges in Addis Ababa, is to be established within Short Term (by 2005) to alleviate overload on NSC transit switch, and also to provide foundation for further IP based network.

In addition to the above, direct routs among local exchanges in Addis Ababa are to be established to alleviate overload on tandem exchanges.

Existing manual switchboards are also to be replaced with VoIP within Middle Term.

7.3.4 Improvement of Tele-access in Rural Areas

Master plan targets are formulated paying keen attention to the government policy for telecommunication sector, i.e., telecommunications policy, especially for maximizing tele-access (percentages of population who can access to telephone with a walking distance) in the rural areas where more than 85 % of the national population lives without the access to telecommunications.

The per line cost is rather expensive for establishing rural telecom network compared with that of urban areas, and return on the investment will not be expected to cover the initial investment. ETC, however, is only one entity responsible for providing such services in rural areas.

Master plan target is to be set at the reasonable level considering the financial capability of ETC, since the fund for implementing the rural telecomm network is to be secured from other profitable telecom businesses, such as international communications business, mobile communications business, etc.

For the rural telecommunication system, various type of radio systems are being utilized, such as point-to-point radio system operating in HF/VHF/UHF/SHF band, point-to-multi-point system with UHF/SHF, and VSAT.

For the rural telecommunication network expansion under this Master plan, a terrestrial radio transmission system is applied for the area, which is located within a distance approx. 150 km from the existing telecommunication system, in principle.

As the present satellite transponder and hub-station being used for domestic satellite communications have spare capacity, the expansion of rural communication network is to be implemented by applying VSAT system, especially for the distant place and/or the place located in the mountainous area so as to establish telecommunications network economically. "Faraway" system is to be introduced for the new PCOs to avoid the double-hop circuit connection.

7.3.5 Expansion of Public Data Network and Internet Services

The Internet services have been rapidly growing all over the world. In Ethiopia, the present number of subscribers is at low level, however, it is expected to increase the Internet users gradually by introduction of an enhanced GPRS mobile system, which is able to provide SMS as well as Internet services in Addis Ababa and regional towns. Reduction of Internet subscription fee by 80 % made in August 2002 would also stimulate new subscriptions.

Furthermore, xDSL network is to be introduced from the Middle Term, which allow "permanent connection" to subscribers instead of "dial-up" connections. This factor will push up the number of subscribers.

Considering the above aspect, public data network as well as Internet services are to be actively expanded nationwide.

7.3.6 Rollout Target of License

ETC has planned the targets for fixed-phone service, mobile-phone services, Internet and data services under the Eighth Telecommunications Development Plan (2000/2001 – 2004/2005), and has been granted the service operator licenses conditioned to satisfy the rollout targets based on the target, of the said development plan.

The past achievement of DEL were 50,000 (2000), 30,000 (1999), 8,000 (1998), 7,000 (1997), 7,000 (1996) and 5,000 (1995). The number of DEL was drastically increased after year 1999 by out-sourcing the local access network construction from foreign contractors.

Table 7.3-1 Rollout Target of ETC

Items	2000	2001	2002	2003	2004	2005
New Connection	50,000	91,000	100,000	110,000	120,000	130,000
Total DEL	249,000	340,000	440,000	550,000	670,000	800,000

However, the total DEL in Jan. 2002 is 319,500, which is lower than the target of one year before.

Even the same procurement method is applied, it would be very hard to achieve the target of 800,000 DELs by year 2005, since substantial delay has been caused in construction of local access network. Moreover, waiting applicants are limited (approx. 155,000) and the current trend of the growth rate of the fixed-phone application is low compared with the mobile-phone application.

While, number of mobile subscribers was increased steadily and rapidly after system capacity expansion up to 60,000 was implemented in Addis Ababa and Nazareth, and reached to 47,000 in August 2002. In addition, further expansion up to 400,000 line units is planned to be implemented by 2005 for providing services to the other 12 major regional towns. Considering the above situation, the number of subscribers will exceed the rollout target (61,727) and is expected to reach around 320,000 by 2005.

7.3.7 Implementation of CIMIS

Introduction of Corporate Integrated Management Information System (CIMIS) in ETC has been commenced in July 2002 and is expected to be completed by 2005.

The CIMIS includes various components, such as financial management, general ledger, accounting management, fund/budget management, cash flow management, billing, collection and customer management, project management, fixed asset, transportation and logistics, etc.

Introduction of CIMIS is planned by 3 phases:

- Phase 1 involves physical erection of an enterprise infrastructure and capacity building at the IT function and staff and management level. It will take around 6 –7 months excluding procurement of goods.
- Phase 2 aims at automating the core business functions of ETC. In this phase, modernization

of the core enterprise financial management and the ETC service/revenue accounting system will be developed.

- Phase 3 will round up the implementation of ERP and common services automation components incorporated in CIMIS, including project management.

As various projects are to be implemented in respective regional offices for expansion of fixed-phone, mobile-phone and public data network as well as internet facilities, and introduction of VoIP technology under the Master Plan.

In order to monitor and manage these projects to be implemented systematically and effectively, computer aided systems are to be introduced as a tool in customer service division, planning division, operation and maintenance divisions, and other corresponding divisions. These sub-systems are to be integrated to the above CIMIS to share the information among the offices concerned in regions as well as the head office.

7.3.8 Procurement Method and Packaging

It is recommendable that a single turnkey project covers OSP, transmission, and switching facilities, with construction works to be taken place in the same period in order to save the management efforts and to avoid the mis-management.

7.3.9 Out-sourcing

In this Master Plan, the facility volume of year 2001 is to be increased more than double by the fiscal year of 2005/06 for fixed-phone network, mobile-phone network, respectively.

Under these circumstances, in order to minimize sector risks and compress the increase in fixed costs, the policy of out-sourcing to external entities (companies) should be followed. Such out-sourcing may be executed in the following fields:

- OSP civil works
- Building construction and other related works
- Subscriber connection works
- Repair work of OSP networks
- Operation of PCO services in rural area.

7.3.10 Provision of Telecommunications Services in Effective and Efficient Manners

The government of Ethiopia has a policy to engage a strategic partner in ETC from 2003, with 30 % of share, to enhance the capability of ETC's capital, management and technology, and also to establish 3 separate business entities responsible for Fixed, mobile and Data/internet services respectively under the Head Quarter of ETC.

However, it is expected that the profitable businesses, such as mobile-phone, Internet/data will be opened to private inventors/operators to enhance the services in the future within Middle Term.

To cope with the changes in telecom sector, the following aspects are to be considered in organization and human resource development plan.

- 1) To enhance the capacity of the regulator
- 2) To introduce customer-oriented management
- 3) To allocate proper personnel and enhance out-sourcing
- 4) To introduce objective oriented performance evaluation and reward
- 5) To enhance human resources development in order to meet present and prospective needs

7.4 Target of the Master Plan

Development targets for various service provisions, service quality, operational efficiency, and network facility provisions for respective Phases are summarized in Table 7.4-1.

Target of each Term is given below:

(1) Short Term (up to 2005/06)

- a) To accelerate the expansion of mobile telephone network to major regional towns (400,000 LU)
- b) To expedite the construction of the subscriber access network by means of metallic cable, WLL, optical access, etc., for utilizing the idle exchange capacity (296,900 l.u.)
- c) To rehabilitate the obsolete cable systems with frequent faults in Addis Ababa (Approx. 60,000 Pairs)
- d) To expand the digital switching network (103,000 LU)
- e) To install the rural communication network to 700 sites by applying terrestrial radio system and to expand the satellite communication system, VSAT to 15 sites.
- f) To improve customer services by introducing computerized system so as to promote the quick deal of the subscription and subscriber connectors as well as management of waiters. (15 locations: 6 tandems, 8 PCs and Harar)
- g) To construct an optical fiber junction link with STM-16 of SDH digital hierarchy (double ring configuration) in Addis Ababa to cater for increasing demand and for providing enhanced services to corporate customers, as well as to increase reliability of the network
- h) To construct transmission links by means of an optical fiber with STM-16 for A.A (TR-III) – Debre Zeit – Adama West M/W Repeater - Nazareth section to meet with the increasing circuit requirements as well as to enhance the network security.
- i) To establish IP network connecting 8 PCs, MSC 6 tandem in AA, to alleviate the burden on existing NSC (TR-III) transit switch as well as tandem exchanges.
- j) To establish direct routing among major local exchanges in Addis Ababa area to relieve overload on tandem switches

- k) To integrate the contents of Operation and Maintenance sub-system by O/M division putting the professional know-how in the CIMIS which is under the implementation by ETC
- l) To establish computer aided project follow-up system in the ETC head office, connecting corresponding/related department/divisions and to be integrated with CIMIS
- m) To establish 2 OPMCs in Addis Ababa area for improving new subscriber connections and fault restoring work as well as for training of OSP staff and the local contractors.

(2) Middle Term (2006/2007 – 2010/2011)

- a) To expand mobile-phone network capacity up to 550,000 LU and to eliminate “blind zones” within the service coverage areas.
- b) To rehabilitate the existing obsolete cable systems in regions with frequent faults (Approx. 60,500 Pairs)
- c) To introduce VoIP technologies to telecommunications networks (226,000 LU), and the replace the existing analog switch (1,500 LU)
- d) To expand telecommunications networks to additional 1,527 rural sites.
- e) To provide additional 10 POPs in other regional towns to enhance the Internet services
- f) To establish 9 OPMCs for regions (8PCs and Harar) for improving new subscriber connections and fault restoring work as well as for the training of OSP staff and local contractors.

(3) Long Term (2011/2012 – 2020/2021)

- a) To expand mobile-phone networks to 8 medium size regional towns (410,000 LU including expansion in major towns.)
- b) To expand fix-phone networks by VoIP (667,000 LU)
- c) To expand rural telecommunications networks to additional 2,891 rural sites.
- d) To provide additional 5 POPs in other regional towns to enhance the Internet services

Procurement of each term is to be carried out by four to five packages. The locations and detailed project packages are not determined, in this Master plan.

The short-term policies are extended up to the long-term in this Master plan, but to provide may be modified for the middle and long term plans so as to meet with the socio-economic conditions of the country at that time, with emphasis on mobile and ICT services.

