Telecom Regulatory and Policy Environment in Thailand:

Results and Analysis of the 2008 Telecom Regulatory Environment Survey

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INTRODUCTION

This paper is part of the Telecom Regulatory Environment (TRE) Assessment Project conducted by LIRNE Asia, a non-profit organization specializing in information and communication technology (ICT) policy issues based in Columbo, Sri Lanka. The project involves assessment of the quality of telecom regulations in nine countries in Asia, including Thailand, based on perception surveys designed by LIRNE Asia.[1] It was carried out with the aid of a grant from the International Development Research Centre (IDRC), Ottawa, Canada.

A perception survey of informed stakeholders of Thailand's telecom sector was conducted during the period June-August 2008; they represented service providers, academics, security analysts, companies, journalists, and civil society. They were asked to evaluate the regulatory and policy environment in Thailand's mobile, fixed and broadband markets according to seven different dimensions, namely market entry, access to scarce resources, interconnection, tariff regulation, regulation of anti-competitive practices, universal service obligation (USO) and quality of service (QoS). The evaluation was done on a Lickert scale of 1 to 5, with 1 being "highly ineffective" and 5 being "highly effective." A total of 72 responses were received. Since each respondent category should contribute equally to the final score in each dimension, and since it was not possible to pre-plan the number of completed questionnaires that would be received in each category, weights were assigned to equalize the contribution from each sector's score. These weights are shown in Table 1.

The structure of this article is as follows. The first section provides an overview of the Thai telecommunications (telecom) market. The second and third sections summarize the results and conclude key findings from the survey respectively. The final section provides recommendations to the Thai government and the Thai regulatory body, the National Telecommunications Commission (NTC).

1. INTRODUCTION: THE DEVELOPMENT OF THE THAI TELECOM MARKET

Telecommunications services in Thailand were once provided exclusively by two State-owned enterprises (SOEs): the Telephone Organization of Thailand (TOT), which held a monopoly on domestic telephony, and the Communication Authority of Thailand (CAT), which had a monopoly on international gateway services. The market division between the two

Table 1 Number of Respondents

	No. of Respondents	Weighted by LIRNEasia
Category 1: stakeholders directly affected by sector regulation, i.e., operators	40	0.60
Category 2: stakeholders who analyze the sector with broader interests, i.e., analysts	15	1.60
Category 3: stakeholders with an interest in improving the sector to help the public, i.e., academics, journalists, civil society, etc.	17	1.41
Total	**72**	

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SOEs held throughout the early development of the telecommunications sector in Thailand, but in the early 1990s, it was recognized that the industry could grow further through the infusion of private capital.

Over time a unique scheme evolved to preserve the statutory monopoly of the two SOEs while accommodating the private sector. Starting in 1992, TOT and CAT awarded concessions to private companies to undertake network development and provide fixed-line, mobile, satellite, paging and other communication services, under build-transfer-operate (BTO) agreements. Under such agreements, private concessionaires invested in infrastructure and transferred legal ownership of the installed network to the state operator upon completion. In exchange, they were granted 25-30 years' exclusive operation of the network. Over 30 telecom concessions were signed and implemented in the 1990s.

The entry of the private sector into the Thai telecom landscape via BTO concessions ushered in an era of remarkable expansion in the subscriber base of both the fixed and the cellular networks, as can be seen in Figure 1. The figure reveals a striking divergence in the growth paths of fixed-line versus mobile services. This was because the fixed-line concessions specified the maximum number of lines that each private operator was allowed to install. Since no new concessions were granted during the latter half of the 1990s, the roll-out of the fixed-line network stalled when the number of installed lines reached the ceiling.

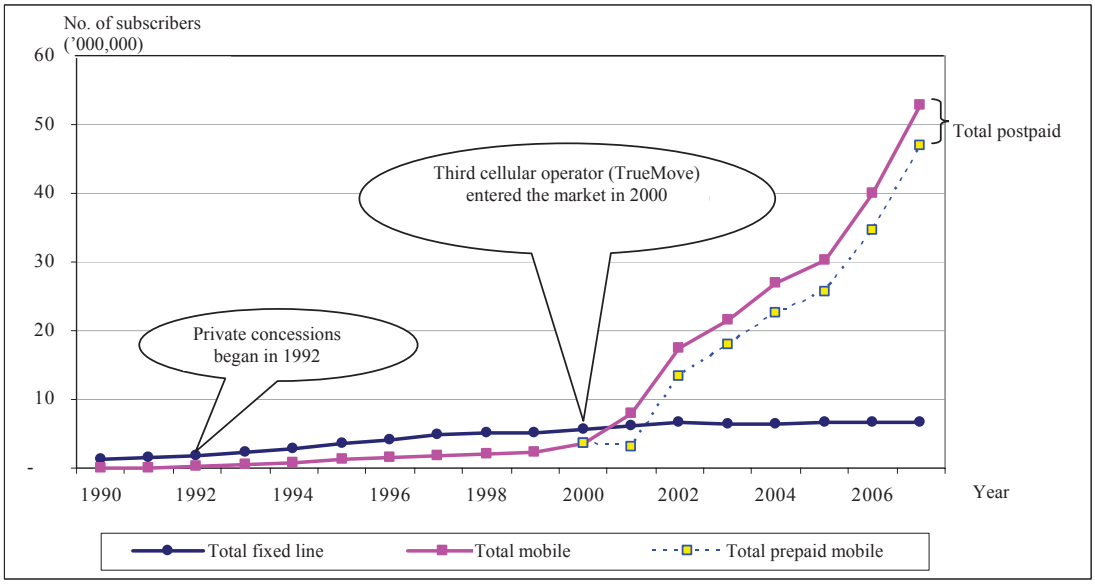
The concession era came to an end with the promulgation of the Telecommunications Act in 2001, which terminated statutory state monopolies by empowering NTC to issue new telecom licenses. The law, however, also upholds the legal legitimacy of the BTO concessions, meaning that all terms and conditions stipulated in the telecom concessions signed in the past by the state telecom operators, TOT and CAT, and the private telecom operators remain effective.

This has been a major regulatory problem as these concessions contain provisions that are inconsistent with regulatory rules established by NTC. Since BTO concessions were written up during the time when state enterprises were monopolies and assumed a certain regulatory role, they contain several clauses that overlap with the regulatory functions of NTC. For example, private operators were required to obtain permission from the state-owned operators for any price changes, network expansion or introduction of new services, and pay access charges according to the terms and conditions of the concessions. This requirement has posed a major obstacle for NTC in introducing interconnection charges and regulating prices. Much of the discontent expressed by respondents is a result of this particular problem which can be solved only at the policy rather than the regulatory level.

