CHAPTER 15

INFORMATION AND COMMUNICATIONS

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15.1 Current Situation

15.1.1 Institutional Framework

Within the Thai Government, the Ministry of Transport and Communications prepares and implements all telecommunications policy. Telephone Organization of Thailand (TOT) provides domestic telephone service and international service to Lao PDR and Malaysia. The Communications Authority of Thailand (CAT) provides telecommunication service and postal service.

In addition, the Telecom Asia (TA) and Thai Telephone and Telecommunications Public Company Limited (TT&T) are conceded to provide PSTN service to Bangkok Metropolitan Region and provincial areas respectively.

Mobile phone service is supplied by Advanced Information System (AIS, a subsidiary of Sinawatra Co. Ltd.).

For data communication, the TOT leases a segment of network structure to several private franchisees.

15.1.2 Government Policy and Plan

The telecommunications sector in Thailand is growing rapidly. The Ministry of Transport and Communications has been implementing a dynamic privatization scheme since 1997 under the "Telecommunication Master Plan 1997-2006." The Master Plan, which covers the duration of the Eighth Five-Year Plan Period (1997-2001), aims to open all telecommunications service to all private operators and states, targeting the following milestones:

- To achieve by 2006 a quality of services (QOS) comparable to 1996's worldwide best; and
- To reasonably achieve the objective of providing telecommunications service nationwide: where all villages shall be provided with public telephones by 1999, all users at the district level will have telephone lines installed on request by 2001, and all users nationwide including villages with more than 20 households will have their requests for telephone fully met by 2006.

The time horizon towards the privatization is shown in Table 15.1.

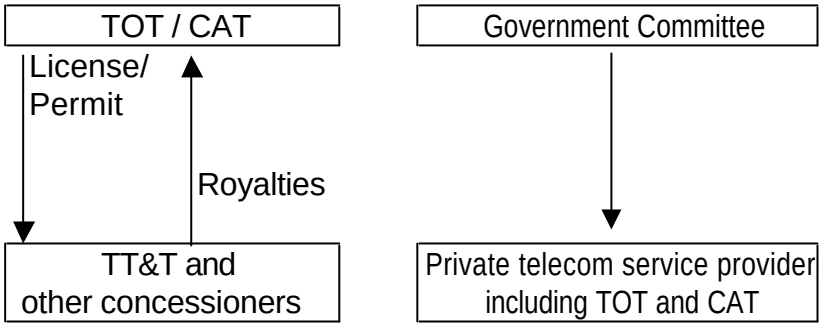
Table 15.1 Market Liberalization Schedule

Market Segment			Status Quo		Deregulation Transition Period						Full Competition	
			Year									
			1	2	3	4	5	6	7	8	9	10
			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Type I (Facilities-based Carriers)												
	PSTN	Local	M			RD			PC			
		Trunk		M			D				C	
		International		M			D				C	
	Data Communications	X.25		M			D				C	
		Leased lines		M			D				C	
	Mobile System	Analog cellular	D			C						
		Digital cellular	D			C						
		Paging	PC			C						
		PHS/PCS	M			RD			C			
Type II (Services-based carriers) including trunk and international			PC			C						
Type III (Terminal Equipment)			PC			C						

Remarks: M= Monopoly, RD=Regional Duopoly, D=Duopoly, PC=Partial Competition
C=Full Cometition

Source: TDRI (1997). "Telecommunications Master Plan 1997-2006."

The above schedule has been progressing mostly as scheduled. Based on the policy, the Thai Government decided to privatize TOT and CAT in September 2000. Under the current privatization scheme, the government will gradually sell the stocks of TOT and CAT by 2006 and 2002 respectively.