Table 7.4-1 Target of the Master Plan (1/2)

Index	Sub-Indexes	Status as of 2001	Development Targets		
			Short-Term	Middle-Term	Long-Term
Socio-Economy	Population ('000)	65,344	73,044	83,483	106,003
	- Urban	9,742	11,509	14,141	20,744
	- Rural	55,344	61,535	69,342	85,259
	GDP/Capita in US\$ (National)	135	161	193	277
Demand	Telephone ('000)	881	1,023	1,445	2,522
	Fixed-phone	739	706	936	1,576
	- Urban	(720)	679(=918-229)*1	898(=1,198-300)*1	1,503(=2,003-501)*1
	- Rural	(19))	(38)	(73)
	Mobile-phone	142	(27)	509(=311+198)*2	946(=615+331)*2
			317(=214+103)*2		
	Public Data Service ('000)	4.073	109*3	192*3	405*3
Supply Plan and Subscribers (Fixed Telephone)	Switching Capacity (Line Units)				
	Fixed-phone ('000)	512	679	898	1,502
	- Digital SW	(411)	(679)	(645)	(582)
	- VoIP	(-)	(27)	(253)	(920)
	Mobile-phone ('000)	36	400	550	960
	PCO / Lines in Rural Area		700 / 5,600	2,225 / 17,800	5,116 / 40,928
	Subscribers ('000) and Penetration/100 inhabitants (%)				
	Fixed Telephone	291 / 0.46	616 / 0.84	841 / 1.01	1,341 / 1.27
	Mobile Telephone	28 / 0.04	317 / 0.43	510 / 0.61	946 / 0.89
	Payphone (Urban/Rural)	935 / -	5,516 / 1,400	6,816 / 4,250	7,316 / 10,232
	PCO (Tele-access) (%)	-	13	41	87
No of POPs	15	15	25	31	
No of Public Data Subs. ('000) / Penetration (%)	4 / 0.01	76 / 0.10	172 / 0.21	365 / 0.34	
(Mobile Telephone)	Service area	A.A. and surrounding towns	13 towns	13 towns	21 towns

Table 7.4-1 Target of the Master Plan (2/2)

Index	Sub-Indexes	Status as of 2001	Development Targets		
			Short-Term By 2005	Middle-Term By 2010	Long-Term By 2020
Operation and Maintenance	Call completion rate	37*4	50	65	70
	Faults per 100 main line/Year	145	30	18	12
	Fault Clear Rate within 24 hrs	-	60	75	90
	O & M Staff / All ETC Staff	5,739 / 7,345	6,453 / 7,736	7,128 / 8,472	8,518 / 10,022
	O & M System	O & M Staff / ETC	CIMIS OPMC (OSP)	CIMIS OPMC+Out-sourcing	Same as left
Network Facilities	Switching System (Fixed)	Manual/Analog/Digital	Manual/Analog/Digital/IP	Digital + IP	Digital + IP
	(Mobile)	GSM	GSM + GPRS	GPRS	GPRS + UMTS
	Terrestrial Transmission Sys. - Backborn Route - Spur Route	Radio: Analog+Digital Radio: Analog+Digital	Radio (SDH+PDH)/FOT Radio(PDH)	Radio/FOT Radio/FOT	Same as left
	Satellite System	TDMA, SCPC	TDMA	TDMA	Same as left
	Subscriber Network	Metal + WLL+ Radio	Metal + WLL + FOT + Radio	Metal + WLL + FOT + Radio	Same as left

Legend: IP: IP based Network, FOT: Fiber Optical Transmission System, SDH: Synchronous Digital Hierarchy, PDH: Plesiochronous Digital Hierarchy, Metal: Metallic Cable, WLL: Wireless Local Loop, GPRS: General Packet Radio System, TDMA: Time Division Multiple Access, SW: Switching System, TR: Transmission System, OPMC: Outside Plant Maintenance Center, SCPC: Single Channel Per Carrier.

Note: Other services, such as Telex, Telegraph services are not indicated in the list since those services will be replaced with other means in the future.

*1: Demand suppressed by approx.25% considering shift to mobile-phone users.

*2: Demand shifted from fixed-phone to mobile and temporal mobile-phone users

*3: Internet + data services

*4: Information from Mekele Regional Office

CHAPTER 8 SECTOR BUSINESS STRATEGY

8.1 Drastically Changes in the Business Environment

Until now the Ethiopian telecommunication sector has been operating in a monopolistic environment fully controlled by ETC (the Ethiopia Telecommunication Corporation). As a result, call rates have not reflected market prices, with charges for local calls kept low, and toll call and international telecommunication charges set at higher levels than in other countries to permit cross-subsidies between international and domestic telecommunications services. This policy is pursued on a strong sense of telecommunications being part of the country's social infrastructure, and recognition of the social benefit principle. However, some significant changes are occurring in the domestic and international business environments that threaten the very foundation of these cross-subsidies.

It is common knowledge that a major revolution in telecommunications occurred in the second half of the 1990s, namely, the radical growth in mobile-phone and Internet use. During this period the standard technology for telecommunications started to shift from fixed to mobile-phones. Although the Internet is a form of data communication, the technology allows voice to be transmitted as data in the form of packets creating a revolution of Internet telephony, or VoIP. With the rapidly growing access to Internet telephony services, notably in Asia, users are able to make international calls at a uniform and cheap rate to anywhere in the world.

Note: Since the fundamental policy of governments on communication services is to provide a "universal service", the developments in these communications technologies should not be hindered.

What has been the effect of this revolution on ETC? Table 8.1-1 shows past trend on international telecommunications traffic volume, indicating that from 1997/98 international traffic has been in decline.

Table 8.1-1 International Telephone Traffic (Minutes)

FY	Incoming	Outgoing	Ratio (In/Out)
1995/96	37,052,219	10,690,183	3.47
1996/97	41,833,747	11,839,351	3.53
1997/98	46,499,122	12,453,411	3.73
1998/99	44,878,251	13,420,355	3.34
1999/00	43,257,380	13,415,739	3.22

Source : ETC Annual Statistical Bulletin (2000/01)

Business users, which are currently the main source of international telecommunication traffic, are already equipped with PC environments, and have started to use e-mail. Various business communications previously carried out using a telephone and fax will be increasingly facilitated by e-mail at a reduced cost. Also if users have PCs they can access Internet telephony and substantial amount of PSTN international telecommunication traffic could conceivably shift to Internet telephony traffic.

“Even if, for example, Internet telephony were illegal, users would still choose it if it cost only a fifth of ordinary telephone calls. At present there is no way to regulate Internet telephony and a growing number of developed countries are also starting to legalize it. In Malaysia the legalization of VoIP has brought a rapid expansion in ICT environments.”

Although international voice traffic will probably not disappear altogether, business users surveyed in Addis Ababa believe that over 90% of their current international communications (voice) could be replaced by e-mail. If this is indeed the case, a decline in international traffic is inevitable.

(please refer to Supporting Report 8)

The international settlement rate is also declining. As indicated in Table 8.1-2, the rate has plummeted over the past four years, to one-sixth that of FY1996/97.

Table 8.1-2 International Settlement Rate

SDR/min

Year	Ave. Rate
1996/97	2.94
1997/98	1.96
1998/99	1.47
1999/00	1.26
2000/01	1.26
2001/02	1.00
2002/03	0.50(est)

With the international settlement rate decline compounded by increasing difficulty in boosting traffic, a fall in revenue from international telecommunications services is unavoidable.

International traffic can be expected from mobile-phones, but it will probably be no more than traffic formerly originating from fixed-phones.

This will have a serious and direct impact on the health of ETC’s business, i.e. a decline in earnings from key subscribers (business users who also use international telecommunication services), formerly the mainstay of ETC profits.

The above issues are all internal issues for the telecommunications sector of which ETC is a part. Without any move toward privatization prompted by outside pressure, ETC would probably be seeking to engage in a defensive management strategy. However, as strategic equity partnership is due to be formed at the end of 2002/03, and there are also signs of privatizing ISP and other services, ETC will resort to an offensive rather than a defensive management strategy.

8.2 Introduction of the Strategic Equity Partnership

Bidding will be announced for a strategic equity partnership planned for December 2002. PWC (PricewaterhouseCoopers) is currently compiling an engagement strategy and business plan in preparation for the bidding process. Bidding has yet to take place, and so no detailed information is available for the formulation of a master plan for this partnership. What is certain at present is

that private sector investors will purchase a 30% stake in ETC and be involved in running the company. Although ETC—in other words the government—will remain the majority stakeholder, 30% is a “golden share” providing the right of veto at board meetings.

What should be noted here is that private investor interest will be limited to Ethiopia’s capital, Addis Ababa. To ensure that future rural development is carried out, it will be necessary to review the efficacy of penalties contained in the license agreement and set up a fund immediately for rural development in the telecommunication sector.

The government holds the position that, to ensure healthy development of the telecommunication sector, it is best to prohibit the entry of telecommunications operators other than ETC into the market for the time being. This is an advantage for any private sector investor participating in the strategic equity partnership. The opportunity to run a nation’s telecommunications market as a monopoly is expected to attract interest from a large number of investors.

8.3 Changes in Revenue Structure

The Ethiopian telecommunications market is set to expand rapidly from now on. Amid this expansion, what developments are likely among key subscribers? And what changes will occur in the revenue structure?

The current revenue structure is unlikely to be sustained, and the proportion of key revenue generating subscribers among total subscribers could quite conceivably decline. Revenues per subscriber are forecasted for fixed-phone and mobile-phone operations, in accordance with the conditions and assumptions set out below. Internet users to whom a flat rate applies have not been included among key subscribers.

The following conditions and assumptions are applied in the forecasting process:

(1) Number of key subscribers as of 2002

Fixed-phone: 15,512 subscribers (each paying an average of US\$ 2,589 per annum)

Mobile-phone: 3,240 subscribers (each paying an average of US\$ 2,602 per annum)

(2) Potential key subscribers are those subscribers who already have both fixed and mobile-phones as of 2002. For calculation purposes, no dramatic increase in their numbers was assumed for the future.

(3) The economic growth rate (6.36%) has been adopted for the rate of growth in key subscribers.

(4) The proportion of international traffic was reduced, assuming a gradual shift to data communications.

2003/04 -5%, 2005/06 -10%, 2010/11 -20%, 2020/21 -30%

Results of the trial calculations are shown in Table 8.3-1.

Table 8.3-1 Expected Average Revenue Per Subscriber

Unit: US\$

Year	Fixed-phone	Mobile-phone
2003/04	173	208
2005/06	157	164
2010/11	146	149
2015/16	146	147
2020/21	145	145

Source: Study team

As results of the trial calculations indicate, the average revenue per subscriber for fixed-phones will fall by 32.0% from US\$215 in 2002/03 to US\$146 by 2010/11, and by 32.5% to US\$145 by 2020/21.

Meanwhile, average revenue per subscriber for mobile-phones will fall by 67.5% from US\$459 in 2002/03 to US\$149 in 2010/11, and by 65.8% to US\$145 by 2020/21.

8.4 Review of Business Model

Examining Table 8.3-1, managing changes in the ETC revenue structure will require a review of the entire ETC business model. To date, the ETC business model has consisted of a cross-subsidy framework in which ETC relies on international calls for around half its income, and uses this revenue to cancel out losses on domestic calls. However, declining international telecommunications traffic will prevent ETC from maintaining these cross-subsidies, and the business model will cease to function.