Private sector entry into the telecom sector has introduced competition into what was once a monopolistic market. The degree of competition in each sector varies, however, according to the number of concessions handed out and the terms and conditions of the concessions.

The fixed-line market is divided into two separate geographical markets: the greater Bangkok market and the provincial market. Both markets are duopolistic. This is because the two private concessionaires, Telecom Asia Corporation PLC (TA)[2] and TT&T PLC (TT&T), are allowed to provide services only in their respective area, while the state operator, TOT, operates nationwide and thus competes directly with its private concessionaires in both markets.

Figure 1 Telecom Market Development: 1990-2007



Sources: Companies' data (TOT, TT&T, AIS, DTAC, TrueMove).

The level of competition in the fixed-line markets, as measured by the Herfindahl-Hirschman Index (HHI) for the Bangkok market, increased (HHI declined) during the period 2003-2007, as can be seen in Figure 2. This was due to the fact that the market share of the two providers in the market – the state (TOT) and the private operator (TA) – had been converging. On the contrary, in the provinces, the state operator's market share had continued to climb at the expense of its financially strapped private concessionaire, TT&T. Indeed, the lack of competition in this duopoly has led to much lethargy in the fixed-line market. Several network licenses that allow a broad service category had been granted by NTC but no new fixed-line roll-out is anticipated. This may be due to the extremely low regulated fixed-line call tariff rates, which make any investment in the service commercially unviable. New network service providers are badly needed in the fixed-line sector.

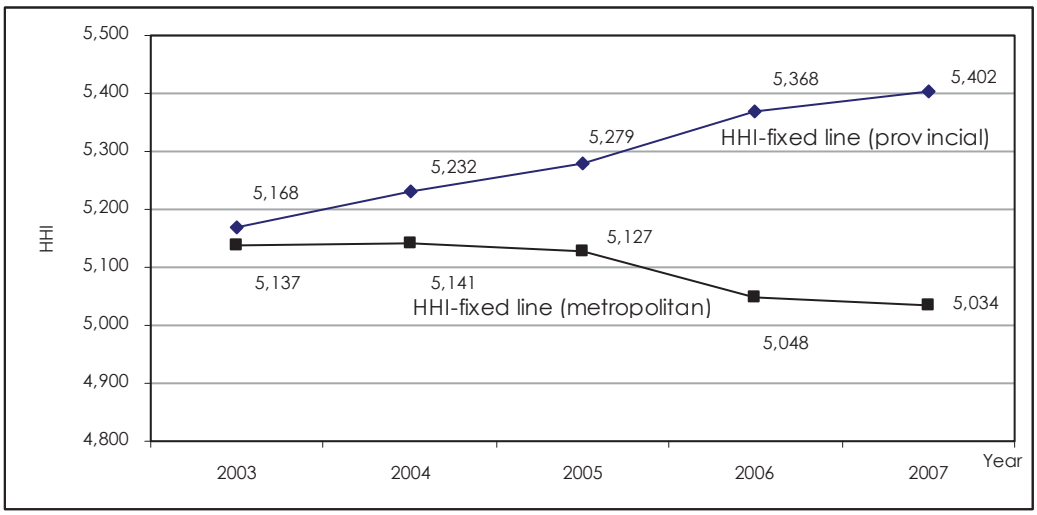
The mobile telephone market has three major service suppliers, all of which are private concessionaires. Advanced Info Service PLC (AIS), Total Access Communication PLC (TAC or DTAC), and True Corporation (TrueMove). The fourth player that is trying to establish a foothold in the market is the state-owned Thai Mobile, currently the only operator with a 3G (third generation) license. The latter had been a joint venture between the two state operators, the TOT and the CAT until mid-2008 when TOT acquired the entire equity stake because the partnership had encountered many problems.

In terms of past trends, the level of competition in the cellular market, measured by the HHI, increased markedly after 2001 following the entrance of the third major mobile operator in the market, as can be seen in Figure 3. Since then, competition between the three major private suppliers has been so fierce that each provider's market share has become more comparable as the dominance of the once formidable AIS fades away. The HHI is likely to continue to fall with the continued decline in the market share of AIS. However, in the absence of a fourth player in the market, the index cannot fall below 3333. A potential major entrant in the market is TOT's Thai Mobile, the only operator with a 3G license, as mentioned previously. However, the only state operator is still saddled with legal problems concerning the transfer of the 1900 megahertz frequency from CAT, its former joint venture partner which pulled out in mid-2008. NTC will have to decide whether to allow the requested transfer or re-open an auction for the said frequency. The whole process is likely to take several months as public hearings are required.

The broadband market has been booming owing to the new Internet licenses handed out by the regulatory body over the last two years. Nevertheless, the incumbent providers with an extensive existing fixed-line network, such as True and TOT, were able to capture the main market share, with the state-owned operator, TOT, trailing well behind. Newcomers will face right-of-way problems and will have to spend significant time and resources on network installation.

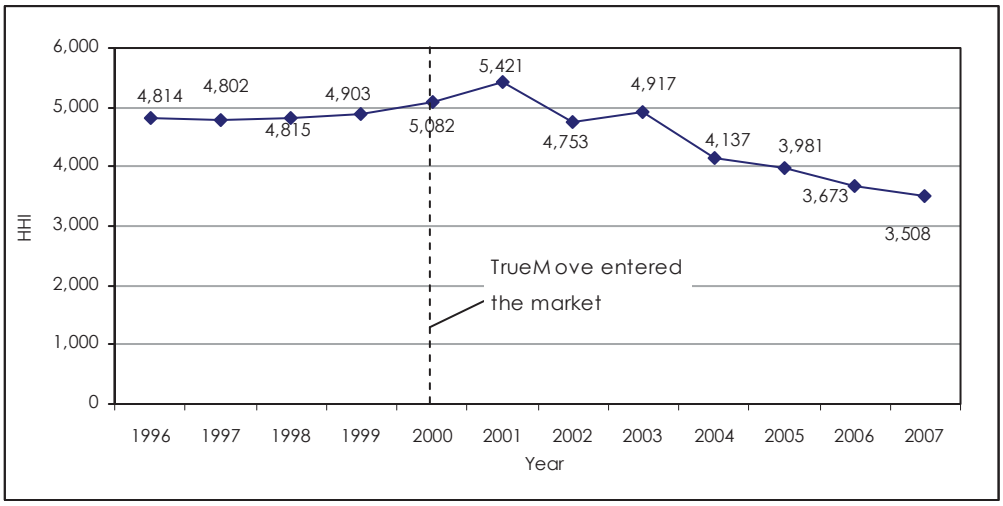
Potential competitors with extensive right-of-way in hand, such as the state electricity distributors, were able to secure licenses from NTC. However, they have been mired in legal problems as it is not clear whether the law allows them to be engaged in services unrelated to their core activity: the generation and distribution of electricity. In the absence of a new effective entrant, the private incumbent continues to capture an ever-larger share of the market from the rapid roll-out of its broadband network: hence, the higher HHI, as shown in Figure 4. Over time the index will likely begin to fall as new entrants begin to install networks.