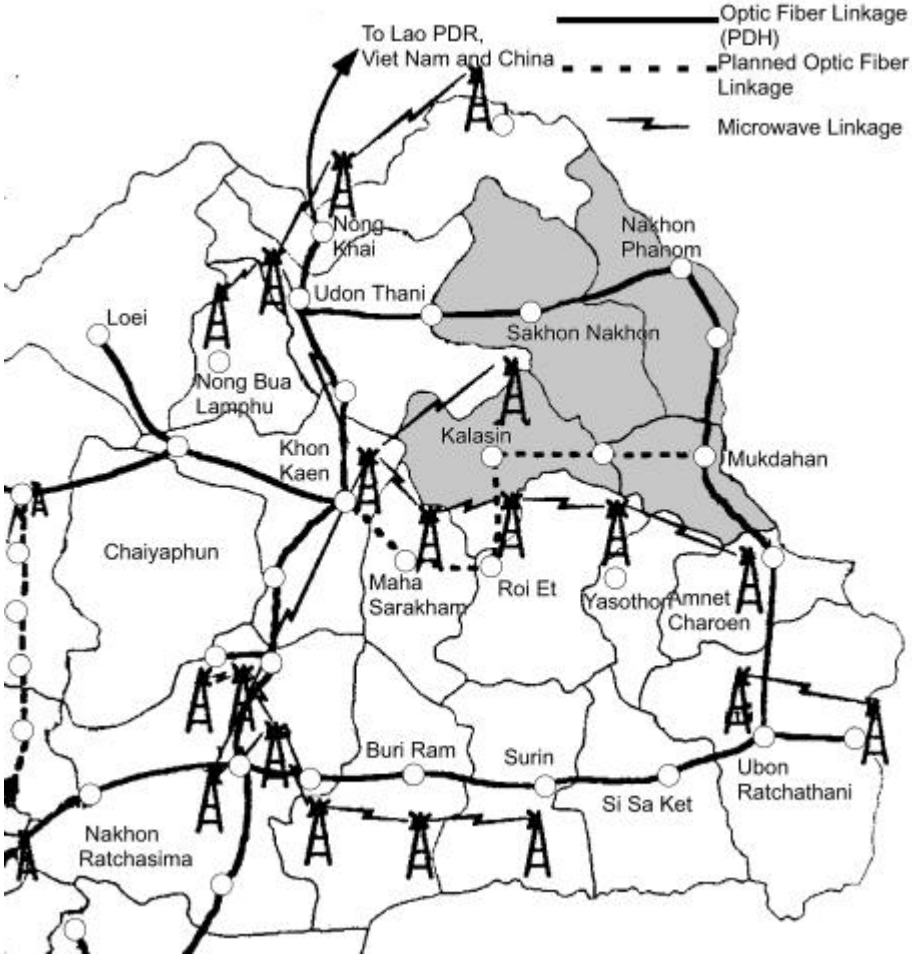
Remarks: The current situation is shown on the left; the scheme after privatization is on the right.

Figure 15.1 Privatization of TOT and CAT

The above privatization scheme has been pushed by two factors. One is the development of Information technology (IT). The increasing demand to the telecommunications sector by IT, especially the Internet, needs quick response in both quality and quantity. The other factor is the pledge by the Thai Government to the World Trade Organization (WTO) to open Thai telecommunications market to companies of 100% foreign capital by 2006.

15.1.3 National Network

The Thai telecommunication has a highly developed telecommunications network. The current national telecommunications network, composed of optic fiber, microwave transmission and satellite system, is depicted in the figure below.



Source: CAT. As of July 2000.

Figure 15.2 Telecommunications Network in the Northeast

The transmission network is basically a star network centered in Bangkok with several local loops. Almost all transmission in the Kingdom is digitized. Additional aerial optic fiber network for backup is available along the SRT routes by Com-Link under a 20-year BOT concession.

Since 1996, the TOT has been intending to introduce a new optic fiber network system by synchronous digital hierarchy (SDH). ALCATEL won the bidding in 2000. The TOT estimated the cost for SDH project, which is a state-of-the-art technology, to 4.6 billion baht.

15.1.4 PSTN System

The public switching telephone network (PSTN) is the most important function of the existing telecommunications system. The table below outlines the PSTN system in the NBR region.

Table 15.2 PSTN System in the NBR Region (1990)

Province	Line Capacity	Fixed Line			Occupancy Rate	Population	Line Density (person/line
		TOT	TT&T	Total			
Mukdahan	11,741	4,093	4,016	8,109	69%	333,035	41.1
Nakhon Phanom	17,611	9,390	3,694	13,084	74%	714,779	54.6
Sakon Nakhon	27,052	13,075	6,790	19,865	73%	1,094,615	55.1
Kalasin	19,881	10,091	4,538	14,629	74%	984,046	67.3

Source: Alpha Research (2000). “Thailand in Figures 2000-2001.”