Overcoming this problem will require the development of a new business model focusing on mobile communications and Internet services. Steps must be taken immediately to tackle these changes in the business environment.

Fig. 8.4-1 shows the old business model, and Fig. 8.4-2 the proposed new business model.

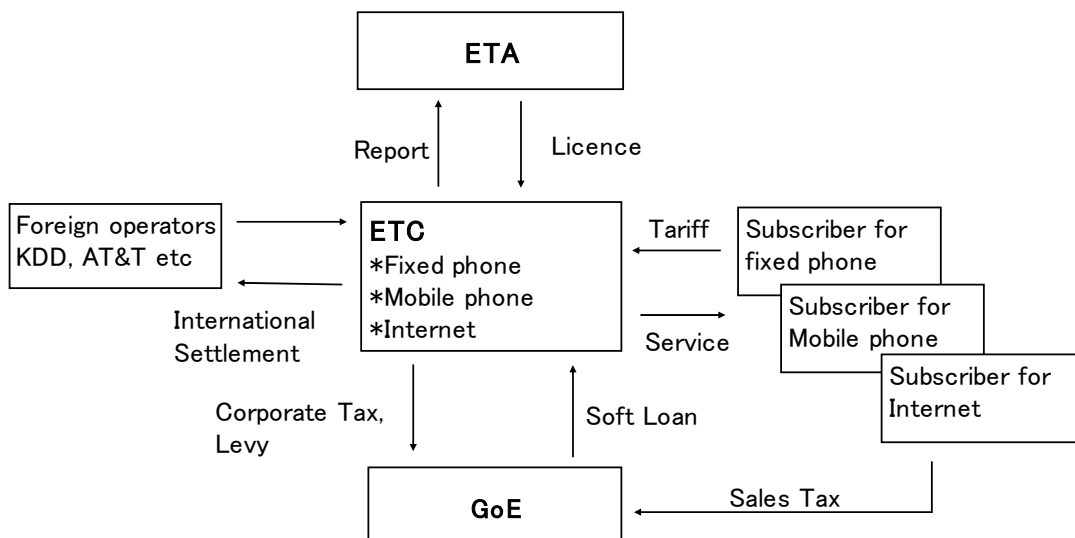


Fig-8.4-1 Old Business Model (FY2002/03)

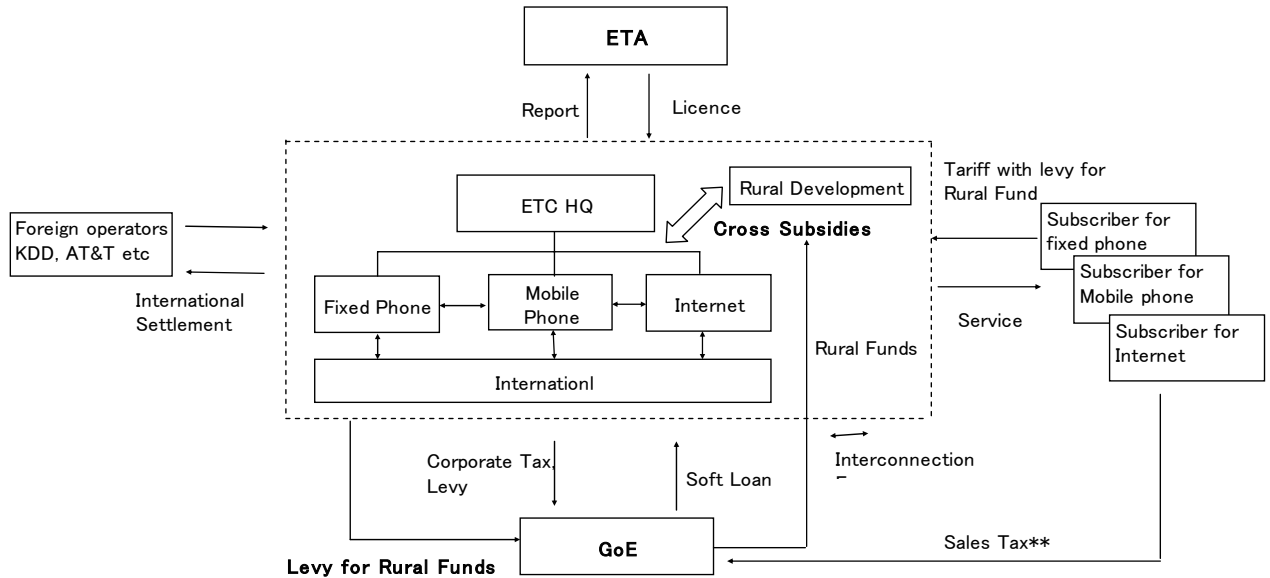


Fig-8.4-2 New Business Model (FY2005/06)

The new business model relies on mobile communications and Internet services at the core of its revenue structure and assumes cross subsidies between mobile + Internet and fixed-phone services. In terms of revenue structure, mobile is assumed to account for 40% of total income, and Internet for around 30%. Table 8.4.1 shows a comparison between the current revenue structure and future (2005/06) revenue structure (estimate). In the Master Plan, it is estimated that from 2005/06 onward the main source of earnings will shift to the mobile-phone sector.

Table 8.4.1 Revenue Structure

	2001/02	2005/06
Fixed-phone	77%	37%
Mobile-phone	15%	39%
Internet	5%	23%
others	2%	1%

Source: ETC and Study Team

As mentioned in the section on the ETC organization, ETC has different divisions for each type of service, and the revenue and expenditure for each of these service types needs to be ascertained and separated. This will undoubtedly reveal the existence of cross-subsidies by service type, i.e., by division.

First of all, the low economic viability of rural development can well be imagined. The master plan attempts to achieve development of telecommunication services in rural areas by setting up PCOs. However, this requires the massive sum of more than US\$ 100,000 for each PCO facility. Finding a way to secure the funding needed for rural development is the biggest issue for the ETC business plan.

The business plan proposed here recommends the strategic introduction of a rural fund. A 15% sales tax is currently levied on telecommunication charges. This plan proposes the introduction of a separate 1% to 3% levy on every call charges as an earmarked tax to be channeled specifically into rural development.

A glaring example of the failed attempts of privatization in the developing countries has been manifested through stagnation in rural development. Even if corporate responsibility with regard to rural development is specified in the license agreement, companies seeking to run an economically viable business will be reluctant to commit sufficient resources to rural development. The fact is that with rural projects, it is difficult to raise the funds even for operating and maintenance expenses. These projects should be carried out under government auspices.

Therefore actually finding the funds for rural development becomes a problem.

The funding required for the telecom sector must be found within the telecom sector.

If a levy can be put in place while there is still a monopoly, the pricing wars that will inevitably occur once the telecom sector is opened up to private competition will incorporate this levy. This means the more subscribers there are, the more growth there will be in the rural fund, and a faster pace of rural development will result. If possible, a start should be made by including the levy in tariffs for pre-paid mobile-phones.

The population of Ethiopia is currently 64 million, of whom less than 10% have access to telecommunication services. Only a minority of Ethiopians has any access at all to telecommunications services.

If means of communication constitute part of social infrastructure, at the current stage of Ethiopia's development, development of telecommunications needs to take place in accordance with the social benefit principle.

8.5 Environmental Analysis

Designing a business plan and strategy for ETC first requires an analysis of the environment in which ETC (wholly owned by the Ethiopian government) currently operates. The ETC business environment was therefore examined from three perspectives: changes in the macro environment, the market environment, and changes in the internal environment of ETC. Table 8.5-1 lists the results.

The biggest change in ETC's business environment will be the formation of a strategic equity partnership, scheduled for 2002/03, which will see investors from the private sector purchasing 30% of ETC's shares and becoming involved in management of the company. ETC and the Ethiopian government hope this will boost the company's managerial capability.

In addition, government policy is to refrain for the time being, from granting legal recognition to

telecommunications operators other than ETC in order to encourage the healthy development of the telecommunications sector. As a consequence, telecommunications business in Ethiopia will, for some time, remain as a monopoly.

Table 8.5-1 Results of ETC Environmental Analysis

<p>(1) Changes in the macro environment</p> <ol style="list-style-type: none">1) Average economic growth of 6.4% up to 2020.2) Telecommunications standard has changed from fixed to mobile-phones.3) Internet use has started to expand.4) Foreign capital started being invested in the country.5) Privatization of state-owned enterprises has started.6) The cycle of drought is becoming shorter.7) Development and investment in infrastructure in provincial cities
<p>(2) Market environment</p> <ol style="list-style-type: none">1) Telecom sector to operate as a monopoly for the time being2) Mobile-phone units are becoming less expensive.3) Progress in deregulation4) Launch of licensing system by ETA5) Rural development made a condition for granting licenses6) Internet to become a business tool7) Unlicensed Internet cafes begin appearing8) Private ISPs considering entering the market9) Number of mobile-phones now exceeds fixed-phones in neighboring Uganda.
<p>(3) Internal changes at ETC</p> <ol style="list-style-type: none">1) Introduction of strategic equity partnership (2002/03)2) Shift to a divisional system3) Decline in international revenue4) Introduction of full mobile service (incl. prepaid mobile system)5) Introduction of full Internet service6) Tariff rebalancing carried out

8.6 Risk and Future Problems of Telecommunication Sector

A potential problem that the Ethiopian telecommunications sector may face in the future is whether the status quo will be maintained without any modification. This situation is examined using the examples of Bangladesh and neighboring Uganda, which have similar sector environments.

The main risks and potential problems can be broadly classified into 16 categories (see Table 8.6-1). In the Master Plan, business plans have been prepared taking into account the possibility of these problems arising in the course of time. Each of these problem items and the approaches to be employed to resolve them are dealt with in the corresponding sections. In addition, a summary of the various initiatives incorporated in the Master Plan is included in Chapter 15: Conclusion and Recommendations.

Table 8.6-1 Risk and Future Problems of Telecommunication Sector

(1) Strategic Equity Partnership
(2) Monopolistic environment created by ETC
(3) Heavy Roll-out Target
(4) Lack of a clear division of responsibilities between the public and private sectors
(5) Low efficiency of operational management
(6) Inadequate investment in telecommunications infrastructure
(7) Low rate of call completion
(8) Insufficient backbone network capacity
(9) Existence of a digital divides in Ethiopia (inadequate rural development projects)
(10) Rapid Technology Revolution, ICT Revolution
(11) Interconnectivity between new and existing telecom.operators
(12) Insufficient Human Resource Development
(13) Insufficient capacity of out-sourcing
(14) Legalization of VoIP
(15) Presence of Private ISPs
(16) Segregation of Telecommunications and ICT sectors

Source: Study Team

8.7 Strategic Scenarios for the Development of Telecommunications

The possibility of these problems arising in the future has been taken into account in formulating the master plan. The primary issues here are whether ETC is strong enough to tackle these problems, and how long the monopoly should be maintained in order for ETC to build up the strength required to do so.