Figure 2 Herfindahl-Hirschman Index – Fixed Line



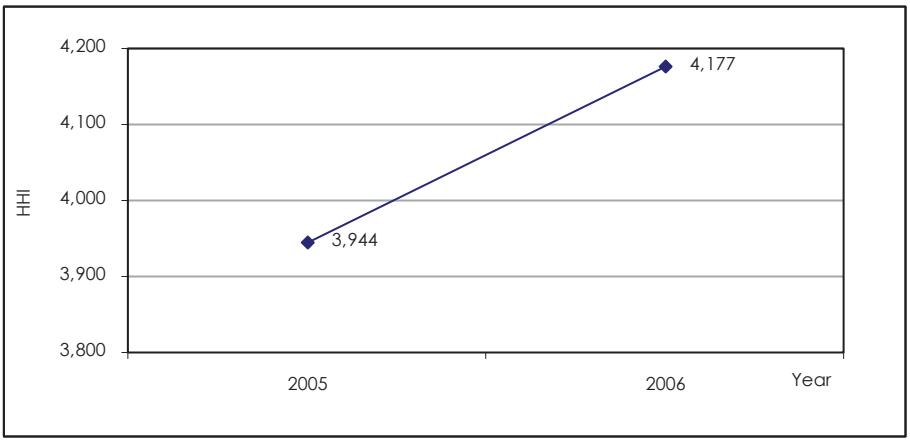
Source: Calculated by authors using data from TOT, TT&T and True Corporation.

Figure 3 Herfindahl-Hirschman Index – Mobile



Source: Calculated using data from AIS, DTAC and TrueMove.

Figure 4 Herfindahl-Hirschman Index – Internet Broadband



Source: Calculated using data from IDC Thailand.

In summary, Thailand's telecom industry has benefited greatly from private sector participation for over a decade. Competition among private sector firms has resulted in a cellular boom that has markedly improved the connectivity of the general public. In contrast, the fixed-line roll-out has been constrained by the conditions stipulated in the concessions, which limited the number of lines that private concessionaires may roll out, and by the lack of new entrants into a lethargic market. Nevertheless, given the numerous network licenses handed out by NTC over the past three years, more competition is anticipated in all markets.

2. FINDINGS/RESULTS FROM THE SURVEY

2.1 Overall Results

The average TRE score for all three telecom sectors in all seven regulatory dimensions is 2.8. The lowest score was for the mobile sector, as can be seen in Figure 5. This is because the size and the level of dynamism and competition in this particular market require sophisticated and effective regulation in many areas, such as frequency allocation and assignment, number portability and interconnection, which may be lacking in the view of the respondents. Also, no new mobile or 3G licenses have been handed out thus far owing to legal complications that will be elaborated later.

The highest score went to broadband services. This is because Internet services, unlike fixed-line and cellular services, are not subject to regulatory complications associated with the concession terms and conditions. Also, several new type-3 licenses were handed out to new operators in 2007, providing consumers with alternative broadband suppliers with their own networks.

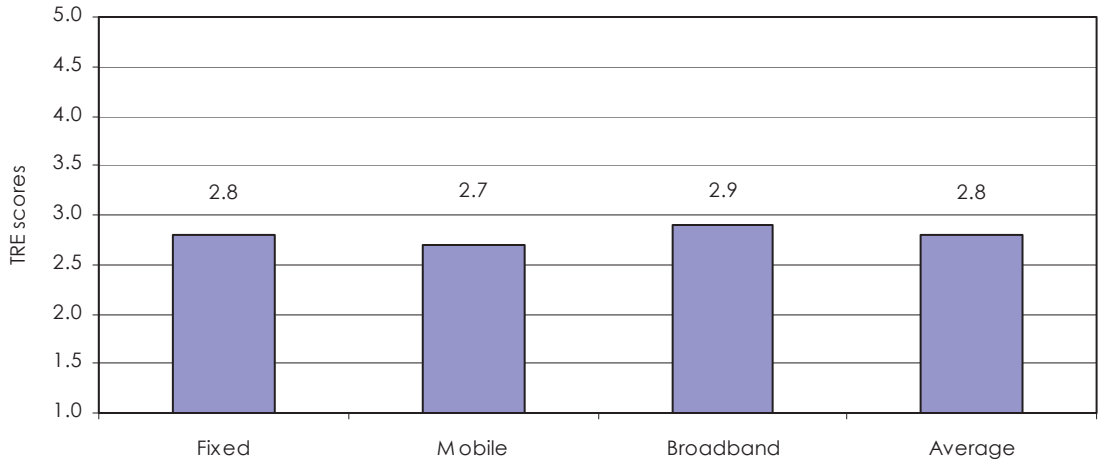
Among the different regulatory dimensions surveyed, the highest score went to market entry, as can be seen in Figure 6. This reflects the fact that many licenses were issued by NTC during the last three and a half years, as shown in Table 2. At the same time,

however, most of the licenses handed out thus far have been type-1, non-network services such as Internet services, resale services and broadband services for small operators. Type-3 network-based services have been much more limited, as can be seen in Table 2.

The lowest score went to interconnection issues because of the long-standing disputes and pending court case concerning interconnection and access charges between private telecom concessionaires and state operators. The relatively low USO score also reveals the shortcomings of the current universal service regime established by NTC.

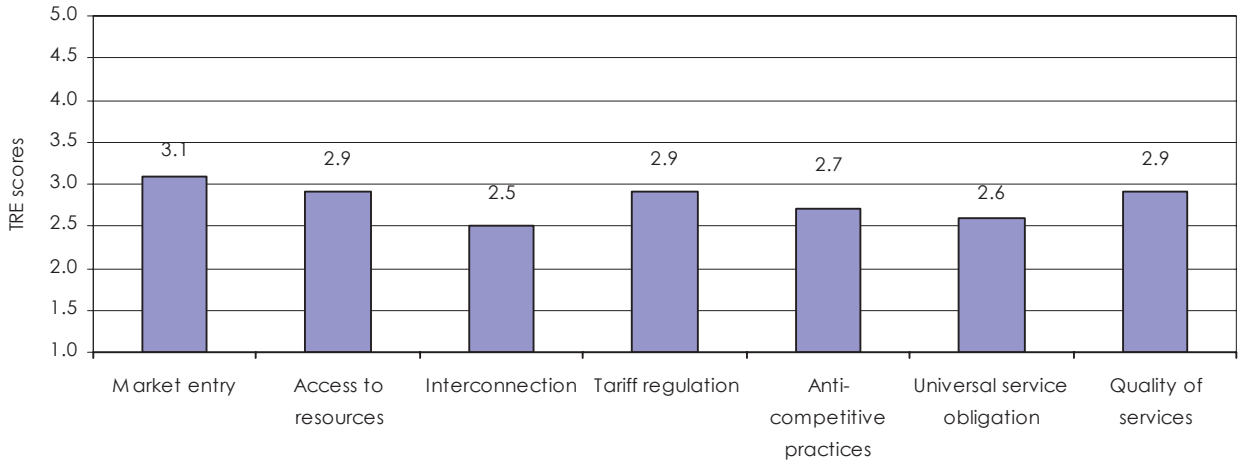
On the whole, only one dimension (market entry) received a score above the mid-point of 3.0. The low overall scores reflect the fact that NTC is seen to be "slow" and "ineffective," as is evident in the comments made by respondents summarized in Table 3 under the category "others."