Each provincial capital holds main switching units (MSU) and each district center has remote switching units (RSU).

Table 15.3 Telephone Charges for PSTN Subscribers

Installation Fee	3,700 baht/time	
Deposit	2,918 baht/time	Refundable
Subscriptioin Fee	100 baht/month	
Local Call	3 baht/call	Within the same province
Long Distance Call	3-18 baht/minute	Outside of the province

Source: TOT

Table 15.4 shows the telephone charges for PSTN customers. There are two other options as of the combination of the monthly charges and call charges. The PSTN subscribers through TT&T have the same tariff table.

As a value added service, the ISDN (Integrated Services Digital Network) is also available in the NBR on request.

15.1.5 Mobile Phone System

In 1990, the TOT approved a 25-year concession to Advanced Information Service Public Co., Ltd. to operate mobile phones of NMT (Nordic Mobile Telephone) and GSM (Global System for Mobile communications) 900 MHz. Currently, there are 696,625 NMT users and 282,192 GSM users in the whole Kingdom. However, there is a small number that still uses 470 MHz.

The service coverage area is quite large and most of the towns and villages are within the reach of service, as shown in the following figure.

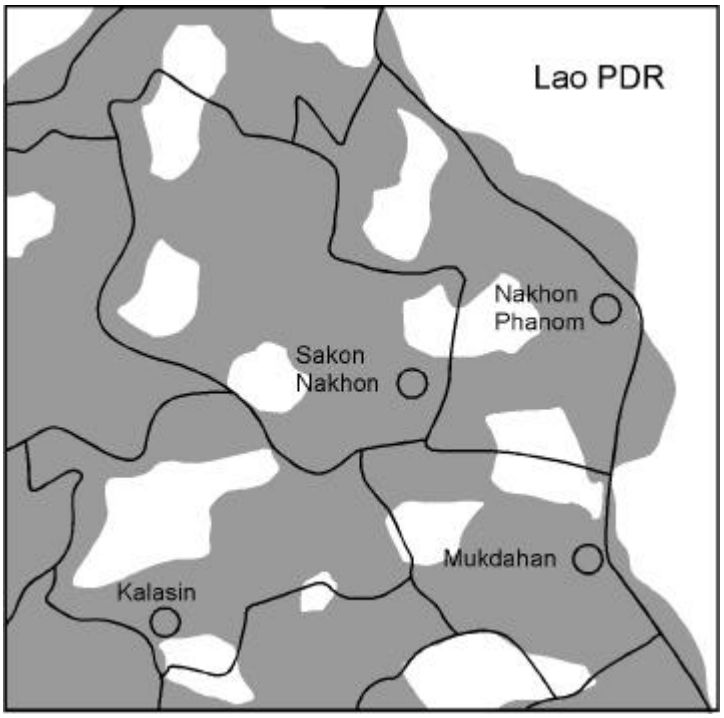


Figure 15.3 Area Coverage by GSM in NBR

Table 15.4 Mobile Stations in the NBR Region

Province	GSM 900Mhz	NMT 900Mhz	NMT 470Mhz
Mukdahan	10	130	16
Nakhon Phanom	11	162	32
Sakon Nakhon	17	248	40
Kalasin	27	22	26

Source: TOT. As of October 2000.

15.1.6 Internet and Data Communications

The connectivity to Internet depends on the development of data communications. In 1990, TOT conceded its own data communication system to Advanced Datanetwork Communications Co. Ltd. (ADC) on BOT basis. Later, the concession was converted into a joint venture between TOT and Advanced Info Service Public Co., Ltd.

Currently, ADC leases its lines to data communication users, or sells access right to the Internet Service Providers (ISP).

In the NBR, the data communication access points are available at the provincial capitals at MSU level. Outside of the MSU, leased lines or analog voice lines provide the data communication service.

15.1.7 Rural Telecommunications

The expansion of telephone service areas is also an urgent issue for TOT. The Rural Long Distance Public Telephone Project (1996-1998, Mooban Level) has increased the number of public phones in all rural areas. The government had set a target to allocate at least one pubic phone in each village. This target was already achieved. Next, the government has set its sights on two public telephones per village.

