

Supporting Document 8.5

TARIFF SYSTEM

1 Basic Structure of Telecommunication Tariff

1.1 Historical Background (View of Public Utilities)

Like the "public utilities" that cannot be left to the market principle, special management and administration have been required for the telecommunications business even in the capitalism and market-oriented economy society as in the case of businesses including transportation, post, broadcasting, electric service, water service, and gas service. This telecommunications business has been administrated by public regulations for the security of the "monopoly" and administration and management of the public utilities to guarantee the stable and proper provision of services to the people in terms of the following two factors: (i) "necessity of services and request for ceaselessness in the daily life", in other word, public utilities must be necessary and ceaseless in the daily life of the people, and (ii) "non-stockage", in other word, a characteristic that is indispensable and has no or extremely low degree of stockage (easily understandable by comparing with food and clothing).

1.2 Price Setting Model in Public Utilities

The public control agency is to control prices to fairly adjust interest opposed between telecommunications carriers and users. The conventional economic science investigated "marginal cost" and "Ramsey Rule" (refer to the attachment) as a price setting model of public utilities.

The current public utilities have adopted a "total cost basis" for the price setting model.

The total cost means as follows.

$$\text{Total cost} = \text{cost} + \text{fee}$$

$$\text{Cost} = \text{operating expenses, depreciation, various taxes}$$

$$\text{Fee} = \text{rate base} \times \text{fair fee rate}$$

where, rate base is the value of business property, and fair fee rate is a rate the government authorizes. The total cost method basically calculates the cost in units of services such as local phone call and long-distance call and reviews it regularly. In many practical cases, however, the administration puts all subscriber telephone services in a basket, reviews the cost irregularly, and hardly reflects current status.

Setting an actual tariff system adopts "two-part tariff system" according to the total cost method. Of the cost necessary for providing services, this tariff system collects fixed cost as "base rate", and variable cost, as "call charge" of meter rate.

In the strict sense, the following rate system is usually adopted including new contracting charge and initial expenses for installation:

$$\text{Telephone rate} = \text{initial payment} + \text{base rate} + \text{call charge}$$

1.3 Cross subsidies as public utilities

Cross subsidies are a basic function of public utilities. A set of "legal monopoly," "control of public agency," "total cost basis," and "cross subsidies" is administrated for the establishment as the public utilities. Collapse of them even in part can no longer establish the business model.

From a viewpoint of welfare for the people, what lies at the base of the cross subsidies is the concept making services available and the idea, "those who have high capability of payment assist those who have low capability of payment" to diffuse telephones and achieve universal services. "Reallocation of income" is to be made through public utilities.

For example, cross subsidies are implemented as follows.

A. Discrimination of telephones

for business use and home use → Assistance to general citizens from enterprises

B. Domestic communications from

international communications → Assistance to users in developing countries from users in advanced countries and assistance to domestic communication users from international communication users

In Ethiopia, international settlement is going down, but the fact that the cross subsidies exist still remains.

2 Comparison of Charges with Other Public Utility Charges

As mentioned above, telecommunications and other businesses including transportation, post, broadcasting, electric service, water service, and gas service that cannot be left to the marketing theory require special management and administration as "public utilities." However, since the charges for these businesses are determined by their specific characteristics, intercomparison makes little sense. For example, prices of raw materials such as water and fuel for power generation differ depending on the circumstances of countries, and do not relate to the communication charges. About four-time difference in water service charge can be seen among major cities in advanced countries. These differences are considered to result from the degree of easiness in assuring water sources, degree of private capital development, and financial policy.

Thus, comparison of the communication charge with these charges is a comparison in different fields and does not make sense substantially.

3 Issues on Tariff System Coming Up with Deregulation

When reviewing the tariff system in Ethiopia, it is desired to grapple with, bringing into view the global "deregulation" trend based on the "privatization" to be planned around 2010 and "basic agreement for deregulation of telecommunications markets" established in the 1997 WTO, in addition to solutions of current problems regarding public utilities and the support to new services. The following are Ethiopian issues that bring into view the transition to market competition from public utilities based on the case study of an advanced country (Japan) that ran into competitive environment upon the privatization and deregulation.

3.1 Impact of privatization and deregulation

Several issues are extracted based on the case study of the Japanese model about impact of privatization and deregulation and measures to cope with the impact. (For the overview of the case study, see the attachment).