Figure 5 Average Telecom Regulatory Environment Scores by Sector



Source: Scores from perception survey results.

Figure 6 Telecom Regulatory Environment Scores by Regulatory Dimension



Source: Scores from perception survey results.

Table 2 Number of Licenses Handed out by National Telecommunications Commission 2005-2008

	2005	2006	2007	2008 (as of August)	Total
Type-1 licenses (service without network)	23	26	62	32	143
Type-2 licenses (private telecom services)	1	6	13	2	22
Type-3 licenses (public network telecom services)	2	5	9	3	19

Source: National Telecommunications Commission.

Table 3 Comments Made by Respondents

	Fixed line	Mobile	Broadband
Market entry	• Licensing regime is inefficient and not up to international standards, in particular concerning the amount of time taken to deliver a decision. • There are no clear rules regarding the right of way. • Although several new fixed-line operators have been granted (licenses), few roll-outs materialized thus far.	• No new mobile licenses have been issued thus far. • Regulatory permission for Advanced Info Service PLC to launch commercial 3G (third generation) pilot project in northern Thailand is discriminatory. • Thailand lags behind others due to the delay in issuing 3G licenses. • Number portability policy should be implemented as soon as possible.	• In many areas of Bangkok, there is only one choice of asymmetric digital subscriber line (ADSL) providers. • The issuance of worldwide interoperability for microwave access (WiMAX) licenses should be accelerated in order to support the surge in the demand for Internet bandwidth in the near future. • Although several broadband licenses have been issued, small operators face unfavorable regulatory rules.
Access to scarce resources		• The delay in frequency allocation delayed network upgrade from the current 2-2.5G to high speed packet access (HSPA).	• Lack of "right-of-way" regulations hinder expansion of wired network
Inter-connection	• Fixed-line services do not comply with the cost based interconnection rules established by the National Telecommunications Commission (NTC) (because of the concession contracts).	• NTC does not intervene in the setting of the interconnection charge by larger players in the market, which could be unfair to small players. • NTC has not been able to bring in State-owned enterprises under its interconnection rule.	• NTC has not taken any action regarding legal disputes between state operators and private concessionaires regarding the use of networks under the build-transfer-operate scheme. • Interconnection rules for Internet services are unclear.
Tariffs	• No clear tariff regulation.	• Maximum prices for mobile services established by NTC in 2008 are replicas of those stipulated in the concession, which does not reflect the market environment.	
Anti-competitive practices	• No clear anti-trust regulations and no definition of a dominant player.	• No clear anti-trust regulations and no definition of a dominant player. • No competition rules for anti-competitive or discriminatory behavior of vertically integrated operators. • No definition of a dominant player. • No decision has been made on complaints on predatory pricing.	• NTC chooses not to regulate price and let price be determined by the market.
Universal service obligation (USO)	• NTC has not yet passed clear rules or guidelines regarding the operation and management of USO. • NTC should urgently promote the roll-out of fixed-line services to all regions. • NTC does not regulate the quality of USO services. • Communication Authority of Thailand and Telephone Organization of Thailand, the only two state-owned operators in the market, are assigned USO without a financial subsidy from NTC. • The USO contribution is too high.	• NTC has not yet passed clear rules or guidelines regarding the operation and management of USO.	• NTC should allow all licensed operators to participate in USO projects. Service fees may vary according to the nature of the service provided.

(Continued on page 9)

Table 3 (Continued)

	Fixed line	Mobile	Broadband
Quality of Services (QoS)	• No QoS regulation yet exists.	• No proper QoS regulation yet exists.	• NTC has not yet announced QoS for Internet services.
Others	• NTC is slow to respond to the regulatory needs of a dynamic sector.	• The establishment of the Telecommunications Consumer Association by NTC, as stipulated by the telecom act, is to be applauded. • NTC cannot respond to regulatory problems effectively and in a timely manner.	• NTC is slow in performing its tasks and has not yet produced any visible performance results.

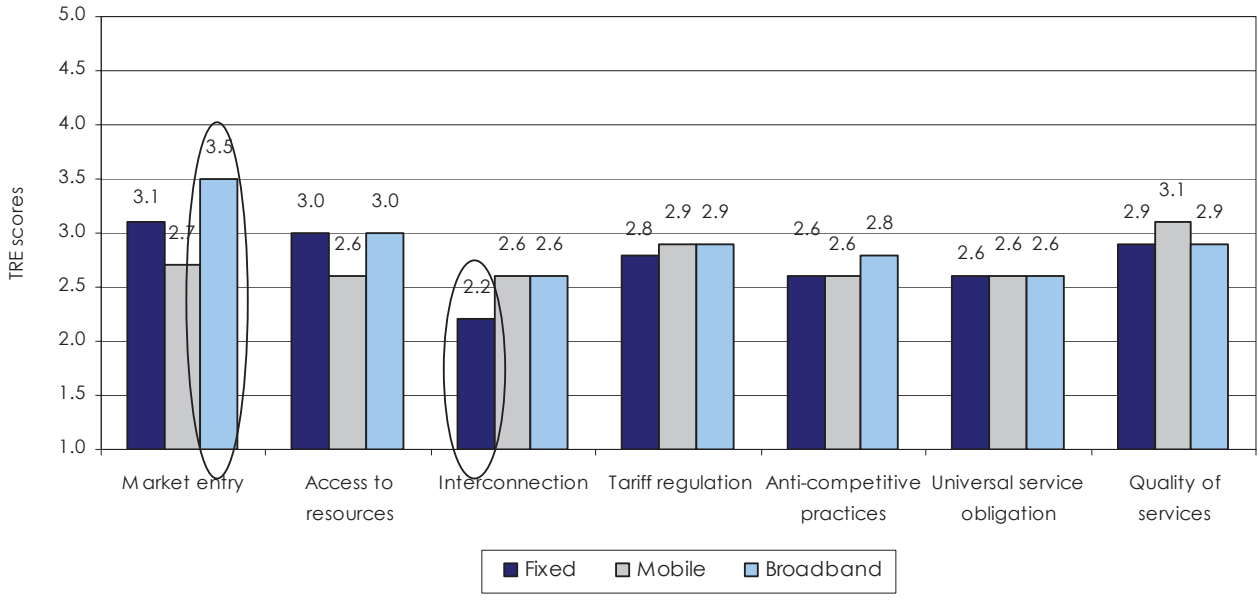
Scores do not seem to fluctuate too much across different types of services for each regulatory dimension, as shown in Figure 7. The bottom score went to the interconnection problem in fixed-line services arising from concession provisions that are inconsistent with NTC's interconnection rules, as reflected in the respondents' comments shown in Table 3. The top score went to market entry for broadband, as previously explained.