15.2 Planning Issues

15.2.1 Influence of Privatization

The current dynamic privatization has two implications to telecommunications services in NBR. One implication is that the increased supply option will upgrade the QOS in the region. The service provision by TT&T improved the situation of PSTN so dynamically that the length of waiting list has been diminished.

Another implication is concern on nationwide telecommunication services. Although the privatization improved the service in town areas, it is not certain how to provide services into the rural areas, where a telecom service provider can expect little profit. This is just one among several problems that need to be addressed with regard to rural telecommunications. In fact, after the privatization, the TOT will even be more reluctant to provide services to rural areas due to cost problems. In some aspects, the privatization may work negatively towards extending telecommunications service to the rural areas.

15.2.2 Mobile System

In the future, mobile system will be the mainstream of the telecommunications service in both voice and data. The reason is the flexible and quick service provision. In addition, the price of mobile units and exchanges are decreasing rapidly. To satisfy the diverse telecommunications needs of users, the telecommunications development strategy should shift from PSTN to mobile system.

15.2.3 Data Communication

Although the current optic fiber backbone provides comfortable data telecommunications service, the area served by optic fibers is limited around MSU only. To meet the increasing demand in data communication, the expansion of fast data communication areas, especially by optic fiber, is necessary.

15.3 Development Strategies

15.3.1 Existing Plan

The Government Policy and plan are stated above. TOT has set annual targets for the whole Kingdom as follows:

- New fixed line telephones: Around 700,000 by TOT and other concessionaires;
- New public phones: Around 50,000 by TOT and other concessionaires;
- New ISDN users: Around 8,200 subscribers; and
- New mobile GSM 900 MHz: 240,000 lines.

15.3.2 Perspective of Telecommunications Development

Even the NBR cannot escape from the worldwide trend of information technology (IT). The distinction between mobile units and computers, or data communication terminal, will be indiscernible by 2010. In addition, the current PSTN system will be so costly that it will be gradually replaced by mobile system.

Considering the trend, an emphasis on telecommunications development should be placed on the mobile system. The mobile system development will contribute to solve two major issues on current telecommunications in the NBR, namely, service area expansion and value added services.

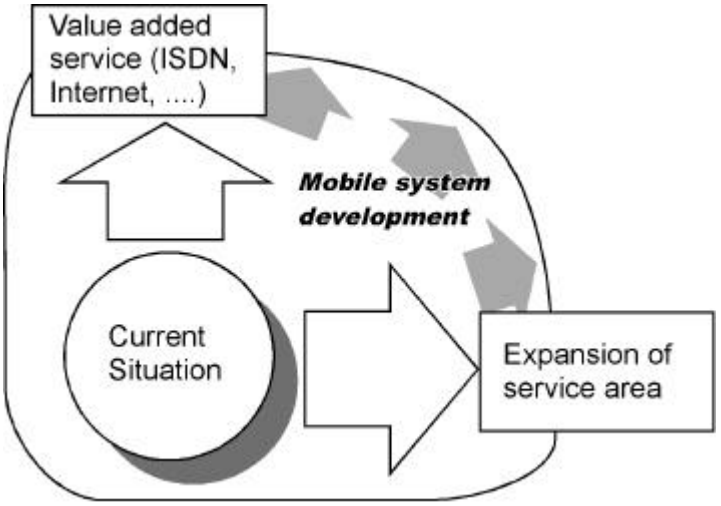


Figure 15.4 Mobile System Development for Service Area Expansion and Value Added Service

15.3.3 Development Target

The following table indicates the development target up to 2020. The target assumes the number of people per unit will be almost 10-12 in 2020.