The idea of privatizing and deregulating telecommunication services, publicly monopolized for a long time, results from the insight that the development of telecommunications technologies and digital revolution will allow the ICT (information communication technology) industry to play a role as a leading industry for leading the industries and society in a period from the end of the 20th century to the beginning of 21st century, and will change social structure as "ICT Revolution", referred to as the third Industrial Revolution. Many countries then reached the conclusion that the privatization and deregulation of telecommunications industry are essential, and that the "invisible hand" of market competition should be used to have a view of the future by placing the ICT industry as the key industry for their development and to effectively construct an advanced information communication infrastructure as soon as possible.

This technological renovation has also enabled the telecommunications industry to use the latest facilities at low cost and has sharply lowered technical and financial barriers against new participants. Thereby abundant supply is allowed in free markets if "non-stockable and ceaselessness of telecommunications services" is not guaranteed by public monopoly. They have

reached a decision that, if a defeated carrier exits the market, a substitute will appear generating no problem regarding the service provision. That is the basic idea to handle telecommunications services not as "public goods" but "general consumable goods," allowing public regulatory organizations to enter into the picture not as a control agent but from a standpoint of "consumer protection" only when problems occur.

Assumption of such global trends can extract the following issues for Ethiopia.

A. [Current situation to privatization] Grappling for privatization (Starting to work for grasping problems regarding the current tariff system and improving the system)

(Issue)

- Assurance of transparency in management and accountability for improvement of environment to accept domestic fund and foreign fund
- Management reform, organization reform for efficiency in management
- Introduction of division organization system, and thorough administrative accounting for understanding of current cost structure of each service and analysis of influences by cross subsidies

B. [Privatization to deregulation] Preparation for deregulation (transition to a tariff system that meets a cost system consistent to the beneficiary-payment principle)

(Issue)

- Tariff rebalance based on cost structure (Reference 1) for setting of conditions for competition by dominant carriers (former communications bureau) and prevention of cream skinning by new carriers)
- Introduction of inter-carrier connection rate system (access charge) for formulation of fair competition conditions, and opening of networks (free for new carriers)
- Public deregulation, pricing by the market, and incentive for carriers applying price cap system (Reference 2) and selective rate system (Reference 3)

3.2 From public utilities to market price

Telecommunication markets are deregulated to leave prices to the "invisible hand of market." To grow sound markets, the control authority needs to make efforts toward the preparation of fair competition conditions for deregulation, to supervise for faithfulness in the implementation, and to undertake prompt and fair mediation in case of dispute.

Failure to do so will give remarkable difficulties in new participation of domestic fund and foreign fund and in the growth of new markets.

The preparation of fair competition conditions requires the following reforms regarding the tariff system.

- 1) Rate rebalance
- 2) Inter-carrier connection charge system (access charge) → including long-term incremental cost system (Reference 4)
- 3) Price cap system

Since evaluation criteria have not yet been determined in many portions, it is necessary for the introduction to Ethiopia to investigate prior cases, to study applicable conditions in Ethiopia, and to make research in detail. Assignment of experts to be dispatched from Japan for a long period is considered to be an effective means.

3.3 Interconnection and connection charges

If a telecommunications carrier having two or more different networks in a country provides communications services, these two or more networks need to be interconnected to secure users'

convenience or to avoid excessive double or triple investments. This interconnection and method of setting connection charges associated with the interconnection are complicated subjects.

(1) Rules necessary for interconnections

When a new carrier enters due to the introduction of principle of competition, a problem regarding connections of their communication lines with the existing dominant carriers will occur. The interconnections put importance on preparation for rules to secure high-quality services and smooth operation after interconnection. They include 1) technical standards for connections and establishment of interfaces, 2) setting of connection charges including system remodeling cost, and 3) agreements for daily operation such as installation, maintenance, and database management.