2.2 Market Entry

Market entry received the highest score among all regulatory dimensions of NTC, which reflects the regulatory body's relatively generous licensing policy. As can be seen in Figure 7, scores for market entry are highest for broadband and lowest for mobile. Although several general network licenses have been granted, no new cellular services have been possible owing to the problems NTC faces concerning frequency assignment and management, as will be discussed later. On the contrary, there is no such restriction to the roll-out of broadband services, except perhaps for the right-of-way problems.

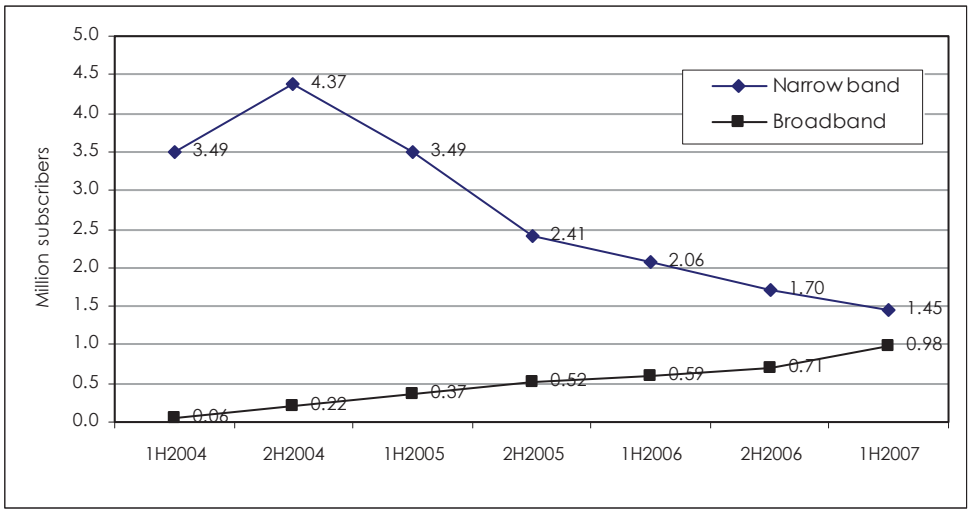
Most new broadband providers have not yet rolled out their own networks, however. This means that they have to rely on the wired network of existing fixed-line operators in combination with other wireless technology for the last mile, such as worldwide interoperability for microwave access (WiMAX). NTC has not yet handed out full WiMAX licenses. In April 2008, NTC issued 14 temporary (90-day) WiMAX licenses to test the technology. Incumbent fixed-line operators, namely True Corporation and TT&T as well as the state-owned TOT, have been putting much effort into expanding and upgrading their broadband networks to accommodate the surge in demand for broadband Internet services in place of narrowband dial-up services, as can be seen in Figure 8.

Figure 7 Telecom Regulatory Environment Scores by Sector and by Regulatory Dimension



Source: Scores calculated from results from the perception survey.

Figure 8 Number of Internet Subscribers



Note: The number of narrowband Internet subscribers was estimated based on the number of dial-up Internet cards sold, most of which were prepaid. However, the number of broadband Internet subscribers was based on the number of accounts registered for monthly fee payment.

Source: IDC Thailand.

Telephone number portability was also a concern of several respondents. NTC recently (August 2008) arranged for a public hearing of its draft regulations on number portability for mobile telephones. Although the draft regulations were delayed for two years, they were welcomed by all stakeholders when formulated. However, experts have several reservations concerning the draft regulation, as follows:

- The draft regulations do not require that the number portability fee charged be cost-based. Rather, they establish a price ceiling for fees charged at 300 baht, or approximately US$8.71.[3] The set price by no means reflects the underlying costs. Rather, it is the maximum price that subscribers are willing to pay expressed in their responses to NTC questionnaires. International best practices, such as the European Union's Universal Directive, require that service charges must be cost-based.
- The draft regulations set the maximum number of days that service providers may take to transfer a number to the new provider at three days. However, they fail to specify penalties for non-compliance.
- Since mobile service providers currently set call charges based on whether the number called is within or outside its own network, the transfer of a number from one service provider to another may lead to additional costs for unsuspecting callers. The draft regulation does not require the service provider to notify callers that the number called is now subject to higher rates.

2.3 Access to Scarce Resources

2.3.1 Frequency Allocation

According to the TRE Survey results, the allocation of frequency for cellular services seemed to be the single most serious concern regarding access to scarce resources among respondents. The delay since 2005 in auctioning the 3G license has arisen from legal uncertainties surrounding the authority of NTC to allocate frequencies. The Frequency Allocation Act 2000 mandates that NTC and the National Broadcasting Commission (NBC) jointly develop a national frequency table, manage the telecom and broadcasting spectrums and prescribe spectrum regulations. NBC was supposed to have been formed years ago, but claims of conflict of interest and political interference brought the process to a halt. As a result, NTC was not able to assign and manage frequencies in the absence of its broadcasting counterpart.

To avoid deadlock, NTC asked the Council of State, the government's legal advisory body, to determine whether in the absence of NBC it has the legal authority to allocate and manage frequencies. In 2006, the Council ruled that NTC may manage frequencies for telecom use. Following this decision NTC handed out WiMAX licenses to incumbent operators. However, because 3G licenses involve the allocation of 2.1 – 2.5 megahertz frequencies, which can be used jointly with broadcasting, NTC has been more cautious in exercising its authority and submitted additional queries to the Council of State regarding the interpretation of the Council's earlier decision. It was only in mid-2008 after it had received a positive response from the Council that NTC decided to go ahead with the planned auctioning of

the 3G licenses. In short, the 3G crisis has been a result mainly of legal problems external to the control of NTC.