As discussed earlier, at this stage the Ethiopian government has indicated it would like to see the telecommunications sector remains a monopoly for the time being. However, if the country is desired to make a successful transition to an ICT society, so as not to fall behind the rest of the international community, it will be necessary to privatize the telecommunications sector. Scenarios for such initiatives have been examined in the Master Plan. The following two business plans will be examined based on the business model described earlier.

Scenario 1

This scenario involves private sector investors participating by purchasing a 30% stake in ETC in 2002/03, with ETC remaining a monopoly until 2007/08. From 2008/09 onward, a number of private mobile-phone and ISP operators would join in the telecommunications sector. Under this scenario, it is assumed that ETC will be offered an incentive in the form of a continuation of its monopoly for a period of five years following the participation of the equity partner, and that during these five years period ETC will have done enough to secure sound managerial capabilities.

Scenario 2

As with Scenario 1, this scenario involves private sector investors participating by purchasing a 30% stake in ETC in 2002/03, with ETC remaining a monopoly until 2007/08. From 2008/09 onward, the telecommunications sector would be opened up to private operators. However, if private operators decline to enter the market because the offer is not appealing to them, then the ETC Group would continue to operate with its three-company structure until 2020/21. As with Scenario 1, under this scenario it is assumed that ETC will have been offered an incentive in the form of a continuation of its monopoly for a period of five years following the participation of the equity partner.

Thus if private sector participation in the businesses is not successful, then the process of splitting ETC into three companies (fixed-phone business, mobile-phone business, and ISP business) will continue to take a greater importance.

8.7.1 Scenario 1

This scenario involves setting up a strategic equity partnership in 2002/03, with ETC running the telecommunications sector as a monopoly until 2007/08. From 2008/09 onward the sector would be deregulated and private operators allowed in. Figure 8.6-1 shows the business model for 2008/09 onward.

(1) Business Concept

Up to 2007/08 ETC would capitalize on the features of monopoly control, as much as possible, to roll out telecommunications services and actively promotes the policy of cross-subsidies. From 2008/09 onward the business would be segmented to private operators, seeking to make a profit from the business, and ETC focus on increasing tele-access. Active efforts would be made to attract private operators to invest in those areas in which they will be interested to participate (e.g., mobile-phones, ISPs).

Meanwhile, ETC would be responsible for rural development, an area where the private sector hesitates to take risks. ETC's main roll would be providing services for ordinary fixed-phone subscribers, administering the backbone network, and providing international telecommunications services.

Note) Figure 8.6-1 is based on the proposition that government will remain as a majority stakeholder of ETC. However, it is not desirable for the government to remain as a majority stakeholder of the ETC's Group companies. It is rather desirable for the private sector to hold a majority of the shares in order to highlight the fact that these businesses are operating independent of ETC.

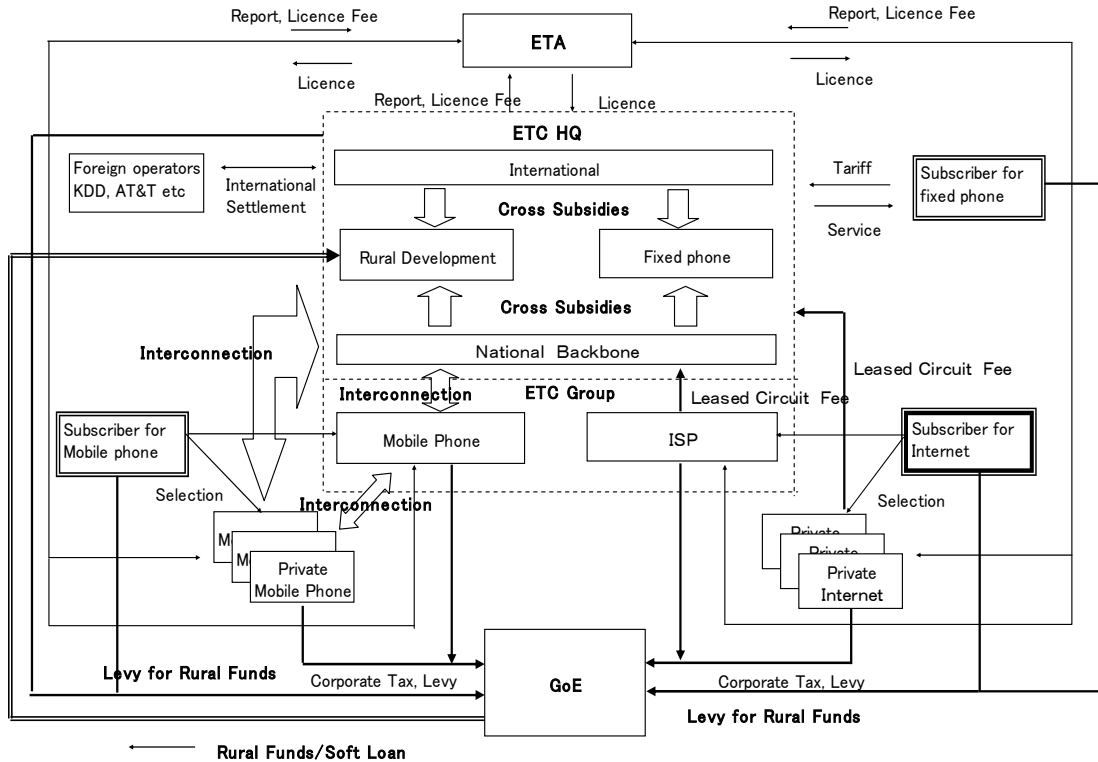


Fig. 8.6-1 Business Model (Scenario 1), after 2008/09

(2) Goals

1) Offering shareholders a steady dividend

Having introduced a strategic equity partner, as a joint stock company ETC is obligated to pay a dividend to its shareholders (i.e., Ethiopian government, private sector investors).

2) Improving access to telecommunications (providing universal access)

The government will continue to run ETC as a monopoly following the formation of the strategic equity partnership, primarily to improve access to telecommunications, which is 10% as of 2001/02. The target is to improve access to telecommunications to 87% by 2020/21.

3) Opening of mobile and ISP services to private sector competition.

An attempt should be made to revitalize the telecommunications sector by moving from a monopolistic environment to a competitive environment. In the mobile-phone and ISP sectors, this competitive environment should be introduced at an early stage. Three African countries

have already witnessed the introduction of second carriers into the fixed-phone market, although the results have been less than satisfactory. The Master Plan has been prepared on the premise that fixed-phone and national backbone services are provided by ETC.

4) Coexistence of ETC and private telecommunications carriers

From 2008/09 onward the business would be segmented into private operators, seeking to make a business profit, and ETC, seeking to increase tele-access. Active efforts would be made to attract private operators to those areas in which they would be interested to participate (e.g., mobile-phones, ISPs). Meanwhile, ETC would be responsible for rural development, an area where the private sector hesitate to take risks. ETC's main roll would be providing services for ordinary fixed-phone subscribers, administering the backbone network, and providing international telecommunications services.

5) Introduction of market principles

The entry of private sector businesses into the telecommunications sector will help create a competitive environment in which market principles are at work. As a result, the telecommunications sector will be revitalized as competition is introduced in pricing, services, and other areas. However, it should be noted that excessive competition would result in a trade-off between the introduction of low tariff rates and a delay in rural development.

6) Introduction of private sector management techniques

The aims of the strategic partnership include not only the introduction of private capital, but also the transfer of technology accompanied with the introduction of private sector management techniques. It is hoped that the transfer of efficient and effective management techniques will help transform ETC into a model for the privatization of other state-owned companies in Ethiopia.

7) Transforming ETC into an asset company

An effort should be made to push ahead with the rebuilding of the Ethiopian telecommunications sector in an environment in which privatization is gradually being introduced.

Once tele-access has reached 100%, ETC should outsource its entire operations, transforming itself into an asset company that owns the national backbone and international gateway. The target year under the Master Plan (2020/21) coincides with the period in which this transformation is scheduled to take place.

(3) Target Subscribers

During the monopoly period up to 2007/08, one of the major issues facing ETC will be how to

retain customers in the key customer (F1 and M1) categories. This will give ETC a competitive advantage over its contenders when the competitive environment is in place.

Targets would be segmented to ensure a successful business plan. In Scenario 1, from 2008/09 onward the market would be segmented into ETC target subscriber and private operator target subscribers to avoid competition for customers and duplicated investment.

From 2008/09 onward mobile-phones and ISP services should be opened up to the private sector.

1) ETC Target Subscribers

1	Fixed-phone subscribers (key subscribers) 5% of total subscribers, paying an average of US\$ 2,589 per annum	F1
2	Fixed-phone subscribers (ordinary subscribers) 95% of total subscribers, paying an average of US\$ 91 per annum	F2

Revenue includes connection charges from private operators as well as call revenue from subscribers. International call charges are collected from mobile-phone subscribers in the form of connection charges. In addition, ETC pays a connection fee, to private mobile operators, for all outgoing calls from fixed-phones that are received by mobile-phones.

2) Private Operator Target Subscribers

1	Mobile-phone subscribers (key subscribers) 9% of total subscribers, paying an average of US\$ 2,602 per annum	M1
2	Mobile-phone subscribers (ordinary subscribers) 91% of total subscribers, paying an average of US\$ 124 per annum	M2
3	Internet subscribers All Internet subscribers classified as one group	I1

Note: Because private sector businesses are the majority stakeholders in ETC's group companies of mobile-phone and ISP, they are regarded as private operators.

(4) Basic Strategy

As mentioned earlier, up to 2007/08 ETC would capitalize on the features of monopoly control as much as possible to roll out telecommunications services and actively promote the policy of cross-subsidies. In other words, by using cross-subsidies as a strategic tool, ETC would support unprofitable rural development and improve tele-access. In addition, it is important that ETC secure its valuable F1 and M1 customers as early as possible. With regard to F1 customers, the drastic reduction in Internet user charges introduced in August 2002 would be enough to retain these customers. Unless ETC creates a sustainable foundation on which sufficient profits can be generated, in the future it would be difficult to implement rural development plans. The Ethiopian government would provide rural development funds until 2007/08. Judging from the current state

of Ethiopia, it would be unwise to leave rural development entirely to the private sector. By its very nature, rural development is something that should be carried out on the principle of partnership between the public and private sectors. If the private sector is to be presented with a roll-out target, then the government should also create a support system. Rural funds are one such system. (Refer to 8.4 for details.)