(Outline of connection rules)

Items to be stipulated by the connection rules are as follows:

- Obligation of carriers having facilities for interconnections
- Preparation for stipulation for connection conditions (including tariff of connection charges)
- Establishment of rules for connection accounting ⇒ (detailed later)
- Preparation and announcement of connection accounting report
- Establishment of connection charge cost calculation rules
- Calculation of connection charges following the rules
- Decision and disclosure of network function providing plan
- Disclosure of connection stipulation and invitation of opinions
- Disclosure of connection stipulation
- Notification at the time of interconnection agreement concluded base on the stipulation

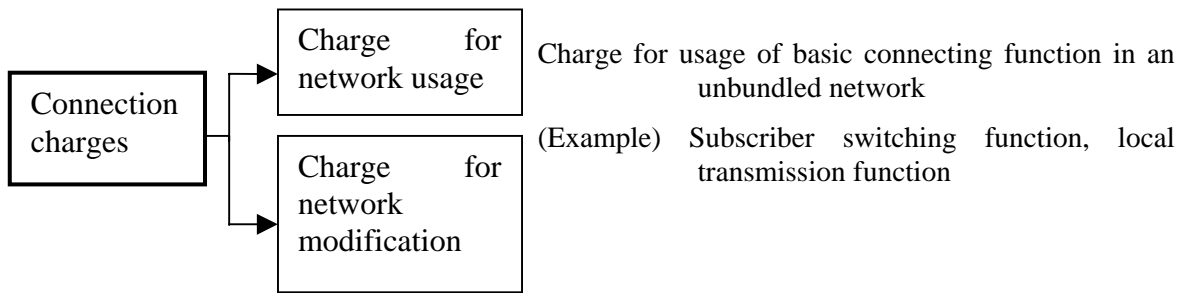
(2) Basic idea to be taken by dominant carriers for interconnections

If two or more network providers exists in a country, a dominant carrier is expected to understand that development of competition will lead to the activation of markets and the diversification of services and to take into account the requirement of other carriers "respond to all requests for connections" in principle, in order to secure users' convenience or to avoid excessive double or triple investments.

To respond to all requests for connections here, for example, means the following.

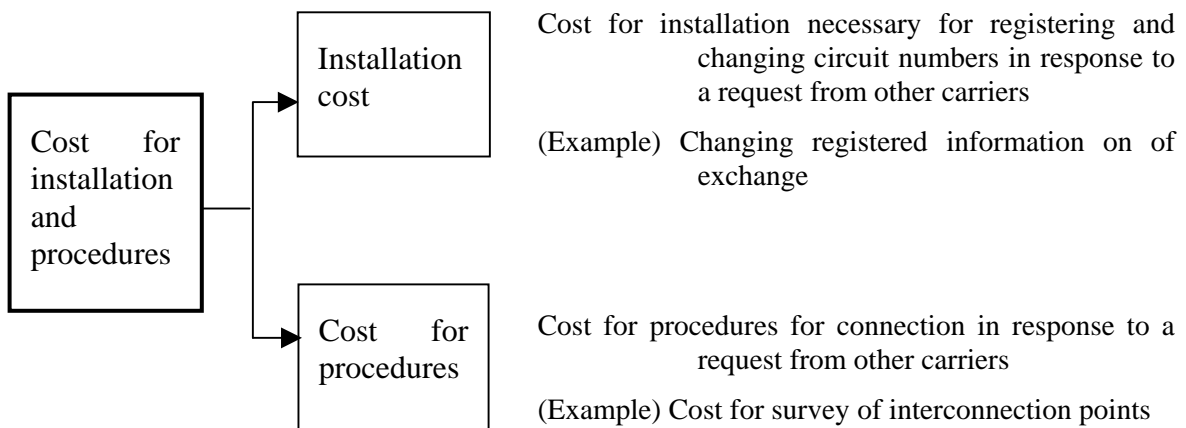
- Request for payment of cost stipulated in the connection stipulation
- Only in the following four cases, dominant carriers can refuse connections.
 - a) Smooth provision of telecommunication services by dominant carriers is hindered.
 - b) A connection may unduly damage the profit of dominant carriers.
 - c) Payment for cost for connections is failed or may be neglected.
 - d) Installation or repair of facilities for connections is technically or economically difficult.

(3) Configuration of connection charges



Charge for usage of functions and facilities required when existing networks are modified in response to a request from other carriers for its single usage

(Example) Connection software development cost, and individual installation cost



(4) Method of calculating connection charges

Though several methods are available to calculate connection charges, connection charges greatly differ depending on a method decided. The decision is a very important subject for the government, determining success or failure of the country's communication policy. This report describes typical two methods actually adopted in other countries: cost calculation method and long-term incremental cost system. This report further introduces their examples in Japan.