The Broadcasting Act was finally promulgated in March 2008. However, the Constitution of 2007 stipulates that the allocation and assignment of frequencies are to be managed by a single agency, namely the National Telecommunications and Broadcasting Commission (NTBC), which will be established by an amendment to the Frequency Allocation Act. However, the draft act, which was approved by the Cabinet in August 2008, faced so much criticism from both the general public and the media that the Ministry of Information and Communication Technology had to remove the act from the legislative pipeline and hold new rounds of public hearings on the matter. Hence, the prospect of having a proper body that will oversee frequency allocation in the near future is rather bleak.

2.3.2 International Internet Gateway

NTC has handed the International Internet Gateway (IIG) license rather liberally to all Internet and broadband service providers. As of October 2008, 12 type-2 IIG licenses had been granted.

2.3.3 Local Loop Unbundling

The Telecommunications Business Act 2001 (TBA) stipulates that interconnection is mandatory at all "technically feasible" points, which is consistent with the Telecommunications "Reference Paper" of the World Trade Organization. That paper established standard telecom regulations for member states that are signatories to the telecommunications agreement. However, the law allows network owners to deny access or interconnection in cases of limited capacity or where technical problems exist.

To implement this particular clause, NTC requires that network licensees ensure fair and equal access to networks and facilities which supply asymmetric digital subscriber line (ADSL) Internet services:

- *Network licensees must allow other licensees to interconnect with the telecommunications network (under specified technical criteria);*
- *Access/interconnection conditions and charges must be on an equal and non-discrimination basis; and*
- *Access/interconnection conditions and charges must be disclosed.*

However, the quality and consistency of the last-mile copper wire service may be an issue. As a result, many Internet service providers (ISPs) have requested WiMAX licenses. As of October 2008, 18 trial WiMAX licenses have been issued to ISPs.[4]

2.3.4 Right of Way

TBA stipulates that licensees have the right to install poles or lay cables or wires on state and private property if the network roll-out plan is approved by NTC. However, the licensee will have to negotiate compensation for land usage with the property owner. In case agreement on appropriate compensation cannot be reached, NTC can establish a rate which it considers to be appropriate. If the land or property owner is dissatisfied with the proposed compensation rate, he/she may lodge an appeal with NTC. If the appellate decision is unsatisfactory, the property owner may file a complaint with the Administrative Court. To implement this particular provision, NTC has drafted "right-of-way regulations" that will be subject to public hearings before becoming effective.

While the right of way of telecom licensees, i.e., the right to hang wires or fiber optic cables over utility poles or ducts, and the right to install public telephone booths, may not be an issue of disputes, the rate of compensation will likely be the subject of intense negotiation. As in the case of interconnection, NTC will need to establish clear rules and principles in determining "fair" compensation rates that will be acceptable to both parties. Until the draft NTC rules governing right of way are passed, disputes about compensation for right of way would seem to be inevitable.[5]

2.4 Interconnection

Among all the regulatory dimensions surveyed, interconnection received the lowest score, 2.5. Concerns expressed by the respondents included the inability of NTC to enforce its interconnection rules on state operators that are protected by the terms and conditions of the concessions that grant them regulatory rights, unclear interconnection rules and the failure of NTC to intervene in the setting of interconnection charges by large private mobile players in the market. As interconnection problems in Thailand are rather complicated, because the several laws and regulations that are involved are inconsistent with each other, it is perhaps best to lay out the background of the problem.

TBA mandates that interconnection is mandatory for all license holders and that interconnection charges are to be negotiated privately. Interconnection terms and rates are supposed to be non-discriminatory. No method for calculating interconnection fees is prescribed, but the law requires that the interconnection rates be reasonable and fair to all the licensees concerned.

TBA sets procedures for resolving disputes on interconnection agreements and requires NTC to issue a decision within 30 days. The law does not require the disputing parties to make an effort to reach a resolution before appealing to NTC; consequently, private carriers may seek the intervention of NTC at any time during the interconnection negotiations.

While interconnection rules set out in TBA are clear, all telecom concessions are exempted from such rules.[6] This is because all the networks installed under concessions are legally owned by the two state enterprises, TOT and CAT; private operators are mere subcontractors. Hence, all interconnection charges must be negotiated and paid only by the two legal license holders. The concession mandates that private cellular concessionaires of CAT (the gateway operator without a domestic network), namely DTAC and TrueMove, pay TOT (the domestic fixed-line operator with a network) a hefty fee of 200 baht per month as a flat rate per post-paid subscriber and 18 percent of the revenue for pre-paid users, while its own concessionaire, AIS, does not have to pay such a fee.

The lack of an access or interconnection charge among cellular providers proved chaotic as mobile operators engaged in a price war in the quest to expand their own market share. This overburdened the network's capacity, leading to a sharp deterioration in the quality of calls. In struggling to compete in cost, the two mobile operators stopped paying interconnection charges to TOT in November 2006, referring to the NTC rule on interconnection. The three operators successfully agreed on bilateral interconnection charges among themselves in early 2007. Subsequently, TOT filed a civil suit against them to demand outstanding access fees of 10 billion baht, or about US$290 million, from DTAC, and 4 billion baht, or US$116 million, from TrueMove. At the same time, TOT submitted a petition to the Administrative Court requesting withdrawal of NTC's interconnection regulation which allows the substitution of interconnection charges for access charges stipulated under the concession agreement.

To sum up, the interconnection chaos has very much to do with conflicting rules and regulations that are well outside the scope of NTC's authority. However, concerns about NTC's lack of supervision of privately established interconnection fee calls may reflect the authority's failure to enforce its cost-based interconnection rules.

2.5 Tariffs

Tariff regulation received average scores compared with other regulatory dimensions, as can be seen in Figure 6. Respondents complained about the lack of clear tariff regulation and the arbitrary tariff ceilings established by NTC.

So far, NTC has taken a hands-off approach in tariff regulation and has allowed prices to be determined by competition in the market. Although it recently established ceiling prices for several services, most are non-binding, with the exception of local fixed-line services as will be elaborated in greater detail below.

In September 2006, NTC announced a tariff rule that required operators to submit tariff schedules and their cost structure in order to assist NTC in setting maximum prices for all services. In May 2008, NTC announced price ceilings for all major voice services, including fixed-line local and long distance, cellular (pre-paid and post-paid), and public telephone services. The maximum rates established were by no means rates that reflect the underlying cost and rate of return of the investors, as specified in the tariffs regulation. They are merely rates currently charged by incumbent operators. For cellular, the tariff ceiling was not made binding, as it accommodates all rates currently set by various providers.

The maximum rate for fixed line, however, was set at 3 baht per call (less than 10 US cents), a rate which was approved by the Cabinet some 20 years ago. It is therefore not surprising that fixed-line tariff regulation received the lowest score, as shown in Figure 7.