The basic strategy required to achieve the goals above from 2008/09 onward is as follows:

1) ETC

Basic Strategy for ETC	
1	Spin off mobile-phone and ISP divisions in 2008/09
2	Make fixed-phone services, international telecommunications services, and administration of the national backbone the main line of ETC business.
3	Make preparations for becoming an asset company providing rural development, fixed-phone service and international telecommunications services.
4	In order to maintain healthy growth in the telecommunications sector, avoid placing restrictions on interconnectivity between fixed and mobile-phones. Any technical issues would be resolved by the mobile-phone operators themselves, but ETC would be responsible for ensuring that the system allows interconnectivity. Charges for fixed-phone/mobile-phone interconnection would be collected in the form of shared charges.
5	Target subscribers are F1 and F2 subscribers. Earnings from international telecommunications services and F1 subscribers plus access charges from mobile-phone operators would be channeled into cross-subsidies for rural development to sustain rural operations.
6	For F1 subscribers, collection of user charges would move completely to automatic payments from bank accounts. For F2 subscribers, collection of user charges would move gradually to automatic payments from bank accounts. If it appears that customers are unaccustomed to using bank accounts, the move to automatic payments should be completed as soon as possible by conducting a campaign in which customers are provided with an incentive to set up automatic payments within a set period, such as a discount equivalent to 5% of their user charges for a period of three months.

2) Private Mobile Operators (Mobile)

Mobile services would be provided by a division of ETC until 2007/08, with this division being spun off in 2008/09 as an independent joint stock company of the ETC group. At the same time, private mobile operators would be invited to enter the market and a competitive environment consisting of two or three companies would be created. The number of subscribers and charging levels would be left to the market. The ETA would, however, need to set an upper limit for charges in the form of a price cap.

M1 and M2 subscriber categories will represent target customers. For late arrivals in the market, private mobile operators would need to adopt a business strategy of flooding the market with

cheap mobile-phones to attract subscribers and maintain their locality. In addition, these operators would seek to attract existing ETC customers by actively differentiating their services from their competitors through such means as providing value added services that are distinct from ETC's fixed-phone service. This would mean a greater increase in the number of mobile-phone subscribers than that of the monopolistic period.

Private mobile operators would pay the cost of infrastructure required for interconnection with the existing fixed-phone network. A system would be installed allowing interconnection with the existing ETC network without any technical problems. It should be possible to steer off interconnection problems as long as both parties are prepared to make concessions.

Problems associated with the collection of user charges would be avoided by introducing a pre-paid system. It would be desirable to introduce a pre-paid system for all M1 subscribers, for whom the risk of non-payment of user charges is considered high.

3) Private ISPs (Internet service providers)

The implementation in August 2002 of a roughly 80% reduction in user charges led to a huge increase in the number of subscribers. During the monopoly period up to 2007/08, ETC should prepare business plans that put as much emphasis as possible on the attraction of new subscribers. By lowering user charges at such an early stage, ETC has effectively retained its key customers in the Internet sector. This means that the ISP business that is set to become independent from ETC in 2008/09 will already have a huge advantage in the competitive environment after the spin off. The growth in the number of PC owners will take care of the rest.

The national target for Internet subscribers is 400,000 by 2020/21. Therefore, with each ISP having 20,000 subscribers, the presence of 20 to 30 private ISPs in the business would be an appropriate number. With 20 to 30 companies in the market, Internet charges should settle at the market rate. As charges are already low, there should be no fierce price war. Cyber café ventures should also be promoted to boost the number of Internet users. Because ISP companies can be set up with modest capital in the way of investment, they should be promoted as a local industry.

The government will need to take such steps as abolishing import taxes on PCs to encourage venture companies of this type. As the example of Bangladesh indicates, the removal of tariffs (custom duty) on PCs has the potential of sparking a dramatic surge in the growth of ICT.

With regard to billing, the use of e-mail is considered desirable. An effective way of dealing with unpaid bills is to send a reminder notice by e-mail, followed about a week later by immediate termination of access. In addition, the introduction of a pre-paid system for Internet users, similar to that used in countries throughout Asia, should also be considered as a means of improving the user charge collection rate.

(6) Risks Involved in Scenario 1

The fundamental concepts behind Scenario 1 are;

1. Introduction of the competitive principle,
2. Achieving rural development, while gradually bringing about deregulation of the telecommunications sector,
3. Stimulating activity in the private sector, and
4. Making the telecommunications sector more efficient.

For this scenario to be realized, the public and private sectors must work together toward common goals. This section will consider the risks involved in Scenario 1 from the standpoint of the public sector. There may be other important risks apart from those described here. Risks will be examined again in conjunction with ETC staff as part of the second field survey.

Risk 1:

There is a risk that the private sector may not be interested in the Ethiopian market.

In this scenario, mobile-phone and ISP services are opened up to the private sector from 2008/09 onward to form the nucleus of the telecommunications sector. There is, however, a risk that no private operators will enter the market. In such case, the ETC mobile-phone and ISP divisions would be spun off as independent private sector companies within the ETC. At the very least, this would shift the provision of communication services from a monopoly system run solely by ETC to a system consisting of multiple companies.

It is vital to remember that while the master plan projects over 430,000 mobile-phone subscribers by 2008/09; this target of 430,000 subscribers may be unattainable if private operators are not attracted to enter the market.

Risk 2:

There is a risk that the private sector will pull out of the Ethiopian market.

The Ethiopian economy is expected to show annual growth of about 6.3%, but if there is a tendency for this growth to decline, there is a strong risk of the private sector to abandoning the market. This situation will shake the confidence of the service providers and put the continuity of the service at stake. In order to ensure the continuity of services even in case of withdrawal by the private sector there should be a risk taking scheme where by the government will fund of the mobile-phone (ETC-Mobile) and ISP (ETC-ISP) companies to be spun off from ETC. However, this funding would not comprise a majority share. It is preferred that any equity share in this case would be less than 30%.

There is also considerable risk involved in fully opening up Ethiopian domestic telecommunications services to the private sector from the perspective of providing reliable communication services.

Risk 3:

It is possible that ETC will not allow interconnection between private mobile operators and its network. The risk of this happening is low, but ETC may decline requests by private mobile operators for interconnection in order to protect the mobile-phone business spun off from ETC (ETC-Mobile). In Bangladesh this issue has already proved an obstacle to development of the telecommunications sector. If any of such problems will in fact arise with interconnectivity, the authorities (MOI and ETA) would need to intervene.

Risk 4:

The business model includes the setting up of a rural fund, though there is a risk that the private sector would decline on the terms of any levy on call charges.

From 2008/09 onward, ETC operations would encompass the provision of fixed-phone services, international telecommunications services, and rural telecommunications services. However, rural projects are extremely unprofitable, there is almost no chance of recovering funds invested, and in fact ETC would not be in a position to recover even its operating costs.

Rural projects are essential if ETC is to achieve the improvements to tele-access expected by the government. In case ETC cannot support rural projects from its revenue, financial assistance from the government, for example, will be required regardless of how such projects are to be carried out. Funding rural projects out of the national budget would most likely be difficult, so it would be necessary to find a way to secure funds from within the telecommunications sector.

Setting up a rural funding system will be indispensable to implement these projects and hence MOI and ETC must jointly establish such a system before 2008/09 when the telecommunications sector is about to be opened for competition.

Risk 5:

There is a risk of the strategic equity partner establishing a separate company early on, taking with it the mobile-phone subscribers already being served by ETC.

Scenario 1 rests on the assumption that ETC, as the central player, will be run by the Ethiopian government and the strategic equity partner, but there is a risk of the strategic equity partner breaking away from ETC before 2008/09. This issue should be dealt in the provisions of the contract between ETC and the strategic equity partner to avoid the risk of the strategic equity partner breaking away early and taking with it the more profitable urban subscribers and mobile-phone subscribers, which by no means is low.

What kind of risks would this in turn bring? First, a risk to cross-subsidies, then the risk of a tug-of-war over key customers, the risk of a price war starting before the basic infrastructure is in place, and the risk of setbacks to rural projects.

For private operators to be successful in an undeveloped market, they must quickly acquire market share by attracting and retaining key customers. Breaking away early would be an appropriate option in terms of management strategy for any private operator. However, when taking rural development and improving tele-access into account, such separation will jeopardize the Ethiopian telecommunications sector. Conversely, there would be the advantage of benefits for urban subscribers, such as lower telecommunication charges.

ETC's local management group must engage in proper discussions with the strategic equity partner regarding the role and mission assigned to ETC, and ensures that the partner has a complete understanding of these issues.

Risk 6:

Risk associated with procuring funds

The involvement of a strategic equity partner brings with it the possibility of more funding sources, but also will bring about the risk of greater difficulty in obtaining soft loan funding.

Considerable effort should be made to bring in soft loan funding while the government holds a 70% stake in ETC. A Grant Aid or ODA soft loan is especially necessary for secure funds for rural development projects.

Risk 7:

There is a risk that it will take time for the government to approve a strategic equity partner, resulting in a significant delay in the commencement of actual joint operation of ETC.

The short-term target for joint operation in the master plan is 2005/06, but any delay in a decision on the strategic partner would make it highly likely that funding and the management plan would require further review.

8.7.2 Scenario 2

In this scenario ETC retains its monopoly until 2007/08. Features unique to monopoly control are employed and deployed in a positive way and profits channeled into rural development.

This scenario is the same as Scenario 1 up to 2008/09 when the Ethiopian telecommunications sector is going to be opened for competition from the private sector. Where this scenario differs is that, due to the immaturity of the Ethiopian telecommunications sector market or out of a desire to avoid risk-taking, the private sector businesses pass up the opportunity to invest in the sector after 2008/09.

If this situation happens, the Ethiopian telecommunications sector would eventually be made up of the three ETC Group companies (ETC-HQ, ETC-mobile, and ETC-ISP).

Under these circumstances, as long as the three companies are completely independent, they could still be said to be in a competitive environment despite the fact that they are all ETC Group companies. At the very least, from the point of

view of the Ethiopian people, there would still be a choice between three different forms of communication: fixed-phone, mobile-phone, or Internet telephony.

(1) Business Concept

Up to 2007/08, the focus would be on taking maximum advantage of the special characteristics of a monopoly situation to develop telecommunications infrastructure and services. From 2008/09 onward, the focus would shift to improve tele-access by making full use of cross-subsidies to finance unprofitable rural projects while at the same time working to create a competitive environment.

ETC would receive transfers of technology from the strategic equity partner in the form of assistance in management and administration. These transfers of technology would be applied in the management of ETC-mobile and ETC-ISP following their spin-off from ETC.

(2) Goals

1) Split up of ETC

One quick way to create a competitive environment in a market so small that the private sector is unwilling to invest in it is to split up ETC. As group companies, after the split up, ETC-HQ would be responsible for the basic services of providing fixed-phone services and administering the national backbone and international gateway, ETC-mobile (provisional title) would control the mobile-phone services, and ETC-ISP would control ISP services.

However, as an independent business unit, the group companies would not be eligible for cross-subsidies. The Ethiopian government would be the majority shareholder of ETC-HQ but not necessarily for of the other group companies.