A. Cost calculation method

Adoption of this method requires determination of a method of calculating cost on which the calculation of connection charges is based. That is, a method of handling components of cost for telecommunications services (operating expenses, depreciation cost, taxes, fees, etc.) is determined. The cost is then determined based on the method. Though actual cost principle for the calculation from actual construction cost of facilities was adopted in Japan before 2000, the cost calculation method was changed to the "long-term incremental cost system" from 2000. (This change resulted from the acceptance of a request from the United States for reducing connection charges during the Japan-U.S. deregulation meeting.)

B. Long-term incremental cost system

- A method of determining access charge on assumption that communication facilities are constructed at a minimum cost with the latest and most advanced technologies.
- The method was proposed by the United States and is introduced to the United States and some European countries. It was also introduced to Japan in 2000.
- Actual facilities of former public utility companies are not always latest and do not always adopt most advanced technologies. They do not reflect actual cost, either. This

system has an aspect of theory for growing and supporting new carriers by setting lower access charge. In another aspect, this system functions as a measure of "asymmetric regulation" for dominant carriers by the control authority because of the formulation of fair competition conditions.

- Since dispute continues between dominant carriers and new carriers (or the control authorities), evaluation of the system as a cost calculation method has not yet been fixed.

The following examples show points that make it difficult for the control authorities and dominant carriers to coincide. It is important for the Ethiopian Government to consider these points when determining a connection charge calculation method.

- a) In many cases, new carriers who aim at the reduction of connection charges review connection charge calculation model based on the long-term incremental cost system and insist. Some foreign governments advocate while requesting further reduction of connection charges from a standpoint of supporting new carriers from their countries.
- b) On the other hand, dominant carriers who are obliged to rebuild their structures including layoff and wage reduction of their employees due to the sharp drop of connection charges, may confront full-scale conflict of excessive restructuring and a request for "immediate abolishment of long-term incremental cost system.

Reasons why dominant carriers request for abolishment of long-term incremental cost system are as follows:

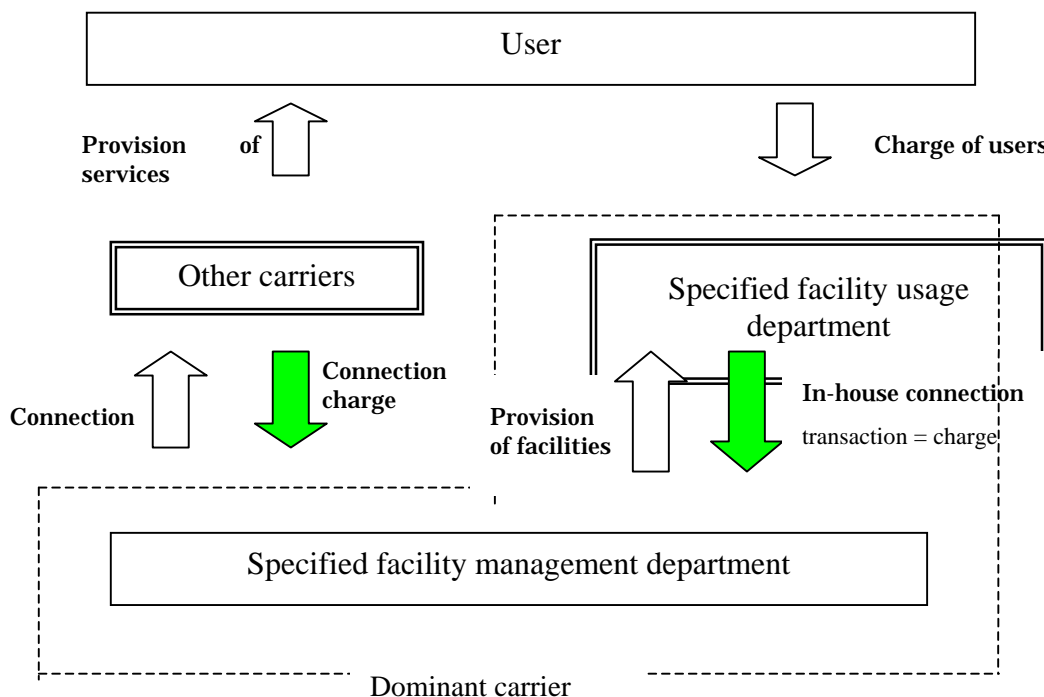
- c) Continued entry of new carriers into local-call service and Internet access service fields coming up with priority connection competition and rapid shift to IP communications and cellular phones have sharply changed the structure of the telecommunications market. In such a competition state, low prices have been achieved for local-call charge and Internet connection charge. Furthermore reducing the charges of users by lowering connection charges through artificial control may hinder sound growth of markets and may give a one-sided disadvantage to dominant carriers as a result, causing unstable telecommunication networks having a role of national security as well as loss of national profit.
- d) New carriers may take an action of not reducing the charges of users according to the reduction of connection charges, which may result in a problem of cross subsidies from dominant carriers to new carriers and foreign capitals.
- e) Further application of the model cost having a structural defect, which will cause an unavoidable occurrence of uncollected cost by virtual model, will prevent the desire for investment in improvements of infrastructures toward the expansion of broadband services and will hinder network advancement.
- f) A great gap between actual cost and the cost of long-term incremental cost model must be rectified.
- g) In the United States, the appropriateness of the long-term incremental cost system is under deliberation at the Supreme Court. It is very risky to promote a calculation system that has not been determined even by the United States in a country where sharp changes in the market structure are taking place.