The regulation of tariffs based purely on private operators' submission of tariff information and benchmarking them against those in foreign countries clearly reflects the limited capability of NTC to examine the detailed cost structure of telecom operators. While the non-binding maximum bodes well for the dynamic and competitive cellular market that requires no regulation, the same cannot be assumed for fixed-line services. By setting arbitrary prices without any regard to costs, NTC had set the stage for serious under-investment in the roll-out of fixed-line services that are much needed after many years of restrictive investment conditions under the concession schemes.

To conclude, NTC displays clear inability to set telecom tariffs due to a lack of data and information, and it has set fixed-line service fees well below cost. Fortunately, it has at least kept its hands-off tariff regulation in the mobile sector as the ceiling rates set were non-binding and hence pose no threat of market distortion.

2.6 Anti-competitive Practices

Results from the survey indicate that NTC has failed to establish proper rules to address anti-competitive practices in the telecom sector, in particular for fixed-line and cellular services. Most complaints concern the following issues:

(1) The absence of a definition of a "dominant provider;"

(2) The absence of rules addressing vertical restrictions, such as discriminatory practices or refusal to deal;

(3) Unclear rules in general.

Two pieces of legislation provide safeguards for competition in the Thai telecommunications market: the Trade Competition Act of 1999 and TBA. TBA requires that telecom businesses be subject to all provisions under the general competition law.

The Trade Competition Act contains provisions against the following five types of anti-competitive behavior:

- *Abuse of market dominance:* A business entity that has market power is prohibited from fixing prices, setting conditions that limit the provision of goods or services, and interfering with business operations of other parties without reasonable grounds.
- *Merger and acquisition:* A business entity is prohibited from merging with other operators in a way that could reduce competition, unless permitted by the Trade Competition Commission.
- *Collusion:* A business entity is prohibited from colluding with other business operators to conduct any act of monopolizing, reducing or limiting competition in the market.
- *Cross-border provision:* A business entity having a business relationship with a business operator outside the country is prohibited from performing any activity that would restrict the freedom of a person in the country with regard to purchasing goods and services.
- *Unfair competition:* A business entity is prohibited from carrying out any act that ruins market competition and has the effect of destroying, impairing, or restricting the business operations of other businesses. The use of information obtained from competitors with anti-competitive results can also be considered an unfair practice.

Although the Act does address all dimensions of restrictive practices, it still lacks guidelines for the implementation of the above prohibitions. For example, the law prohibits charging "unfair prices," but there is no concrete description of what price level would be considered "unfair." Similarly, the law requires pre-merger notification, but the threshold market share that would trigger the notification has not yet been determined. As a result, all mergers, including those in the telecom sector, are currently unregulated or supervised. In the absence of clear rules, the current competition regime is highly arbitrary and unpredictable, a situation that fuels the discontent of those governed by it.

TBA mandates that the telecom sector be subject to the Trade Competition Act. It also empowers NTC to undertake specific measures that prevent a licensee from carrying out acts that have the effect of restricting market competition. This law may provide adequate competitive safeguards for the telecommunications sector.

In September 2006, NTC announced its Rules on Monopolistic or Unfair Trade Practices in the Telecommunications Market, which stipulate that all license holders as well as concessionaires are subject to the Trade Competition Act 1999, the national competition law. They also contain provisions that restrict cross-equity holding in telecom businesses, prohibit cross-subsidies except for USO, and specify several trade practices that are deemed anti-competitive.

Contrary to the complaints found among the questionnaire responses (shown in the section on Anti-competitive Practices in Table 3: Comments Made by Respondents), NTC's competition regulation *does specify* the definition of dominant service providers, i.e., those with a market share greater than 25 percent, *or* those that NTC declares to be dominant. Perhaps it is the latter part with which operators are not too comfortable, as it appears to be overly subjective in the absence of any guidelines.

Also, in contradiction of the concerns expressed by some respondents, NTC's competition rules do address practices that are considered to be vertical restrictions. The language used is very imprecise, however, which effectively allows NTC to exercise broad discretion. For example, it is unclear to what the terms "unfair price discrimination," "unfair prices," "predatory pricing," and "unfair conditions in dealing with other operators" refer. In the absence of implementing guidelines that clearly specify what "fair" or "predatory" means, service providers cannot assess whether, say, a price cut would be deemed unfair or anti-competitive rather than competitive. Perhaps it is the subjective interpretation and unpredictability of the rule rather than its absence that bothered most respondents about NTC's competition rules.

2.7 Universal Service Obligation

Survey results indicate that USO regulation received the second lowest score, 2.6, following that of interconnection regulations. The major complaints expressed (as shown in Table 3) concerned unclear rules and selective implementation through incumbent state operators only. It is interesting to note that, while state operators complained about having to implement USO without a financial subsidy from NTC, other operators complained about having to pay a hefty contribution fee when they prefer to deliver the services themselves. Perhaps discontent on both sides results owing to the lack of transparency in the implementation of the USO scheme.

Traditionally, TOT, the state monopoly in fixed-line services, was the sole provider of USO, with financing coming from relatively expensive long-distance calls and the hefty access charges imposed on overseas calls operated by its counterpart providing overseas voice services, CAT. This cross-subsidy arrangement has fallen apart as the international and long-distance markets have been liberalized. TOT then turned to the massive financial surpluses generated from revenue-sharing schemes under private concession contracts. However, this financial source also started drying up as private concessionaires began refusing to pay the fees or charges stipulated in the terms and conditions of the concessions that they deemed "unfair," such as the hefty and discriminatory access charges discussed previously.

Starting in 2001 TBA provided a new framework for universal service provision by setting up the

Universal Service Fund, which can be dispensed for USO. It also empowers NTC to require a licensee to provide universal service, but specifies that the obligation must not cause an inappropriate investment burden on the licensee; that aspect should be the same for all operators providing the same services. NTC has the authority to decide how the Fund will be used to provide universal services. The Act is ambiguous with regard to the mechanics for the disbursement of the Fund; this might be a source of contention in the future.

In August 2005, NTC announced its USO Rule, which specifies a number of points as outlined below.

(1) The scope of USOs that must be carried out by license holders includes the following.

(a) The installation of at least 3 public telephones per village, not exceeding 6,000 villages, within 30 months of having obtained the operating license in areas and within the time limit specified by NTC;

(b) The installment of at least 2 fixed-line or public telephones in educational institutions, hospitals and other social service organizations, but not more than 4,000 sites, within 30 months of having obtained the operating license in areas and within the time limit specified by NTC;

(c) The provision of free telephone cards for not more than 1 million handicapped and elderly persons registered with the Ministry of Social Development and Human Security per month for 30 consecutive months.