2) Establishing a competitive environment and introducing market principles

As long as the three ETC Group companies are independent business units, it could be said that a competitive environment exists and the environment is one in which market principles are at play. The Ethiopian people would be able to choose from the available services (fixed-phone, mobile-phone, and Internet telephony) that best suits their individual needs. In addition, the continuing decline in mobile-phone user charges and widespread availability of Internet telephony could spark a price war for long-distance and international calls.

However, it should be noted that excessive and unregulated price competition would lead to a trade-off between the introduction of low tariff rates and a delay in rural development.

3) Offering shareholders a steady dividend

Having introduced a strategic equity partner, as a joint stock company ETC is obligated to pay a dividend to its shareholders (i.e., Ethiopian government, private sector investors).

4) Improving access to telecommunications (Tele-access)

The government will continue to run ETC as a monopoly following the formation of the strategic equity partnership, primarily to improve access to telecommunications, which is 10% as of 2001/02. The target is to improve access to telecommunications to 87% by 2020/21.

5) Introduction of private sector management techniques

The aims of the strategic partnership include not only the introduction of private capital, but also the transfer of technology in the form of the introduction of private sector management techniques. It is hoped that the transfer of efficient, effective management techniques will help transform ETC into a model for the privatization of other state-owned companies in Ethiopia.

(3) Target Subscribers

To ensure the successful implementation of the business plan, targets will be separated into categories. In this scenario 2, target subscribers are divided into five segments from 2008/09. Up to 2007/08, all five clusters represent ETC’s target customers.

1) ETC-HQ Target Subscribers

1	Fixed-phone subscribers (key subscribers) 5.0% of total subscribers, paying an average of US\$ 2,589 per annum	F1
2	Fixed-phone subscribers (ordinary subscribers) 95% of total subscribers, paying an average of US\$ 91 per annum	F2

2) Private Operator (ETC-mobile, ETC-ISP) Target Subscribers

1	Mobile-phone subscribers (key subscribers) 9.0% of total subscribers, paying an average of US\$ 2,602 per annum	M1
2	Mobile-phone subscribers (ordinary subscribers) 91% of total subscribers, paying an average of US\$ 124 per annum	M2
3	Internet subscribers All Internet subscribers classified as one group	I1

Note: Because private sector businesses are the majority stakeholders in the ETC Group’s mobile-phone and ISP companies, they are regarded as private operators.

(4) Basic Strategy

Up to 2007/08, the basic strategy is the same as Scenario 1.

Under Scenario 2, it is assumed that private sector companies will decline to enter the Ethiopian telecommunications sector market, having concluded that there is nothing to be gained by doing so.

Accordingly, compared to Scenario 1, there would be less optimism with regard to the prospect of market environment across the entire sector. What should be critically considered here is why these private investors failed to show any interest in the market. Study Team assumes that the private investors will not be interested with the level of the demand, but with the nature of the demand. In other words, the basic strategy has been devised on the premise that private investors will decline to enter the market out of concerns that the number of M1 customers is limited, and that in future the number of M2 customers alone will increase.

1) ETC-HQ

These customers (F1) form the core of the revenue structure and every effort would be made to provide a full range of services and support via a key customer unit.

It is assumed that most customers in this segment have become subscribers already, and the growth rate of the segment is assumed to be the same as the economic growth rate.

It is important to remember that these customers are currently paying a large sum for services because they are using international call services. Any marketing strategy directed toward these groups must take into account the effect of eventual transfer of this voice traffic to data traffic.

When preparing management plans in the future, care must be taken to avoid relying too heavily on key customers. In addition, every effort should be made to encourage the use of automatic payments from bank accounts in order to secure the collection of user charges.

The subscribers in segment (F2) will form the nucleus of growth in fixed-phone subscriber numbers up to 2020/21. Like the subscribers in M2, the risk of unpaid bills is high. Measures will be required to reduce this risk, such as adding severe penalties for defaulting on payment and implementing a strict disconnection policy.

With regard to disconnection, the most effective option under the existing collection system would be to introduce a two-stage system whereby restrictions are placed on outgoing calls only as soon as payment is overdue, followed by complete disconnection after a certain period.

There is a possibility that new subscribers will switch to mobile-phone services as mobile-phone user charges fall. Fixed-phone charges are already low, and it would be difficult to lower them any further. One way of attracting customers is by raising customer satisfaction. This must be achieved by providing value added services such as voice mail and call diversion, improving service quality, and driving home the importance of putting the customer first.

2) ETC-Mobile

The key customers are subscribers in the M1 cluster. The existing ETC plan calls for introducing a pre-paid system for around 90% of all mobile-phone subscribers. Nearly all of the remaining 10% of subscribers are in the M1 cluster. The subscribers in this 10% should immediately be asked to

switch to the automatic payment of charges from bank accounts. Once this has been achieved, unless there are serious irregularities, it should be possible to maintain the current collection rate of over 90%.

M1 customers are business users who make mostly outgoing calls and frequently call overseas. Preparing incentive package rates aimed at users in this category would be one way of improving customer service.

In the future the number of mobile-phone subscribers is expected to swell to 400,000, and eventually 900,000. However, it is important to remember that most new subscribers will be ordinary subscriber's (M2). Mobile-phone subscribers are currently paying an average of US\$ 339 per annum for telephone services but the average amount paid by each subscriber in this segment is expected to decline over time. The number of subscribers (M2) at the ordinary fixed-phone subscriber level (those paying around US\$ 7 per month or just under US\$ 90 per annum) is projected to rise.

As for the method of collecting charges from these subscribers (M2), it is recommended to promote the use of pre-paid mobile-phones. Low collection rates are a major problem for telecommunications operators in Africa and Asia, and there is a high risk that subscribers in this segment will not pay their bills. For ETC, which is launching a full-scale drive to encourage growth in its mobile-phone market, marketing a pre-paid mobile-phone service will provide a secure source of revenue in the future.

If M2 subscribers, the bulk of whose calls are incoming calls, switch to pre-paid services, they are likely to purchase only a single low-priced card each month. Accordingly, sales would be at the most 50 Birrs (US\$ 6.0) per subscriber.

It is important to remember this when preparing any business plans.

3) ETC-ISP

The strategy is the same as Scenario 1. Due to the decrease in user charges introduced in August 2002, there is only a slight possibility of a price war occurring in the future. ETC would be supported by the subscribers it retains up to 2007/08, but ISPs that appear on the scene after this would face difficulties in expanding their businesses. They will respond by expanding into regions into which ETC is slow to extend its services and quickly introducing broadband services.

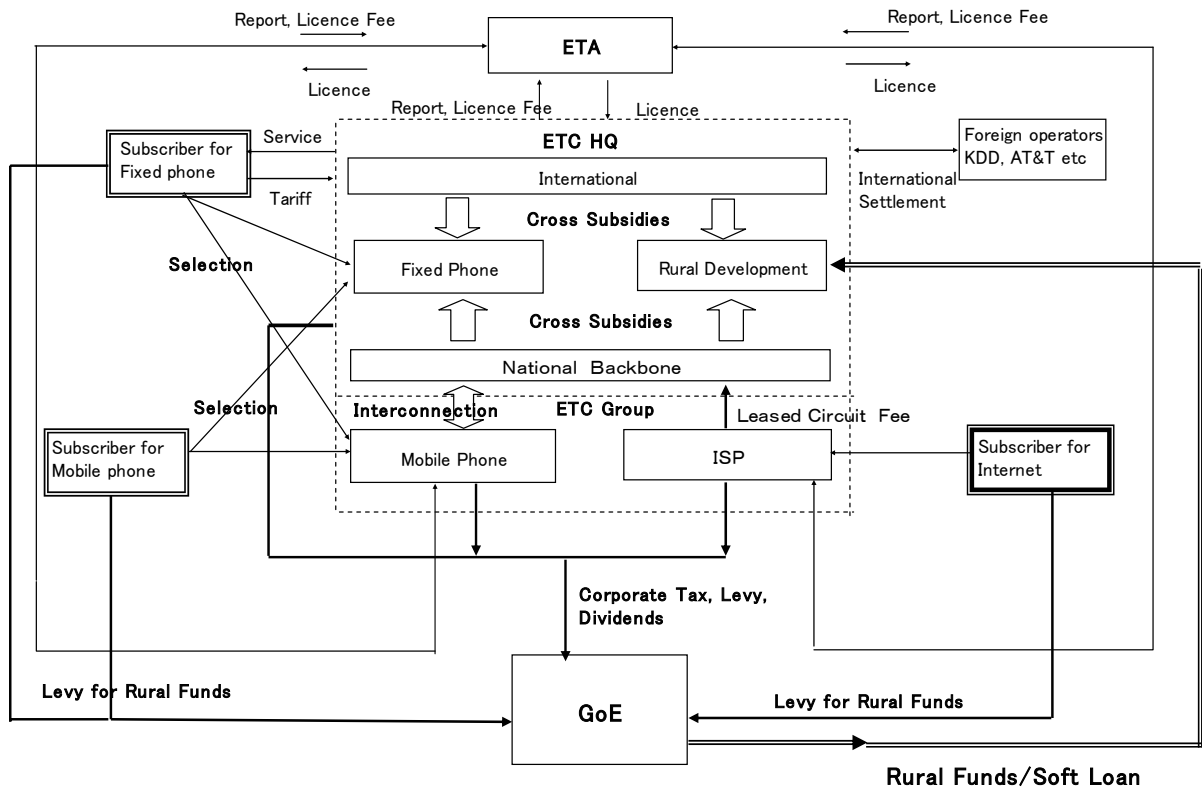


Fig. 8.7-1 Business Model (Scenario 2), after 2008/09

4) Business Model (Scenario 2)

This business model applies in the event that private sector companies fail to enter the Ethiopian telecommunications sector even after the market is opened up to competition in 2008/09.

Market conditions are worse than in Scenario 1, and if the sector is left as it is, the monopolistic environment will have a detrimental effect, leading to a slowdown in the revitalization of the market.

Accordingly, the Ethiopian government must facilitate the injection of private capital into the telecommunications sector by splitting up ETC (ETC-HQ, ETC-MOBILE, ETC-ISP), thereby promoting the opening up of the market. At this time, the minimum requirements suggested under the Master Plan are that the government be the majority stakeholders in both ETC-MOBILE and ETC-ISP.

In other words, the government's role would be to speed up the healthy development of the telecommunications sector by creating an environment in which the private sector would be able to take on the responsibility of developing the mobile-phone and ISP services.

Under this Business Model, ETC-HQ would 1) provide basic services (fixed-phone services), 2) have the responsibility of maintaining the national backbone network from the standpoint of national security, and 3) be run as a state-owned telecommunications operator which is duty-bound to develop the rural sector, measured in terms of improving tele-access.

(5) Risks Involved in Scenario 2

The potential risks of implementing Scenario 2 are as follows:

Risk 1:

The biggest risk in this scenario is that of problems involving the strategic equity partner.