Table 15.5 Development Target of Telephone Units

	1999	2005	2010	2015	2020
Fixed Line	55,687	62,713	69,240	76,446	84,403
Mobile	11,137*1	12,747	49,723	173,616	243,524

Remark *1: Estimate by study team

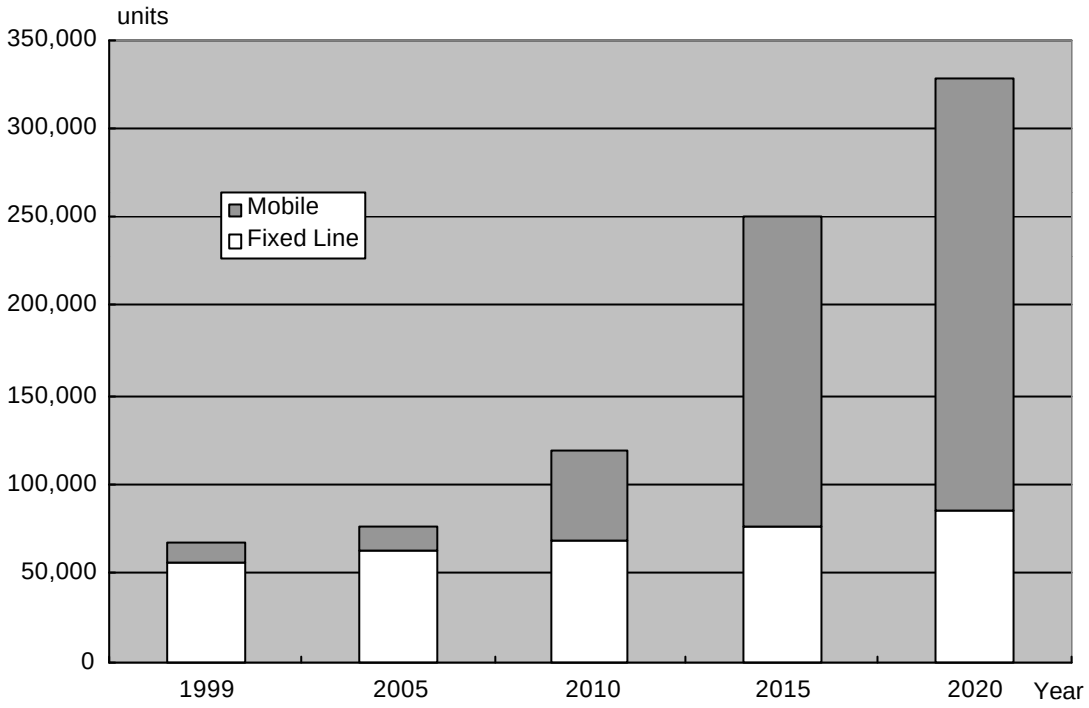


Figure 15.5 Development Target of Telephone Units

15.4 Telecommunications Development Projects

15.4.1 International Telecom Gateway Project

The project intends to establish the second gateway for international calls between Thailand and Lao PDR. The Second Mekong International Bridge and the SEZ in Savannakhet will increase the demand for international calls from and to Savannakhet. The current international gateway in Lao PDR is limited only to Vientiane and the weak national transmission line may decrease the attractiveness of the SKR region.

Currently, there is no telecommunications link between Savannakhet and Mukdahan. There are a few alternatives for this project.

Microwave connection over the Mekong

The microwave connection will be the cheapest option. Considering the various demands for telecommunication user, especially the data communication, the capacity of microwave connection may not last long.

Optic fiber connection over the Second Mekong International Bridge

This is the most feasible option. Connection to the optic fiber loop in the Northeastern Thailand at Mukdahan will provide efficient and sufficient international telephone service including the Internet.

Satellite connection

The satellite connection may not be feasible due to cost effectiveness.

15.4.2 Data Communications Development Project

This project aims to improve the attractiveness of NBR for IT (Information Technology) industries. As the current data communication system is limited to each of provincial capitals, the project intends to expand the high-speed data communication system to all district centers.

Basically, the project will extend the optic fiber network to the smaller towns. The optic fiber network can be used for voice, mobile and data communications. It will also improve the accessibility of telecommunication in the rural area by mobile phones.

15.4.3 Rural Telecommunications Project

Under the current dynamic privatization scheme, rural telecommunication does not have a promising future. The integrated approach with IT development will be required to expand the telecommunication service to the rural areas.

This Rural Telecommunications Project aims to expand the service to rural areas. The current rural telecom projects concentrate on public telephones, but the target should shift from fixed line to mobile phones including PHS (Personal Handyphone System).