As mentioned above, the pros and cons regarding the long-term incremental cost system, including the viewpoint of "maintaining telecommunications security in individual countries," may turn into a political problem causing a serious antagonism from a mere cost calculation method. As mentioned above, advancement of networks and reduction of user's charges from a long-term viewpoint form a complex problem containing various elements, and a subject that cannot be solved only by carrying out the long-term incremental cost system. This is the reason why careful and detailed research is desired in Ethiopia when the long-term incremental cost system is addressed when the connection charges is discussed.

Major problems that may cause great gap between actual cost and the cost of long-term incremental cost model are:

- i) Consideration of technical innovations with regard to durable years of exchanges.
 - ii) Consideration of distributed installation in exchanges to secure important communications
 - iii) Consideration of fluctuation in interconnection demand when selecting facilities and calculating costs
 - iv) Review of the maintenance cost calculation method in conjunction with investment unit price
 - v) Review of impractical unit prices of facilities in the model proposal
- 5) Connection accounting

Carriers who introduce the connection charge system need to evenly provide specified facilities to other carriers with the same conditions (charges). This requires a connection accounting system. This system categorizes the accounting system of Type 1 carriers who install specified telecommunications facilities into a department of managing and administrating specified facilities (specified facility management department) and a department of providing services to users by using such facilities (specified facility usage department), allowing the specified facility management department to evenly provide specified facilities to the specified facility usage department and other carriers inside and outside with the same conditions (charges).



b) Development of interconnection in Japan

The number of countries that have completed interconnection processes and mechanism is extremely limited. Since Japan has a comparatively long history of interconnections among such countries, learning the process in Japan will be very helpful to Ethiopia in determining interconnection rules and connection charges in the future.

[1985 to 1994]

- Interconnection for basic telephone service. The dominant carrier (NTT) individually negotiated with new carriers for connections. (Rules for connections are not specified in the Telecommunications Business Law.)
- In the beginning, the number of POIs (point of interface) and interface conditions were not standardized because service areas and exchanges to be used differ from new carrier to new carrier.
- In 1994, POI was introduced on a "one case, one-POI" basis to make competition conditions equal between NTT and new carriers and between new carriers.

[1995]

- NTT announced "open network" and pushed forward interconnections for not only basic telephone service but also advanced telephone services and non-telephone services.

[1997]

- Based on the cumulated rules, legislation was made in the revised Telecommunications Business Law as the "rules for connections" and an approval from the Minister of Public Management, Home Affairs, Posts and Telecommunications was required for the connection stipulation.