ETC has been granted a telecommunications carrier license the year 2002 by the ETA, one condition of this license agreement being the achievement of a roll-out target for rural development. Naturally penalties apply if ETC fails to meet this target, however considerable doubt remains concerning the actual efficacy of any such penalties.

This being the case, there is a very strong likelihood that the strategic equity partner will discard unprofitable rural development and concentrate investment in more profitable urban areas, particularly on the proliferation of mobile-phones.

Rural development itself is extremely unprofitable: returns are too low to recover the investment made and the best that can be expected is perhaps enough to cover operating costs. Naturally, therefore, those running the business may decide to steer clear of rural development, even if it means paying a penalty.

Risk 2:

Scenario 2 is based on the premise that private investors have failed to show any interest investing in the Ethiopian telecommunications sector. The Master Plan suggests splitting off the mobile-phone and ISP operations, although looking at the sector as a whole, there is a likelihood that the situation would be the same as if ETC's monopoly were to remain. In order to reduce this risk, the investment structure of ETC-mobile and ETC-ISP should include a majority shareholding by private investors. This might take the form of an employee stock ownership plan. Another option is the introduction of MBO (management buyout). Whatever the case, the emphasis should be on highlighting the fact that ETC-mobile and ETC-ISP are independent business units.

Risk 3:

If the telecommunications sector is to be run as a monopoly even after a strategic equity partner has become involved in management, the competitive principle will not apply and there is a risk of rising telecommunications charges. The ETA should be responsible for addressing this issue by implementing countermeasures such as price caps.

However, there is downward pressure on the international call rates from other countries, along with plans to reduce charges accordingly.

Risk 4:

Low local call charges and monthly basic rates pose the risk of a sudden increase in subscribers with marginal income levels (i.e., F2 and M2 subscribers described above). The Master Plan

dictates that rural development is to implement cross-subsidies from earnings from highly profitable mobile and Internet services. Should the composition of subscribers become unbalanced, it will be difficult to maintain these cross-subsidies.

Risk 5:

Setting up a rural fund is part of the business model, but there is a risk that Ethiopians will not accept a levy on call charges.

The issue of funding for rural development is one that must be resolved within the telecommunications sector. For this reason, a better understanding of the people and the government must be sought with regard to setting up this rural fund. Naturally the levy would not provide all the funding required for rural development and some ETC earnings would have to be directed toward rural development in the form of cross-subsidies.

Risk 6:

At present, under the master plan, the number of fixed-phone subscribers is expected to increase by 859,488 and the number of mobile subscribers by 830,827. These figures assume average annual economic growth of 6.3%. In recent years, however, droughts that cause widespread devastation across Africa have increased every decade due to global climatic changes. Assuming a hypothetical drought cycle of three years, this increase in droughts would have an enormous impact on the economy of Ethiopia and could prevent the country from reaching the projected number of subscribers.

Risk 7:

There is a risk that it will take time for the government to approve a strategic equity partner, resulting in a significant delay in the commencement of actual joint operation of ETC.

The short-term target for joint operation in the master plan is 2005/06, but any delay in a decision on the strategic partner would make it highly likely that funding and the management plan would require further review.

8.8 Subscription Billing and Collection

8.8.1. Current Collection System

Subscribers are currently billed by one of two methods: Cash Billing or Credit Billing.

(1) Cash Billing

Cash Billing begins with a phone call from an ETC employee advising the subscriber of the amount to be paid. After being contacted by the employee, the subscriber is notified to expect a cash collector at his premises for a specified period of time, or advised to pay at a telephone office. If the money has not been received after one week, a reminder notice is sent to the subscriber. If there is no response, transmission is restricted and in due course the subscriber is disconnected.

Cash Billing applies primarily to subscribers whose bills are no more than Birr 50.0/month.

The problem from ETC's point of view is that the Cash Billing collection period is too long. ETC's financial indicators show that in 1998 the accounts receivable collection period stood at more than 240 days, which is indeed a long time, although in 2001/02 that figure had improved to 140 days.

The Study Team examined the situation in Addis Ababa, where most ETC subscribers are concentrated, to determine how the system works in practice. First, with regard to staff numbers, there were a total of 127 collectors covering the entire Addis Ababa area as of November 2001. These collectors were responsible for 151,420 subscribers, or 45% of the total number of ETC subscribers throughout the entire country, and collected a total of Birr 20,835,149 in a month. The average collector was responsible for 1,192 subscribers and collected Birr 164,056 (US\$19,165) in a month. This amount is probably too much for an employee with a monthly salary of approximately Birr 600 to handle, while the average allocation of 1,192 subscribers is probably excessive. There are additional problems with the current system in which collectors visit customers home to collect cash. During daytime, customers are on their daily business and the collectors return back to their office with out adequate collection success. Consequently, the delinquency period tends to increase. To overcome this problem, ETC has developed a plan to construct a subscription collection office in Addis Ababa. As the costs are not excessive, the plan has merit.

In addition to this plan, the Study Team proposes roughly tripling the number of collectors, to approximately 400. Each collector will therefore be responsible for fewer than 400 subscribers and will collect no more than Birr 60,000.

(2) Credit Billing

Credit Billing applies to heavy users, or Key Subscribers.

The problem from ETC's point of view is that the billing process is slow and unreliable. This problem stems from Ethiopia's social system, which has until recently shunned the use of automatic payments from bank accounts as a means of paying subscriptions. However, the majority of government officials, aid organizations, and business users already have bank accounts, so once an automatic payment system is introduced, the billing problem will disappear with regard to these users. In addition, the introduction of e-billing should be considered for heavy users who are also Internet subscribers.

The Key Subscriber Unit should be responsible for monitoring the entire process from billing to payment. A suitable organizational structure must be firmly established to make this possible. (The Key Subscriber Unit is discussed in another section.)

8.8.2. Outlook for Subscription Collection and Strategic Initiatives

The following are some thoughts on possible changes to the way subscriptions are collected for the fixed-phone, mobile-phone, and Internet services.

(1) Fixed-phone

As indicated by the results of the profitability study, 5% of the total subscribers account for 60% of the total revenue. The subscribers who make up this 5% are referred to as “Key Subscribers” or “Golden Subscribers.” By making full use of a service unit (the Key Subscriber Unit, as suggested in the Master Plan) that concentrates on providing service to these subscribers, it should be possible to secure 50% of fixed-phone revenue.

Because most Key Subscribers have bank accounts, every effort should be made to explain to these subscribers how convenient and safe the automatic payment system is. Customers should be encouraged to set up automatic payments as quickly as possible. With this in mind, it should be emphasized to customers that the system is not being implemented to suit ETC; rather, the advantages to them should be stressed.

It may be worth considering the implementation of a campaign strategy in which subscribers who set up automatic payments within a set incentive period are entitled to a discount of approximately 5% on user fees for a period of one year following the date on which the automatic payments are set up.

The campaign strategy described above relating to key customers should be completed by the end of FY 2003.

With regard to subscribers other than Key Subscribers, specifically general subscribers who find it difficult to open bank accounts, as mentioned above, service should be improved by increasing the number of collectors and establishing a subscription collection office. According to a report from the Financial Division, the collection rate was already above 90% as of July 2002. The figures indicate that, even after the number of subscriber increases, it should be possible to maintain a collection rate of around 80%.

(2) Mobile-phone

With regard to mobile-phone subscribers, a pre-paid system has been strategically introduced, and no major collection problems are likely to arise in the future.

An analysis of post-paid subscribers shows that 10% of subscribers account for 50% of the total revenue. Key customers in the post-paid mobile-phone sector amount to a mere 3,000 subscribers. By implementing a similar approach to that adopted in the fixed-phone sector, it should be possible for the Key Subscriber Unit to secure 50% of total mobile-phone revenue.

In order to encourage subscribers to switch from post-paid to pre-paid mobile-phones, it is necessary to implement a campaign including offers such as the free exchange of phones and the

provision of incentives at the time of exchange. Consideration should also be given to introducing a Strategic Business Plan aimed at concentrating as much as possible on pre-paid service.

With regard to the nonpayment of subscriptions, it would be more effective to disconnect transmission and reception services simultaneously.

(3) Internet

All Internet subscribers have PCs and are able to receive e-mail. Accordingly, bills may be sent by e-mail and, with the addition of a function that checks whether e-mails have been opened, it is also possible to confirm that the bills have been received.

In the case of subscribers who began using the service when use of the Internet was first starting to spread, non-payment is more likely to be due to negligence than economic reasons. Accordingly, as with the other services, it is important to implement a campaign designed to encourage subscribers to set up automatic payments from bank accounts.

If payments are two weeks overdue, accounts must be closed. If a subscriber's computer is not working, he or she will not be able to use the Internet during this period anyway, so no further inconvenience will result from closing the account.

A pre-paid system for the Internet is a possibility. Private ISPs are likely to enter the market after 2010, at which time pre-paid Internet accounts managed using ID numbers and passwords will be introduced.

8.9 Definition of Tele-access and Tele-density

(1) What is Tele-density?

Until now, tele-density has been the indicator used to measure the degree of penetration of telecommunications services in a country. But how much can tele-density alone tell us about the state of telecommunications development? Here Study Team takes another look at what tele-density actually means.

Simply put, tele-density is an indicator that shows the number of fixed-line telephones per 100 people in a given region. A tele-density of 1 in a country with a population of 100 million people would indicate there are 1 million connected telephone lines.

Looking at the situation in Ethiopia, as the population is 65 million and there are 320,000 telephone lines, i.e. its tele-density is 0.49. More than 20 years having passed since the ITU in the early 1980s set a tele-density target of 5 for the various African nations, yet the average figure for the whole of Africa has only just reached 1.0. Compared to this average for the entire continent, Ethiopia's figure of 0.49 is low. In addition, because most subscribers are concentrated in the urban areas, a huge communications gap has opened up between the urban and rural populations. The tele-density for the capital Addis Ababa (population 2.64 million) is 6.0 (159,381 telephone lines). On the other hand, tele-density in the rural areas alone is less than 0.001. In other words,

there is practically no service at all in rural Ethiopia.

Using tele-density as the main indicator of telecommunications development in a country like Ethiopia that is still in a developmental stage makes it difficult to achieve development goals and maintain staff motivation. For this reason, in the Master Plan Study Team uses tele-access as one of the main indicators of development.

(2) What is Tele-access?

Tele-access is an indicator that shows what percentage of the population in a given region is able to access a telecommunications service. In the Master Plan, Study Team bases its assessment on the percentage of the population that has access to a telecommunications service within a roughly 5 km radius.

Ethiopia's population is 15% urban and 85% rural. Looking at the areas in which telecommunications services are currently available, it is clear that there is an imbalance favoring the urban population. As a result, in 2001 tele-access was less than 10%. In other words, over 90% of the population is being forced to live without the benefits of a telecommunications service. Put another way, only 10% of the population has access to a telecommunications service, with only a small minority benefiting from this service.