(2) All type-3 license holders and type-2 license holders with their own network are required to contribute to USO by providing services as specified above, or contribute the 4 percent of their revenue. So far TOT and CAT are the only license holders that have chosen to provide USO with those services instead of paying the 4 percent contribution. They do so by installing facilities in remote areas or in public places such as educational institutions, schools and hospitals. Other operators, most of which are not in a position to provide the required social service obligations that often involve the installation of fixed-line or Internet services networks, have had to make financial contributions set at 4 percent of revenue. The figure has resulted in widespread criticism from operators as it is rather high compared with fees of 1-2 percent set in most other countries.

To sum up, the relatively low USO score is a result of the unclear and opaque rules and regulations of NTC that leave all operators as well as academics and other stakeholders dissatisfied with the regime.

2.8 Quality of Services Regulation

It is rather surprising that QoS ranked second highest after market entry given that QoS regulation by NTC is basically non-existent today. Mobile service received the highest score, 3.1, while broadband received the lowest score, 2.9. Perhaps competition in the cellular market has prompted service providers to maintain service quality in order to gain or secure their market share. Lower quality for broadband reflects the lack of competition in the service as the market is currently dominated by a single provider, True, with a much smaller market share being held by TOT. NTC has handed out several broadband licenses to new entrants; however, the installation of a network is time-consuming. Competition in the market is likely to intensify in the near future; hence, consumers can expect service quality to be improved eventually.

Prior to TBA, responsibility for quality regulation rested with the state-owned operators providing the service. Hence, the rates of dropped calls and unsuccessful calls were monitored by TOT. However, TOT has ceased to monitor the QoS of private operators altogether. Unfortunately, NTC has failed to regulate QoS as it has not yet set up a proper system to collect information and monitor service quality. As a result, broadband users of certain private operators have had to put up with Internet speeds well below the advertised capacity for which they paid because of the providers' aggressive promotional campaigns aimed at expanding their customer base (hence, the low broadband score). Likewise, in the past, cellular phone subscribers have had to put up with dropped calls and unsuccessful calls during peak periods because of the providers' overloading of the network as there is no monitoring of the subscriber-to-bandwidth ratio.

To sum up, the QoS score reflects market forces rather than the regulatory oversight of NTC. The Thai case goes to show that market forces can substitute for regulatory failure.

3. CONCLUSION

Results of the TRE Survey in Thailand paint a mixed picture of the country's first truly independent regulatory body, NTC, in all regulatory dimensions. The poor performance of NTC is attributed to three major factors:

(1) Unfavorable regulatory environment associated with the legacy of telecom concessions;

(2) Political interference in the setting up of proper institutions that facilitate an effective regulatory regime;

(3) NTC's capacity constraints in handling complex but important issues such as pricing which requires detailed examination of cost data.

The TRE performance assessment has revealed NTC's inability to deal with more complicated regulatory issues, such as competition regulation, tariff regulation, quality of service monitoring, and USO. In all of these areas, NTC has merely announced rules that provide broad guidelines but lack detailed implementation

regulations. It has therefore failed to establish a transparent, effective and predictable regulatory regime.

Handing out licensing appears to be the only regulatory dimension that NTC was able to perform relatively well, but even then there has been much criticism about the vagueness and arbitrariness of assigning different types of licenses.

One major lesson learned in the Thai case is that, while independence is often emphasized as one of the most important characteristics of a regulatory body, it by no means guarantees regulatory success.

4. RECOMMENDATIONS

Although NTC has contributed significantly to a more competitive telecom market, with its relatively liberal licensing policy, the unclear and in some cases complete lack of required regulatory rules pose a major problem for telecom operators. The absence of proper quality regulation has left consumers at the mercy of service providers. The lack of right-of-way regulations leaves broadband operators at the mercy of utility service providers, and, without competition rules, smaller or new players are at the mercy of larger or incumbent competitors.

Nevertheless, the Thai experience shows that competition can go a long way in protecting consumers despite the absence of proper regulatory oversight. High TRE scores for market entry, tariff regulation and QoS can be linked to the level of competition in the market. On the other hand, in areas where regulatory rules are required as market forces fail to function, such as interconnection, USO and anti-competitive practices, the TRE scores are lower, reflecting how urgent is the need to improve the relevant rules and regulations.

It should be noted, however, that the low TRE scores in certain categories, in particular interconnection and access to resources (frequency allocation), reflect to a large extent constraints that are external to the regulatory body. Concession contracts written up over a decade ago during the era of state monopoly operators contain many clauses, such as those on access charges, that are inconsistent with modern regulatory rules. As these concessions are upheld by the Constitution, there is not much that NTC can do. Similarly, the considerable delay in the planned promulgation of the Broadcasting Act that will establish NBC has left frequency allocation and assignment in suspension, as the law requires that the task is to be carried out jointly between the two commissions.

Going forward, in order to improve the current regulatory environment, it is recommended that the Thai government and NTC take the following key measures or steps:

Thai Government

1. Devise a concession conversion scheme that will eliminate clauses that are inconsistent with NTC rules, in particular those concerning arbitrary access charges that are levied on certain mobile operators, price regulations by TOT and revenue-sharing schemes between state enterprises and private concessionaires. There has been no major progress in this area thus far since the last failed attempt in 1999. Any conversion scheme would have to be perceived as transparent and fair, not only by the private concessionaires and the SOEs, but also by the general public. Past attempts at converting these concessions have allegedly become subject to money politics and vested interests.

2. Urgently pass the draft amendment of the Frequency Allocation Act in order to establish NTBC so that frequency allocation and assignment can be undertaken properly.

NTC

1. Provide clear definitions of types 1, 2 and 3 licenses in order to promote transparency in the granting of licenses.

2. Urgently build up a cost database for key services that will enable effective cost-based price regulation, in particular for interconnection charges and fixed-line services.

3. Urgently build up the industry's database so that it will contain detailed data about service providers, their revenues, capacity, output, prices, and QoS.

4. Urgently formulate rules for "right-of-way," competition, and number portability.

5. Establish a clear and transparent accounting system for the management of the Universal Service Fund.

ENDNOTES

[1] The TRE Assessment Manual may be viewed at http://www.lirneasia.net/wp-content/uploads/2008/04/lirneasia_tremanual_v21.pdf

[2] The TA company name was later changed to "True Corporation."

[3] The reference exchange rate of the Bank of Thailand in October 2008 was US$1.00 = 34.43 baht.

[4] www.ntc.or.th

[5] Recently, there was a dispute between private fixed-line service providers and the Bangkok Metropolitan Administration (BMA) about the location of telephone booths and whether the operator needed to pay BMA for the use of such sites.

[6] The 1997 and 2007 Constitutions protect the legal enforcement of all provisions stipulated in all telecom concessions.