[1998]

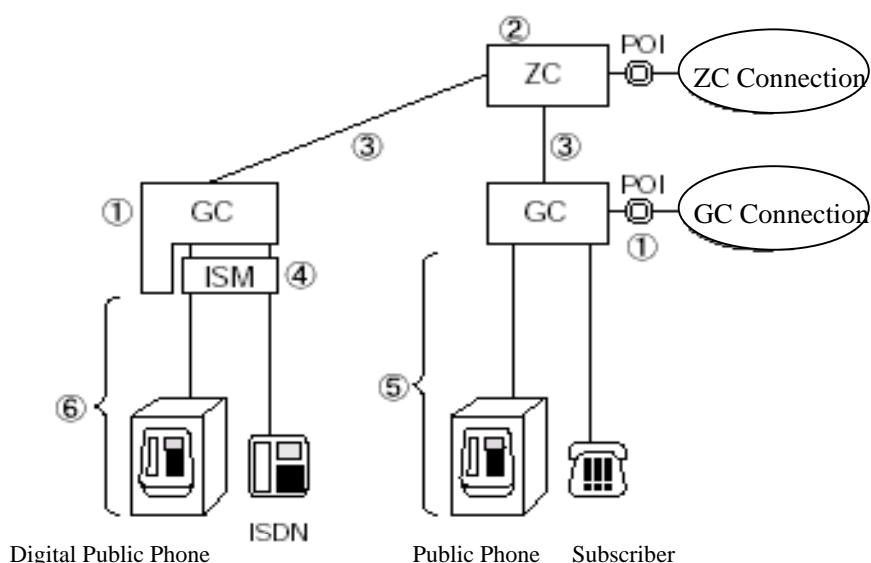
- NTT attempted to develop and implement interfaces for connections between multiple carriers to standardize connection interfaces that had been different between business areas.

Current situation of interconnections in Japan

Interconnections among almost all carriers have been implemented, including international carriers, long-distance carriers, local carriers, mobile common carriers, value-added carriers, IP carriers, PHS carriers, and CATV carriers. Collocation (Note 1) is also obliged.

(Note 1) Collocation: The dominant carrier NTT is obliged to secure a space in a telephone office to respond to a request, if any, for new carriers to install equipment for interconnections.

(Example of connection charge for telephones and ISDN in Japan)



POI: Point of interface
 GC: Local switch
 ZC: Zonal exchange
 ISM: Interface subscriber module

Connection charges	① Subscriber switching function	(¥4.06/3 minutes)
	② Relay switching function	(¥0.20/3 minutes)
	③ Relay and transmission functions	(¥1.07/3 minutes)
	④ ISM switching function	(¥0.46/3 minutes)
	⑤ Pay phone originating function	(¥53.33/3 minutes)
	⑥ Digital pay phone originating function	(¥43.97/3 minutes)

In Japan, the charge for a local call is currently set to ¥8.5/3 minutes, and ¥10/3 minutes for a pay phone call.

3.4 Tariff system of deregulated satellite services

In terms of prices, satellite systems are not used for basic telephone services of domestic communications in areas where ground networks have been developed to some extent. In the current situation, satellite systems are specially used in areas where available fields with greater advantage than that of ground networks, a competitor, can be set. In advanced countries, for example, the VSAT service for telephones and low-speed Internet using INMARSAT, an international satellite, does not have any competitive power at all. For domestic communications, the VSAT service is established as a business and is used for down stream communications from the head office of enterprises having a network of branch offices located in wide areas by using the features of satellite, namely broadcasting and multi-address communications. In areas with no ground networks or in developing countries, the prices tend to be rigid and monopolistic, because a satellite is used as a sole means of communications, and the positive incentive of cost down does not function until ground network expands and competitors grow.

The price of VSAT service under competition is to be determined by the market price as in the case of other communications services. The basic elements are as follows:

1) Factors for determining communication charge

→ Cost, service level (including quality), relation of supply and demand, etc.

2) Parameters for setting charge

- Range of charge (bundling and unbundling), charging structure (fixed amount, variable amount, and combination of these), parameters of fixed amount (time, distance, capacity, charge for usage), etc.

4 Various Issues Regarding Tariff System Primarily Coming Up with Technical Advancement

4.1 Impact and Threat of VoIP and Internet

Diffusion and use of IP networks including the Internet provide significant convenience to people and have large possibilities of providing attractive business opportunities to players in the communications bureau and other ICT industries. However, a wrong measure may cause conventional telecommunications carriers to be considerably affected in the short term.