As a state-owned company, ETC must provide a telecommunications service access to as many citizens as possible and increase the number of people benefiting from its service. Tele-access is the indicator that shows whether or not it has fulfilled this mission.

(3) Points of Difference between the Focus of Demand for Tele-density and Tele-access

In the case of tele-density, the focus of demand is the subscribers who have telephones installed in each household. A single telephone line is sufficient to meet each single case of demand. When Study Team talks about demand in the Master Plan, it is this demand for tele-density that Study Team is referring to.

In the case of tele-access, however, the focus of demand is not permanent subscribers, but all telephone users, whether they use a telephone once or twice a month, or only several times a year. In other words, Study Team is talking about universal access, or the distribution of the opportunity to access telecommunications services. However, it should be noted that an increase in tele-access does not necessarily translate into an increase in traffic.

If the goal in the Master Plan of constructing 5,000 public call offices is achieved, tele-access should reach 87%, which is sufficient for telecommunications to function as a public service.

8.10 Tariff Policy

Considering the business model in this chapter, the need for a revision of call charges was strongly identified. Even supposing that the monopoly situation continues, the ETC business environment will be threatened by the start of worldwide price reduction competition on international call

charges, which form the core revenue, and the fact that voice traffic itself is likely to drop with the spread of Internet telephone services. The management of ETC must therefore take steps to minimize these effects. Revising charges is one important measure.

ETC must first analyze the situation and report the results to ETA to ensure an understanding of the changes to the business environment. (There should be an obligation to ensure accountability, so this should not be a problem.) Based on this report, ETA must gain an understanding of the ETC business situation and then consider revising charges and reassess the balance with the rollout target. As evaluated by the study team, achieving the rollout target set for 2002 will be difficult in the current ETC business situation. ETC may revise charges as described in the report set out by PWC, but the study team's view is described below.

While current charges are high for international telecommunications in comparison with other countries, charges for domestic calls appear to be very low. There is no yardstick for apportioning logically by type of service the cost of resources invested by ETC to provide telephone services.

Taking the cost of local calls, for example, can be broadly divided into two costs: the cost of the subscriber accessing the local exchange and the cost of switching the local call. The total cost for local calls includes the subscriber access cost, which should be covered by the installation charge paid by the subscriber when they take out a telephone subscription plus the fixed monthly rental charge collected irrespective of calling charges.

The cost of investment in rural regions is extremely high. For a long time the average cost limit per line is said to have been around US\$1500. In these latest calculations, recent technological innovations have brought the cost in urban areas down to US\$500/line. However, in rural areas, because the cost includes installation of a backbone network, it rises to a costly US\$10,000/line.

If the ETC pricing scheme is analyzed from a cost recovery perspective, it becomes apparent that charges are too low.

The current situation as identified by the study team is described below.

(1) Low Price Setting

Both connection charges and monthly rental charges are low compared to other similar countries. In neighboring Uganda, the connection charge is US\$ 113.33, and the monthly rental charge US\$ 6.67.

(2) Increase in General Subscribers

The low monthly rental charge encourages residential users who each provide only a low income from charges to subscribe. The low basic monthly charges create the characteristic of current phone users, and are a major factor. This characteristic is the fact that more than 70% of subscribers primarily use their telephones only for receiving calls. As they only receive calls, the monthly call charges paid are less than Birr 10.0. Even when combined with the basic monthly

charge, the vast majority of subscribers are paying less than Birr 50.0 per month.

While this is beneficial in terms of improving tele-density, these subscribers are infrequent users of the more profitable international and domestic toll call services. This means that costs rise as more lines are installed, and the consequent lack of rising profits and delay in cost recovery must be taken into account during tariff setting.

(3) Basic Monthly Charge Setting

Even if it is difficult to institute cost recovery measures in rural areas, ETC needs to look at a charging system that will allow costs to be recovered in urban areas, home to over 90% of subscribers. If the cost limit for installation is set at US\$500/line and useful lifetime is assumed to be 15 years, with a discount of 10%, a minimum monthly rental charge of US\$6 will be required to recover costs.

(4) Domestic Calls

Compared with other countries, the charges for domestic calls are set extremely low. People pay three times the normal charges using subscriber phones lent out in front of private stores. This phenomenon indicates that now is the ideal time for revising charges. It is now nearly 10 years since charges were last revised in 1993. In this period, the Ethiopian national economy has grown annually by an average of just over 4%, and inflation is continuing at an annual rate of 5%. At the very least, charge revisions are required roughly once every three years to counter the effects of inflation. If charges are to be revised in 2003, a price increase of approximately 30% is considered appropriate for domestic calls.

(5) Internet Charge Revision

ETC revised Internet charges in August 2002. Subscriber fees were reduced by approximately 80%, and connection charges were shifted from package systems with usage time limits to fully metered systems. Now, in order to maintain the minimum charges prior to the revision, ETC cannot recover unless users use the service for at least 20 hours per month.

The reasons behind this charge revision included the fact that Internet subscribers were not increasing as expected. However, when implementing the charge revision, ETC did not have sufficient time to check whether the reason behind subscribers not increasing really was because the charges were considered high. Profitability is examined using only an evaluation of the Internet service alone, but ETC operation would not currently be feasible without cross subsidies, and so it is considered that it would have been more appropriate to closely examine the role of revenue from the Internet within the overall business.

This charge revision was therefore by no doubt welcomed by existing subscribers and subscribers who had PCs but who didn't use the Internet because of the high cost. From the ETC business standpoint, this loss must be made up for by increasing the number of subscribers.

Is this possible?

Increased Internet penetration cannot occur without a spread of hardware, in other words, PCs. The Ethiopian government is considering ICT spread through increased Internet penetration. ETC took the bold decision to lower Internet charges, so the Ethiopian government must support this by implementing measures such as reducing tariffs on PCs, otherwise the benefits of the charge revision will be greatly reduced.

The ETC profit structure continues to change dramatically, and is certainly not a situation that should be viewed optimistically. It is conceivable that business could be terminated almost in an instant should a fierce price war start. It must be recognized that nurturing core revenue-earning businesses is essential for achieving a universal service (rural development).

(6) International Call Charge Price Reduction

The current charge settings are set rather high compared with industrial nations. It is therefore planned to lower international call charges by 2003 in accordance with ITU recommendations.

(7) Setting Rates for Pre-paid Mobile-phones

As explained in this chapter, in terms of future ETC business strategy the company's mobile-phone business will be its most important source of revenue. It would be no exaggeration to describe mobile-phone rates as the decisive factor in the ETC business environment from this point onward. The Master Plan forecasts rapid growth in mobile-phone use over the next five years, with particularly high growth expected in pre-paid mobile-phones. Pre-paid mobiles not only avoid the risks associated with collecting payment, but allow people to purchase pre-paid cards for the required amount, as they need them, and thus are an economical option for subscribers as well. It follows therefore that actively promoting the use of pre-paid mobile-phones will generate considerable benefits for the Ethiopian people.

ETC is to launch its long-awaited pre-paid mobile service in November 2002. A number of issues remain however with regard to pricing of the service.

The minimum value of the pre-paid cards (rechargeable) available for purchase by subscribers has been set at Birr 25.0. This includes a monthly rental fee and 30 units of calling time, and the card is valid for one month. In other words, simply paying Birr 25.0 a month will give pre-paid mobile-phone subscribers access to a mobile-phone. From a business perspective, because the monthly rental fee for mobile-phones to date has been Birr 50, this equates quite simply to a halving of the revenue per subscriber. Moreover, because this Birr 25.0 gives subscribers 30 units of calling time, ETC revenues may be expected to come out well below the projected figures.

It is worth taking another look here at the way in which existing subscribers in Ethiopia use telephone services. An analysis of fixed-phone subscriber charging data for March 2002 shows that around 50% of subscribers paid less than Birr 30 in calling charges. These subscribers mainly use their phones for incoming calls.

Surely most new subscribers from now on will belong to this group?

There is a concern that call traffic will not increase to the anticipated levels, and that subscribers using around Birr 30.0 in calling time per month will be the only group to increase in number. Quite simply, for pre-paid mobile subscribers to reach the average level of use of post-paid mobile subscribers (US\$ 247 p.a.), they would need to make around 200 minutes of local calls per month.

Providing mobile-phone access at a low price is a commendable aim. However, in the absence of a financially sound telecommunications provider, any such service would fail to be sustainable. As subscriber numbers increase, so do the cost of investment, and running costs. A telecommunications business must generate sufficient income to cover such costs. The profitability of other telecommunications services (fixed-phones, international calls) is definitely on the decline. Without a steady flow of income from mobile-phones, in a country currently at a stage of development that requires expansion of its regional telecommunications network, it will be difficult to sustain a healthy telecommunications operation.

It is vital to understand that at Ethiopia's current stage of development, a trade-off exists between providing low-cost services, and expanding the telecommunications network.

The low rates set for pre-paid mobile-phones must be reviewed, and urgently.

8.11 Advice on Sector Business Strategy

(1) Niches and Roles of the Public and Private Sectors

At the current stage of Ethiopia's development, entrusting the private sector with the whole of the telecommunications sector is not a viable option, for reasons of national security, and in the interests of providing a universal service.

In terms of the respective roles played by the public and private sectors, a business model is recommended in which the private sector operates mobile-phone and ISP services, and the public sector provides basic telecommunications services (fixed-phone services, international calling, maintaining and managing the national backbone, rural development).

(2) Splitting ETC

To bring about a competitive environment at the earliest possible stage of development in telecommunications services, it is recommended that the current ETC be split into three companies (ETC-HQ, ETC-Mobile and ETC-ISP). ETC-HP would belong to the public sector, while ETC-Mobile and ETC-ISP would join the private sector as independent business units.

(3) Establishing a Rural Fund

The establishment of a rural fund is advised for the purpose of promoting rural development. If a 3% levy is added to all calling charges, by 2020 this will cover 42% of the annual investment required for rural development.

(4) Reconsideration of the Social Benefits

At this stage in the development of the Ethiopian telecommunications sector, it is a mistake to view lower calling charges as a social benefit. Not even 5% of the population have access to a telephone. The rest of the Ethiopian population - over 95% - currently have no telephone access. Under these circumstances, cutting telephone charges will only benefit a few consumers in the middle and higher income brackets.

It is crucial to realize that in the context of the current Ethiopian telecommunications sector, any social benefit will lie in improving tele-access as quickly as possible.

(5) Promoting Growth in Private Payphones (From Examples of Cambodia, Bangladesh)

Growth in low-cost mobile-phone access brings an increase in the number of private payphones. This has been a particularly notable trend in ASEAN countries such as Cambodia and Bangladesh. In the most basic terms, private payphones may be described as mobile-phones rented out on a time basis. In Cambodia, private payphones provide an adequate substitute for public calling boxes in urban areas.