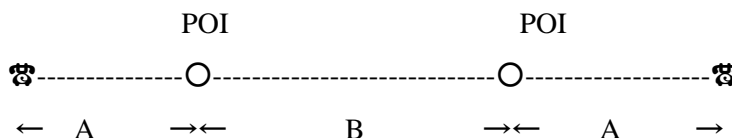
As shown in the materials, the revenue of international phone calls, which occupied nearly half of the revenue in the past, has decreased through allocation negotiation. This is because the charge adjustment principle of international calculation charge for ITU's international calls is intensifying the tendency toward a state where the principle is made closer to the principle of originator charging to decrease allocation to developing countries from the state where developing countries are allowed to receive the half of the revenue though almost all the calls are originated from advanced countries. Conventionally, the half of charge paid by originators in advanced countries re-flowed to developing counties as precious foreign currency earnings and formed a kind of assistance. The reduction of the allocation to developing countries by making the principle close to the principle of originator charging means the decrease of these original financial resources that have been used in the telecommunications sector as well as other sectors in many developing countries, resulting in direct damage to the financial resources for cross subsidies that are put in ordinary state in developing countries.

It is more serious that international call traffic flows to VoIP due to hefty international communication charge, although this is against the domestic law. The revenue of international calls may be drastically lost if Internet service providers illegally perform international VoIP to obtain customers or if individual users use free software on the peer-to-peer basis. Though these behaviors are illegal, the problems lie in difficulty in seizing and digging up the fact and in impossibility of taking practical actions without penalties. Some countries have already confronted serious administrative issues due to the loss of international call charge caused by illegal international VoIP by Internet service providers.

Prohibition of the Internet use means isolation from global information distribution, knowledge base and e-commerce. Because regression is not allowed in the future, it is considered to be necessary to begin reviewing the structure of revenue and expenditure that is currently depending on international call charge, address the reformation of cost-based charge, to reduce international call charge, and to reconstruct businesses associated with the Internet.

4.2 IP telephone price setting

- 1) Carriers who make IP-based trunk circuits to provide telephone services at low prices (most dominant)



- A: Access network of a dominant carrier
- B: Relay/long-distance network based on IP technologies of an :IP telephone company
- POI: Point of interface

End-to-end charge of dominant carrier > End-to-end charge of telephone company

End-to-end charge configuration of IP telephone company

= Access charge for section A (Note 1) x 2 + IP telephone service charge of the company for section B (Note 2)

(Note 1)

Payment of the access charge calculated from the cost for facilities of the dominant carrier. However, adoption of the long-term incremental cost system for this calculation makes the charge lower than the actual facility cost, resulting in cross subsidies for new carriers from the dominant carrier.

(Note 2)

A network is constructed with routers and servers based on IP technologies without using existing telephone exchanges and relay equipment. This greatly lowers the facility cost. Taking into account strategies of competition with the dominant carrier, the operating expenses of the company, profits and so on, the service charge can freely be set as a market price. (Since the upper limit of the end-to-end charge is set using the price cap system based on the expectancy rate of productivity improvement covering the existing facilities and technologies of the dominant carrier, the price, if lower than the upper-limit value, can be freely set and changed only by notification.)

2) Additional services provided by Internet service providers

Internet service providers who are always providing flat-rate Internet connection service provide subscribers with additional IP telephone service (as a set service) similar to an extension telephone service among subscribers by always using connection environment.

Continuous Internet connection charge (fixed amount/month) + IP telephone service charge (fixed amount/month)

What types of services will be provided in Ethiopia?

Some providers provide a service that allows only the calls originated from ISP subscribers to be connected to general telephones. As in the case above, however, access charge is paid and a metered rate is set.

For reference, the attached table shows an example of continuous connection charge in Japan.

3) Broadband

Recent advancement of communications technologies remarkably contributes to remarkable reduction of cost for broadband communications. Increase of transmission capacity is primarily due to the reduction of relay transmission cost. Especially, the development of DWDM (Dense Wavelength Division Multiplexing) has reduced the relay transmission cost by one percent order from the previous cost. New transmission systems such as ADSL as well as optical fiber transmission succeeded in greatly reducing the access line cost per transmission capacity. The above-mentioned example of continuous connection charge in Japan obviously shows the actual condition.

5 Recommendations

As a result of the investigation and analysis of the current situation in Ethiopia, this report recommends mid-term to long term issues and measures, taking into account global trends of the telecommunications sector.

5.1 Actions to be taken for privatization

(1) Introduction of division organization system

In preparation for future company spin-off and complete privatization, the "introduction of division organization system" needs to be implemented. Grasp of cost structure of each service unit and clarifying the state of revenue/expenditure are required to cope with the competitive situation. Accountability must be secured and it will be effectively used for the explanatory grounds for charge levels and price cap and for the explanation of cross subsidies state.

(2) Administrative reformation

5.2 Actions to be taken for deregulation

(1) Rebalancing for a tariff system based on cost structure

At a stage where the division organization system and administrative reformation make progress to some degree, conduct charge rebalancing for the revision to "charges matching with the cost structure consistent to the beneficiary-payment principle." Though this means a price increase for subscribers enjoying domestic communications at a low price under the favor of cross subsidies from international communications, it is a subject to be implemented as soon as possible, taking changes in the revenue structure into account.

In addition, cross subsidies should not be maintained for the assistance to specific subscribers, but should apply to investments for the implementation of universal access and should be used effectively as the initial investment of facilities to achieve critical mass in networks.

(2) Action items to be taken prior to deregulation

Actions to be taken by the time of deregulation are shown below. Each of the actions needs to be investigated in detail, while considering changes in the situation in Ethiopia.

- a) Introduction of inter-carrier connection charge system (access charge)
- b) Introduction of price cap system
- c) Setup of rural fund

6 References

6.1 Reference 1

(Charge rebalance)

To implement and maintain universal services, conduct cross subsidies as public utilities, and reform charge systems that maintain surplus in the entire business to a charge system matching with the cost structure for each service to achieve the beneficiary-payment principle. In this policy, this prevents new carriers who have no obligation of providing universal services in market competitions from receiving unfair profits (cream skimming), reduces total charge by the sound growth of the entire telecommunication market, and returns profits yielded by competition to users through advanced services.

6.2 Reference 2

(Upper-limit price system: price cap system)

- 1) A system that controls the upper limit of charge by price fluctuation rate, expectancy rate of productivity improvement of telecommunications carriers, etc.
- 2) A type of incentive control. Since the existing multiple cost system leads to reduction of

charge even if enterprises improve their productivity and lower costs through their efforts, it does not give an incentive for productivity improvement. However, this method secures profits by streamlining for enterprises to some extent.

- 3) If charge does not exceed the "reference charge index" that is set by the government office for control, charges can freely be changed only by notification. Though an "approval system" was conventionally adopted for changing charges, this system can flexibly change charges, according to the situation.
- 4) Reference charge index = reference charge index of the previous period x (1 + price fluctuation rate – expectancy rate of productivity improvement ± external factors)

This system is to be reviewed every three years.

* The external factors are the revision of corporate tax rate not taken into account.

6.3 Reference 3

(Selective tariff system)

- The conventional economic science defines a general utility corporation as an "an enterprise that integrally supplies multiple services by using single facility" (imagine railway companies or electric companies. Though telecommunications business has included several "service groups" with different properties and facilities, such as local service, long-distance service and international service, the groups were handled in the same manner. For basic telephone services or equivalent services, differences might not be put in question. However, as the advanced telephone services, inter-company communications, cellular phones and the Internet make great progress with the development of digitization, differences that cannot be handled with the same scale become obvious. Thus price settings and tariff system have decisive meaning with the introduction of competition.

- Though variation of charge in the age of public utilities includes "nighttime discount" for leading traffics during nighttime when facilities do not work and "additional usage charge" for additional services such as call waiting, competition markets required carriers to prepare various tariff systems that meet customers' needs to win the competitions and to enclose customers. That is, carriers are to prepare "selective tariff systems" that meet customers' behavior patterns and life styles and satisfy customers' conveniences from the customers' viewpoint to compete with each other.

- Examples of selective rate system are as follows:

(1) Stationary telephone service

- a) This service makes a discount when the amount of charge for calls to specific numbers (parents, relatives, branch offices, etc.) exceeds a predetermined amount.
- b) This service allows connections to the Internet during nighttime at a fixed amount.

(2) Cellular phone

- a) Subscribers can select call charges according to their life styles. Those who frequently originate calls can select a "low call charge but high base rate" system, and those who frequently receive calls but do not originate calls so frequently can select a "low call charge but high base rate" system. (Note 1)
- b) The point service accumulates points according to the charge for originated calls, allowing the subscribers to receive a discount service from their cellular phone service providers according to the volume of points when they change their cellular phone models.

(Note 1)

This service completely breaks up the structure and concept, "fixed cost is collected by base rate, and metered cost by call charge," established by public utilities, but makes divisions for setting flexible competitive charges.